E.M. Kolomeitseva, M.N. Makeyeva,
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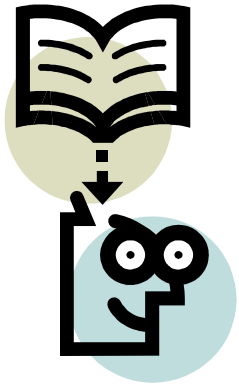
FOOD FOR THOUGHT



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УДК 802.0(076)
ББК Ш13(Ан)я923
К612

Р е ц е н з е н т ы:

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К612 Food for thought : учебное пособие / Е.М. Коломейцева, М.Н. Макеева, Т.П. Пекшева. – Тамбов : Изд-во Тамб. гос. техн. ун-та, 2010. – 168 с. – 100 экз. – ISBN 978-5-8265-0891-6.

Пособие включает статьи и тексты по вопросам производства различных видов продуктов питания, их качественных характеристик и пользы для здоровья людей. Деловые ситуации и задания помогут студентам понять и выполнять различные функции в компании и совершенствовать свои навыки в общении по вопросам пищевого производства. Все задания сопровождаются языковыми упражнениями, закрепляющими понимание проблем и словаря делового английского языка в сфере производства продуктов питания.

Предназначено для студентов, изучающих проблемы пищевой промышленности.

УДК 802.0(076)
ББК Ш13(Ан)я923

ISBN 978-5-8265-0891-6

Министерство образования и науки Российской Федерации

ГОУ ВПО "Тамбовский государственный технический университет"

Е.М. КОЛОМЕЙЦЕВА, М.Н. МАКЕЕВА, Т.П. ПЕКШЕВА

ПИЩА ДЛЯ УМА

Утверждено Ученым советом университета
в качестве учебного пособия

Тамбов
Издательство ТГТУ
2010

Учебное издание

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ПИЩА ДЛЯ УМА

Учебное пособие

Редактор Е.С. М о р д а с о в а
Инженер по компьютерному макетированию М.Н. Р ы ж к о в а

Подписано в печать 21.01.2010.
Формат 60 × 84/16. 9,76 уч.-изд. л. Тираж 100 экз. Заказ № 30

Издательско-полиграфический центр
Тамбовского государственного технического университета
392000, Тамбов, Советская, 106, к. 14

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A GUIDE TO USING THE TEXTBOOK

The book is designed to help intermediate and upper-intermediate learners of business English improve their business vocabulary and knowledge. It is for people studying English before they start work and for those already working who need English in their job.

Apart from improving your business vocabulary, the book also helps you to develop the language needed for important food production business.

You can use the book on your own for self-study, or with a teacher in the classroom, one-to-one or in groups.

The main task of this book is to enlarge specific problems of food production. The materials will allow the students to extend their linking of theory and practice further by analyzing the strategic issues of specific food manufacture.

The studies are intended to serve as the basis for class discussion. They are not intended to be a comprehensive collection of teaching material. The materials have been chosen (or specially written) to provide readers with a core of cases which together cover most of the main issues. As such they should provide a useful backbone to a programme of study but can sensibly be supplemented by other material.

The material in question can never fully capture the richness and complexity of real-life food production situations and we would encourage readers and tutors additionally to take every possible opportunity to explore the live strategic issues of food processing organizations.

We expect readers to seek their own lessons from units and tutors to use cases in whichever way best fits the purposes of their programme.

It is essential that students are required to undertake additional reading from other sources and that their 'practical' work is supplemented by other material as mentioned above.

Teachers can choose units that relate to students' particular needs and interests, for example areas they have covered in course books, or that have come up in other activities. Alternatively, lessons can contain a regular vocabulary slot, where students look systematically at the vocabulary of particular thematic or skills areas.

Students can work on the units in pairs, with the teacher going round the class assisting and advising. Teachers should get students to think about the logical process of the exercises, pointing out why one answer is possible and others are not.

We hope you enjoy using this book.

Unit One

GLOBALIZATION AND THE BRITISH NUTRITION FOUNDATION

Task One. Read, translate and discuss the following information.

Integrated global economy

If it has its historical forerunners, it is only in the last 60 years that the concept of a truly integrated world economy has achieved full realization.

It has been made possible, firstly, by the creation of specific international institutions to manage and regulate economic relations between nations.

The Bank for International Settlements, The General Agreement on Tariffs and Trade (forerunner of The World Trade Organization), The World Bank, The International Monetary Fund, were all established in the wake of World War II to help restore economic stability after the turmoil of conflict, and all have been fundamental in driving and shaping modern global capitalism.

Equally if not more important have been the dramatic advances in communications technology, the latter facilitating the exchange of information and currency at a speed, and with an ease, that would have been unthinkable a hundred years ago – the "decoupling of space and time" as sociologist Anthony Giddens once described it.

Finally, the harnessing of groups of countries into geographical free trade areas – The European Union (EU), The North American Free Trade Association (NAFTA), The Asia-Pacific Economic Co-Operation (APEC), the Common Market For Eastern and Southern Africa (COMESA) – has served to dissolve trade barriers, open markets and knit disparate economies ever tighter together.

The result has been a degree of global economic interaction unprecedented in human history.

This post-war global order has brought, for many, substantial benefits.

For the countries of the industrial north, who first established, and continue to control the institutional machinery of globalization, it has fuelled a protracted period of steady economic growth – at an average rate of 2–3 percent per annum – and an attendant increase in the prosperity of a majority of their citizens.

Several developing nations, too, are reaping the rewards of increased global integration, especially those in East and South Asia, where the economies of countries such as China, Thailand, Malaysia and Indonesia are now expanding faster than those of most developed nations – at an average of 7 percent per annum, according to the World Bank – and wages and living conditions are gradually inching upwards.

Perhaps the greatest beneficiaries have been the large, trans-national corporations, who have seen profits rocket in this era of global markets – according to Bloomberg the average annual pay for the CEO of a major US company is now $12 million – and, also, the highly educated, highly skilled workers in developing countries such as India and China who have enjoyed massive wage increases as economic liberalization has created an ever-greater demand for their services.

Exercise One. Read the article below and define whether the statements are true or false.

1. Special financial organizations paved the way to globalization.
2. The same share of the world's wealth is going to every citizen.
3. The number of the least developed countries has not changed over a few decades.
4. Globalization has resulted in great differences between countries.
5. The rich population has seen incomes rise three-fold.

While there have been winners, however, there have also been some very obvious losers.

At a time when some countries are forging ahead economically, others, especially the developing nations of sub-Saharan Africa, are falling further and further behind, their economies either stagnating or contracting, their citizens sinking ever deeper into the mire of poverty.

According to the United Nations Development Programme (UNDP), the already meagre share of the world's wealth going to its poorest citizens has over the last 40 years fallen still further, from 2.3 percent in 1960 to 1.4 percent today (for the same period the share going to its richest citizens has risen from 70.2 percent to 89 percent).

There are currently 49 counties classified by the U.N. as "least developed" – double the number of 30 years ago. Such is the extent of the economic divide that the total GDP of those 49 poorest nations is now less than the combined wealth of the world's four richest citizens – Bill Gates, Warren Buffett and the Albrecht brothers, Karl and Theo.

"Unfortunately globalization has led to widening disparities of income among countries," says Terry McKinley of the UNDP. "Some developing countries have been able to take advantage of it, a majority haven't."

David Robinson of the International Monetary Fund agrees. "There has been tremendous divergence in the way in which global economic growth has been shared among nations. If you look at the numbers, during the 20th century the richest quarter of the world's population has seen incomes rise six-fold, whereas the poorest quarter has only seen incomes rise three-fold. That has left a large gap between those at the top and those at the bottom."

Task Two. Read and discuss some information presented by the British Nutrition Foundation 2008.

Food Matters: Towards a Strategy for the 21st Century. The Strategy Unit July 2008.

Summary

This report sets out a new framework proposed by the Government for food policy to ensure that it is equipped to play a part in the continuing transformation of the UK's food system.

The report concludes that although the framework attempts to ensure the Government is equipped to play its part in the changing food system, it is the decisions of consumers and industry, and the values and preferences of society at large that will determine how fast and how far the process moves. The proposed food policy framework will try to ensure a collective effort is made to build a thriving food system that produces safe, low–impact food and healthy diets.

The aims of the report are:

1. to review the main trends in food production and consumption in the UK;
2. to analyze the implications of those trends for the economy, society and the environment;
3. to assess the robustness of the current policy framework for food; and
4. to determine what the objectives of future food strategy should be and the measures needed to achieve them.

The report highlights future challenges facing the food system which include:

Economics and equity:

– increases in global commodity prices;
– changes in the world animal feed markets and rules importing genetically modified crops; and
– elimination of household food waste.

Health:

– it is estimated 70,000 premature deaths in the UK each year could be preventable if diets matched nutritional guidelines;
– most consumers are still not eating '5 A Day' and consume more saturated fat, salt and added sugar than is good for their health;
– the dietary health of those less able to care for themselves is a real concern;
– nearly a quarter of adults and 10 % of children are classed as obese.

Safety

– continuing vigilance is needed to minimize contamination as the safety of food underpins consumer confidence and cannot be taken for granted.

Environment:

– the food chain has huge environmental impacts (around 18 % of UK greenhouse gas emissions are related to food production and consumption);
– England needs a packaging waste management system; and
– the food chain needs to reduce its dependence on energy, water and other resources, to reduce its exposure to future increases in resource prices.

Exercise One. Answer the following questions.

1. What is the government's food policy?
2. What kinds of goals does the organization suggest?
3. What future challenges does the report highlight?

4. What are the nutritional guidelines?
5. What steps should be taken to preserve the environment?

Exercise Two. Read the article and choose the best phrase from the given below to fill each of the gaps.
A. Ensure a well-functioning and competitive market;
B. Renew the focus of the 5 A Day campaign;
C. Bring together integrated information;
D. Make healthy food choices;
E. Introduce a 'Healthier Food Mark;
F. Maintain global food security;
G. Promote new social norms;
H. Work with international agencies.

The Government's vision for the food system is one that is more sustainable – economically, socially and environmentally – from production to consumption.

The key actions agreed by the report:

1. _____ and advice for consumers on the impacts of food on health and the environment.
2. _____ easier out of the home.
3. _____ that facilitate behavioral and cultural change in relation to food issues using community groups, voluntary organizations and social enterprises.
4. _____ to target groups where intake remains low; expanding the range of products that can count towards the target and improving the clarity of the message.
5. _____,' linked to standards for food served in the public sector.
6. _____ to provide fair prices to consumers and reduce distortions in the agricultural trade, which would also improve global food security.
7. _____ to redouble the efforts to raise agricultural productivity; to address the challenges posed by increases in global food prices.
8. _____ while responding to climate change.

Exercise Three. Read the article below and choose the best word to fill each gap.

Delivering the Government's vision

This report has set out a vision and strategic policy objectives to (***give*** / ***underpin*** / ***show***) future policy on food and a series of measures to realise them.

The Government has (***accepted*** / ***taken*** / ***offered***) all of the recommendations made in this report and will take them forward as government policy. The Prime Minister has asked the Cabinet Office to (***show*** / ***undertake*** / ***establish***) and support a Food Strategy Task Force to (***monitor*** / ***watch*** / ***check***) ongoing developments in the food system and food markets, to drive (***back*** / ***to*** / ***forward***) implementation of all the measures and to publish regular reports on (***success*** / ***movement*** / ***progress***). The New delivery arrangements have been made to (***link*** / ***show*** / ***coordinate***) cross-government work to address food policy as a priority, so that the Government is able to anticipate future challenges and be able to (***decide*** / ***coordinate*** / ***respond***) promptly and coherently as they arise.

Exercise Four. Read the article below and write one word to fill the gap.

A Food Strategy Task Force will help ensure effective cross-government work to address the issues raised in this report.

The **1.** _____ Force will oversee the Government's medium-term response **2.** _____ the developments in international food markets; drive
3. _____ the delivery of measures announced in this report; join up food policy **4.** _____ different government departments; and ensure that common positions **5.** _____ food policy are reached and properly disseminated.

The work of the Task **6.** _____ will be transparent, with updates and reports published on an annual basis. Task Force sub-groups, constituted on a cross-Whitehall basis, will take forward individual key actions from this report and progress will **7.** _____ reported.

The performance management framework will improve food policy outcomes **8.** _____ ensuring that efforts are harnessed across Whitehall towards achieving the Government's top priorities, outlined in 30 Public Service Agreements.

A joint research strategy **9.** _____ be put in place in a cross-departmental fashion, to ensure closer coordination of food-related research to help ensure that policy **10.** _____ supported by the best evidence. The strategy will define a 'virtual' research programme that cuts across the work of individual departments.

Public reports will be released in summer 2009 and summer 2010 when the Task Force reports **11.** _____ the Prime Minister on the progress made in implementing the actions identified in this report.

A joint statement by the Department of Health (DH) and the Food Standards Agency (FSA) will clarify the roles and responsibilities **12.** _____ the Healthy Food Code of Good Practice. This will clarify, for stakeholders, which institution leads on particular areas of work and help ensure that communication between departments and between departments and stakeholders works effectively on all food-related issues.

Exercise Five. Read the article below, some sentences are correct and there is an extra word in some of them, find the mistakes.

Key nutrition and food-related action points to be taken from the report:

- The FSA will expand its very current advice to consumers on nutrition, food and sustainability and food safety.
- The FSA will launch a new programme focused on food being eaten out of the home, working with consumers and food businesses.
- The Government, together with industry, will develop a 'whole food chain approach' to identify the most important and high-risk food great safety hazards.
- The DH will target messages aimed at increasing of fruit and vegetable consumption at specific 'low intake' groups.
- The Government's Chief Scientific Adviser will commission a major new Foresight project to examine a future global food system.
- More nutritious, environmentally sustainable food will be delivered through a new 'Healthier Food Mark', which will be linked to standards for food served in the public sector.
- The Government will put in place a cross-departmental strategy to ensure coordination of research and development in relating to safe, low-impact food and a healthy diet.
- The Food Strategy Task Force will help ensure effective cross-government work to address and deliver the measures outlined in this report and will report to the Prime Minister on its progress and on key developments in summer 2009 and summer 2010.
- The Government will be work with the Waste & Resources Action Programme (WRAP) and the food industry to secure a voluntary agreement that will cut the amount of food wasted in the supply chain and in the home.
- The DH and FSA will publish in a joint statement clarifying the roles and responsibilities for the Healthy Food Code of Good Practice.

Unit Two

NUTRIENT PROFILING

Task One. Read, translate and analyze the following information.

EC Working Document on nutrient profiling

The Regulation (EC) 1924/2006 on Nutrition and Health Claims on Foods that applied from July 2007, necessitates that foods carrying nutrition or health claims must comply with specific nutritional criteria or 'nutrient profiles'. The aim of setting nutrient profiles is to ensure consumers are not misled with regards to the overall nutritional value of foods bearing these claims, thus enabling consumers to make informed choices that will influence their diet in a way that will be beneficial to their health. The European Commission (EC) has until January 2009 to establish a nutrient profiling system and to set nutrient profiles that will determine which food items can bear nutrition and health claims. To help them in this process, they sought scientific advice from the European Food Standard Authority (EFSA), which was published earlier in 2008. The EC has issued a 'Working Document on the Setting of Nutrient Profiles'.

The paper sets out two main objectives for setting nutrient profiles:

1. To counter the promotional effects of claims and help customers' choices.
2. To provide an incentive for product reformulation.

Exercise One. Answer the following questions.

1. What does EC stand for?
2. What is meant by nutrient profile?
3. What does the EC have to set up in 2009?
4. Whose advice did the EC seek?
5. What document has the EC published?
6. What is the purpose of the document?

Exercise Two. Read the article and choose the best phrase from the given below to fill each of the gaps.

A. It was followed;
B. The health lobby group Cash looked;
C. The "All Day Breakfast" variety were the worst offenders;
D. The lowest salt sandwiches;
E. Cash noted;
F. The British Sandwich Association said.

Pre-packed sandwiches may contain as much salt as several bags of crisps, a study suggests.

1. _____ at 140 sandwiches on sale and found over 40 % had 2 g or more of salt – or a third of an adult's recommended daily intake.

2. _____, but cheese and ham as well as chicken salad also featured.

3. _____ it had been working hard to reduce salt levels and the study was misleading. Asda's Extra Special Yorkshire Ham and Hawes Wensleydale sandwich topped the list, with nearly 4 g or 65 % of the recommended daily salt intake, according to the Consumer Action on Salt and Health survey.

4. _____ by Pret a Manger's All Day Breakfast sandwich with 3.54 g of salt and the Tesco's Finest version of the same with 3.5 g.

5. _____ that as a standard bag of Walkers Ready Salted Crisps contains 0.5 g of salt, these sandwiches contain the equivalent of seven bags of crisps.

6. _____ in the survey were Co-op Healthy Living Tuna and Cucumber and Tesco Healthy Living Chicken Salad, with 0.6 g or 10 % of the recommended daily amount.

Exercise Three. Read the article below and choose the best word to fill each gap.

Salty fillings

The British Sandwich Association was (***dramatical*** / ***critical*** / ***indecisive***) of the findings.

"Sandwiches (***involve*** / ***take*** / ***consist***) the assembly of ingredients," said Jim Winship, director of the organisation.

"The fact is that the salt is already in the ingredients – e.g. bacon or ham – so if consumers (***sell*** / ***choose*** / ***give***) a sandwich containing these they are bound to have a higher salt content."

But he stressed that on average, the sandwiches surveyed had 2 g of salt – or a third of the (***given*** / ***offered*** / ***recommended***) daily intake – and that these levels were not unreasonable.

Cash admitted that, given a sandwich was often the main (***point*** / ***thing*** / ***constituent***) of one of three meals in the day, containing a third of the recommended daily intake of salt was not necessarily a problem.

"But it (***does*** / ***is*** / ***has***) often combined with other things," says Jo Butten, the group's nutritionist.

"Once you have had a packet of crisps with your sandwich and finished off with some biscuits, you may well have gone over your (***limit*** / ***point*** / ***taste***)".

Exercise Four. Read the article below and write one word to fill the gap.

Changing the bread

She said the discrepancies in salt between different manufacturers of the same sort of sandwich showed it **1.** _____ possible to reduce the salt content while still being able to sell the product.

2. _____ instance, Somerfield's Prawn Mayonnaise sandwich contained 43 % of the daily intake of salt, while Morrison's version had 22 %.

"One of the easiest way to reduce the salt content would probably be **3.** _____ use a different sort of bread, as that can be a significant factor," said Ms Butten.

Cash singled out Pret a Manger for particular criticism, noting that two of its sandwiches had a very high salt **4.** _____ but that it did not spell out nutritional details option," he said. on its boxes.

The sandwich chain rejected the criticism outright, saying it saw itself as a deli not a "factory" as the products were **5.** _____ on site, and that in a deli such details would not be available.

But all customers who **6.** _____ interested could ask at the tills for nutritional information, said Simon Hargraves, commercial director. **7.** _____ any event, people know that when they buy an All Day Breakfast sandwich it's not the healthiest

"It's just not the kind of sandwich you'd eat all **8.** _____ time."

The British Sandwich Association also stressed that it was "it is not the sandwich industry's job to dictate **9**. _____ consumers what they choose to eat". The government recommends that adults **10.** _____ eat no more than 6 g of salt a day. However, the average **11.** _____ of salt is between 9 g and 10 g a day. Some experts estimate that if **12.** _____ consumption was cut to 6 g a day it would prevent 70,000 heart attacks and strokes a year.

But not all scientists sign up to those estimates, and some suggest salt does not play a significant role in those conditions.

Exercise Five. Read the article below and choose the best word from the given below to fill each gap:
concern, *professionals*, *prior to*, *in particular*, *growth*, *mineral*, *ageing*, *brittle*, *reduced-fat, full-fat, skimmed*, *ensure*.

The importance of calcium

Calcium is a **1.** _____ that strengthens your bones and teeth, and ensures everything runs smoothly with your muscles and nerves. It's especially important for **2.** _____. Calcium can continue to add to the strength of your bones until you reach the age of 30 to 35, when peak bone mass is reached.

After this point, as a natural part of the **3.** _____ process, your bones lose their density and grow weaker. If you haven't had enough calcium in your diet **4.** _____ this, there's an increased risk that your bones won't be strong enough to cope with any weakening, which can result in the **5.** _____ bone disease, osteoporosis.

Health **6.** _____ estimate that one in three women and one in 12 men over the age of 50 suffer from osteoporosis. There's also **7.** _____ that the diets of teenage girls and young women, **8.** _____, aren't high enough in calcium. Some experts predict the future could bring an osteoporosis epidemic in women.

The Department of Health recommends that both men and women get 700 mg of calcium every day to **9.** _____ good health. Realistically, this means one of the following:

- a pint of milk;

- two small tubs of plain or fruit yoghurt;
- roughly 80 g of hard cheese.

The good news is, if you're *concerned about your weight*, getting the calcium you need doesn't have to mean eating or drinking **10.** _____ foods. There's exactly the same amount of calcium in **11.** _____ milk as there is in whole milk. The same goes for low-fat yoghurt and **12.** _____ cheese. You don't have to buy their full-fat counterparts to look after your bones.

Exercise Six. Read the article below, some sentences are correct and there is an extra word in some of them, find the mistakes.

Calcium for vegans and the lactose intolerant

Of course, if your diet excludes milk and dairy products or if you can't tolerate the milk sugar lactose, then you need to look at for calcium alternatives.

You can keep your bones healthy by:

- buying soya milks, yoghurts and cheeses enriched by with calcium;
- eating lots of dark green leafy vegetables, such as so spinach, broccoli and watercress;
- using almonds or sesame seeds as topping on salads, cereals or desserts;
- snacking on dried fruits – apricots, dates and figs they all contain small amounts of calcium;
- if you're not vegan, adding to sardines, prawns or anchovies to a main meal.

Task Two. Read the article and choose the best phrase from the given below to fill each of the gaps.

A. Stewing:
B. Pan-frying:
C. Roasting:
D. Cooking on a rotisserie:
E. Broiling or grilling:
F. Pan-broiling:
G. Braising:

COOKING MEAT

There are six basic ways of cooking meat. Most tender cuts are best cooked by dry heat: roasted or cooked on a rotisserie, broiled or grilled, pan-broiled or pan-fried. Less tender cuts should be cooked slowly in moist heat: braised or pot-roasted, or cooked in liquid. We give appropriate cooking methods for each cut throughout the chapter.

1. _____: Preheat oven to 325 °F for most meats. Season meat if desired and place fat side up on rack in open roasting pan. In some roasts (e.g. pork loin, standing rib roast), bones form a natural rack. Insert meat thermometer and roast meat to desired degree of doneness. Roasts continue to cook after they are removed from the oven, so you may wish to stop cooking when thermometer reads about 5 degrees below reading for degree of doneness desired.

2. _____: This is also a form of roasting. As with other dry-heat methods, low to moderate temperatures should be used. Meat cuts should be as uniform in shape and thickness as possible. Insert the spit through center of the roast lengthwise, fastening the meat securely so that it does not slip. Test for balance by rotating the spit in the palms of your hands. Insert the meat thermometer. If it does not stay securely in position, after the approximate roasting time, stop the rotisserie, insert the thermometer and the read temperature. Following manufacturer's directions, cook the meat to the desired degree of doneness. Meat cooked on a rotisserie is self-basting, but it may be basted occasionally for added flavor and color. Sweet basting sauces should not be applied until the last half-hour of cooking.

3. _____: Steaks and chops should be at least ¾ inch thick, ham slices at least 1/2 inch thick. Trim excess fat from meat and slash the edge of fat at 2-inch intervals so it won't curl during broiling. Preheat broiler if manufacturer directs, or prepare coals. Rub the broiling pan rack with a piece of fat trimmed from meat. Place the meat on the rack, then place the pan in the broiler. Steaks, chops and patties 3/4 to 1 inch thick should be 2 to 3 inches from the heat; cuts 1 to 2 inches thick should be 3 to 5 inches from the heat. Broil meat until top is browned (lightly browned for cured and smoked pork). Season top if desired (ham and bacon will not need seasoning) and with tongs, turn meat. Broil until of desired degree of doneness; cut slit near bone and check color to test doneness.

4. _____: The meat cut should be no more than 1 inch thick and it will take about half as long as if broiled in broiler. Place meat in an unheated heavy skillet or on a griddle. Most meats have enough fat to prevent sticking. However, if meat is very lean, pan may first be brushed lightly with fat or rubbed with a piece of fat trimmed from the meat. Over medium-low to medium heat, cook meat slowly, turning occasionally. Pour off fat as it accumulates so that meat does not fry. Brown meat on both sides.

5. _____: In a skillet, over medium to medium-high heat, using a little hot salad oil or other fat if necessary, brown the meat on both sides. (Add a little salad oil only if cut is low in fat, such as liver, or if meat is coated with flour or bread crumbs.) Season, if desired, and continue cooking over medium-low to medium heat, turning occasionally, until done. Do not cover, or crispness will be lost. Serve meat at once.

6. _____: In a large, heavy skillet or Dutch oven over medium-high heat in a little hot salad oil or fat melted from meat, brown the meat on all sides; spoon off drippings. Season meat and add a little liquid if needed. Less tender cuts require liquid; tender ones, such as pork chops, may not. Cover the pan tightly to keep in the steam and simmer the meat over low heat or in a preheated 325 F to 350 F oven until fork-tender. Cooking in liquid: Large cuts: In a large, heavy saucepot, over medium-high heat, brown meat on all

sides to develop flavor and color. (Corned beef and other cured meats are not browned.) Add hot or cold liquid to cover the meat; season, if desired. Over high heat, heat liquid to boiling; reduce heat to low, cover pan and simmer (don't boil) until the meat is fork-tender. Add any vegetables just long enough before meat is done to cook them. If meat is to be served cold, chill it in the cooking liquid in the refrigerator to improve juiciness and flavor and reduce shrinkage.

7. _____: For a browned stew, in a heavy saucepan over medium-high heat, in a little hot salad oil, brown the pieces of meat on all sides, a few at a time, removing them as they brown. Meat may be coated with flour before browning. When all pieces are browned, return meat to the pan. For a light stew, omit flouring and browning. Add hot or cold liquid just to cover the meat. Season, if desired; cover and simmer (don't boil) until the meat is fork-tender. Add any vegetables just long enough before meat is done to cook them. When done, remove both meat and vegetables to a warm dish and keep hot: if desired, thicken the remaining liquid to make a gravy or sauce. Serve the gravy over the meat and vegetables or pass it in a gravy boat.

Exercise One. Read the article below and write one word to fill the gap.

TENDERIZING MEAT

Meat tenderizers: These **1.** _____ derivatives of natural food-tenderizing agents found in some tropical fruits which soften meat tissue only while meat is cooking. Be sure to follow directions **2.** _____ the label: don't use more and don't leave it on longer than the label recommends, or meat surface might become mushy. Also, don't use it on naturally tender cuts, such as sirloin steak, or on beef tendered **3.** _____ papain.

Mechanical methods: Grinding makes meat tender, as does "cubing," which breaks down the connective tissue by machine. Pounding meat, **4.** _____ directed in some recipes, achieves the same results.

Beef "tendered with papain": This is a scientific commercial process that utilizes protein derivatives **5.** _____ such fruits as papaya (papain). The tendering develops only as the beef cooks, making it possible to cook more beef cuts **6.** _____ dry heat, and shortening cooking time for those cuts that must be cooked by moist heat.

Aging: This improves the tenderness **7.** _____ some beef cuts. At the storage plant, beef is hung **8.** _____ a specified time, in rooms with controlled temperature and humidity.

Marinating: Soaking meat, particularly **9.** _____ acid mixtures such as lemon juice or vinegar, tenderizes meat and adds flavor. Often herbs and spices **10.** _____ included in marinades.

Exercise Two. Read, translate and make up questions.

Poultry, which includes turkey, chicken, duckling, goose and Rock Cornish hens, is plentiful fresh or frozen the year around – and in a form to meet the needs of every cook. Birds range from 1-pound Rock Cornish game hens to massive turkeys weighing 24 pounds and more. There is also a wide choice of "parts" – halves, quarters, breasts, legs, thighs and drumsticks – and boneless roasts. In the case of long-roasting turkeys, some need little watching since they are sold prebasted, injected with fat or broth to keep them moist.

Holidays and festivals are traditionally celebrated with a roast bird, but poultry is equally at home fried or baked at family meals, or combined with other flavors to make excitingly different dishes for more formal occasions. When it comes to cooking, then, there are few meats to match poultry for versatility. Poultry is also one of the most economical sources of high-quality protein and, serving for serving, chicken and turkey are actually lower in calories than most other meats.

Exercise Three. Read the article and choose the best word from the given below.

CHOOSING POULTRY

When **(giving, choosing, taking)** poultry, you will find many items carry helpful information on the label or wrapper. Poultry processors as well as supermarkets label products to indicate the **(quality, kind, sort)**; sometimes cooking directions are also included. A United States Department of Agriculture circular mark proves that the bird has been **(seen, weighed, inspected)** for wholesomeness and has met rigid federal standards. Birds of the highest quality of meatiness and appearance also have a shield-shaped **(label, paper, package)** stating that they are USDA "Grade A". The **(year, age, time)** of the bird may also be indicated; age determines its tenderness. **(Old, young, new)** poultry has tender meat and can successfully be broiled, barbecued, fried or roasted. Older or "mature" birds are more **(richly, poorly, slightly)** flavored, but the meat is less tender and should be tenderized by braising or simmering in liquid. Choose a whole bird with a plump, well-rounded breast and **(clean, clear, white)** skin free of blemishes and bruising. (Skin color may vary from white to yellow according to what the bird was **(given, offered, fed)** and is not an indication of quality).

Exercise Four. A businessman is describing his trip to Lagos. Complete the text with *had to*, *didn't have to*, *couldn't*, *should have* or *shouldn't have.* Each phrase is used twice.

'I (1) _____ traveled on the 10 am flight, but when I got to the airport they told me that the flight was overbooked and I (2) _____ catch a later flight. Then at the check-in desk they told me that I (3) _____ take both my bags as hand luggage, so I (4) _____ let one of them go in the hold, which was very annoying as I had my diary in it, and it delayed me by nearly an hour at baggage reclaim at the other end. When I got on the plane I wanted to use my laptop, but of course I (5) _____ until after take off. The flight attendant told me to turn it off and said that I (6) _____ known not to use it. To be honest I'd just forgotten, and he (7) _____ been so rude. Er, it was quite late when I finally left Lagos airport, so it was lucky I (8) _____ go to any meetings that afternoon. And, looking back at what happened, I (9) _____ travelled with that airline – they have a lot of problems with overbooking. And my company was paying for the flight so I (10) _____ choose the cheapest option.'

Exercise Five. Martin and Anne have arrived at check-in at Heathrow Airport. Complete their dialogue with must *might*, *can't*, *must have*, *might have* or *can't have*. Use each word once only.

Martin: Oh no, I can't find my passport.
Anne: You're joking.
Martin: No, really, it's not in my briefcase.
Anne: Well, it (1) _____ be in your other bag. Quick have a look.
Martin: It's not there. Where on earth is it?
Anne: Well, I don't know. Do you think you (2) _____ left it at home?
Martin: That's impossible. I (3) _____ done. I checked I had it with me four times before I left the house.
Anne: OK, calm down. What about checking your coat pockets? You never know, it (4) _____ be there.
Martin: No, it isn't. This is ridiculous. We're going to miss our flight.
Anne: Look, you (5) _____ be looking in the right place.
Check-in attendent: Excuse me, sir. Is that your passport there on the ground?
Martin: Oh, yes, so it is. Ah, I (6) _____ dropped it when I was looking for the tickets.

Unit Three

THE ARTICLE *HERE COME "MALLS WITHOUT WALLS" BY* BARBARA RUDOLPH. REPORTED BY MARY CRONIN / NEW YORK AND RICHARD WOODBURY / HOUSTON

Preview

Already successful in other countries, hypermarkets have begun to appear in the United States. These huge stores offer an amazing variety of goods.

Task One. Learn the following information.

BACKGROUND NOTES

Culture

discount store: a store that offers a wide variety of goods at reduced prices. Smaller, family-owned shops often cannot compete with large discount stores;

hot line: a telephone that provides instant access to someone with important information;

supermarket: a store that sells a wide variety of food items. Supermarkets have replaced most shops, such as butcher shops and bakeries, which sold only one kind of food.

Vocabulary

archrival: one's main competition; the primary rival;
concept: a thought; a notion; an idea;
cranky: grouchy; bad-tempered;
disaffection: estrangement; alienation of affection;
disorienting: confusing;
emporium: a commercial center; a store that carries a variety of goods (a pretentious word, often used humorously);
get (someone) rolling: to (make someone) become active; to (make someone) get enthusiastic;
haberdasher: one who sells men's clothing and supplies;
launch: to initiate; to begin;
lure: an attraction; an enticement;
marathon: an endurance contest; something that tests one's strength;
markup: the difference between the price of an item and its cost to the seller;
perpetuate: to cause to continue; to cause to last.

Task Two. Read, translate and discuss the article.

Here Come "Malls Without Walls"

Hypermarkets sell everything from antifreeze to zoom lenses

Are these prices for real? Ground beef, 870 per lb. Oranges, eight for $1. Car batteries, $25. Videocassette recorders, $180. Yes, but that is just the beginning of the surprises. Here comes a clerk – *whooosh*! – on roller skates. And just look at these 20-ft. mountains of merchandise, from catsup to cameras, mustard to mufflers. Disoriented yet? This is the green zone, where groceries are sold. For everything from mouthwash to antifreeze, go to the blue zone. Tired? Here, sit down on one of the convenient wooden benches and sip some free cider or coffee with other weary shoppers.

What is this place? Welcome to Hypermart USA, where the floor space (222,000 sq. ft.) and the discounts are both breathtakingly huge. The suburban Dallas emporium belongs to a booming category of retail store called the hypermarket. "I've never seen so much under one roof," says Martha Mason, a homemaker visiting Hypermart USA. "I could spend days in here." Sam Walton certainly hopes so. The founder and chairman of booming Wal-Mart discount stores opened his first Hypermart USA last December as a joint venture with the Cullum retail chain. Last week he opened a second in Topeka. "It's a test," says Walton, whose 1,114 Wal-

Marts are generally a third the size of the Hypermarts. But as he tells his troops, "I'm more excited about this than anything in the history of our company. This new store could revolutionize the way America shops."

A lot of competitors agree. Suddenly hypermarkets, which can cover five football fields, are springing up across the U.S. in places as diverse as New Orleans and Kalispell, Mont. The oversize stores provide the ultimate in one-stop shopping: customers can get a haircut, buy a refrigerator and stock up on paper towels in one trip. Most "malls without walls," as Walton calls them, draw crowds with an old-fashioned lure: everyday discounts. Prices are reduced as much as 40 % below the full retail level. Hypermarkets make money even at such thin profit margins because they sell such an enormous volume of goods. Hypermarket sales average at least $1 million a week, compared with $200,000 for a conventional-size discount store.

While the idea of a store so big seems quintessentially American, the idea for hypermarkets comes from France. A small-town haberdasher and a grocer, taking advantage of their country's lack of American-style supermarkets, teamed up in 1960 to start the first hypermarket at an intersection just outside Annecy, in the foothills of the Alps. They named their store Carrefour, the French word for crossroads, and it was an instant success. Their prices were so low that shoppers expected them to go out of business, a rumor they gleefully perpetuated by keeping their front windows coated with whitewash. Carrefour launched dozens of outlets, as did copycats. Today France has more than 600 hypermarkets that together account for some 14 % of the country's retail trade. Carrefour, which now operates hypermarkets in Spain, Brazil and Argentina, plans to open its first US outlet this week, in suburban Philadelphia. Among the store’s innovations: a rubbery floor surface to ease the punishment on shoppers’ feet.

While hypermarkets have spread across Canada, which has 22 such stores, they have only now become a hot concept tin the US. One reason is that America has so many competing discount stores and supermarkets that the Carrefour concept had trouble gaining acceptance. Analysists estimate that Bigg’s, a Cincinnati hypermarket opened by Euromarche, a French firm, has lost at least $9 million since it was opened three years ago. But the large U.S. chains believe they can make the idea work by selling namebrand goods at paper-thin markups. K mart announced last September that it will form a joint venture with Bruno's, an Alabama-based grocery-store group, to open a national hypermarket chain. Archrival Wal-Mart, meanwhile, hopes to open 50 Hypermart USA stores during the next eight years.

Even successful hypermarket operators will encounter limits to expansion. The sheer size of the megamarkets will restrict growth, since a city of 500,000 can support only about two stores. Also, hypermarkets may face disaffection from customers who expect assorted brands of any one product; thus well-stocked hardware stores or grocers are unlikely to be run out of business by the invading hypermart. Cases in point: Hypermart USA's sporting-goods department offers fishing poles but no lures or other tackle. The paint department sells only one color: white.

The hypermarkets are doing their best to help shoppers feel comfortable in what is sometimes a disorienting space. Dallas' Hypermart USA installed hot lines in its aisles so shoppers can get information and directions. Its bakery can churn out 20,000 tortillas a day. To make sure cranky toddlers do not prompt their parents to hurry too much, Hypermart offers a Ball Room, where parents can deposit their children to be supervised. But anyone who wants to shop in a 200,000-sq.-ft. store should remember to don jogging shoes. Says Melba Lincoln, a Dallas homemaker: "Shopping here is like running a marathon."

QUESTIONS AND ACTIVITIES

Comprehension Questions

1. What is a hypermarket? How much larger than a discount store is a hypermarket? What is the difference in volume of sales between the two types of stores?
2. Where did the concept of hypermarkets begin? What countries already have them?
3. Why were hypermarkets slow in coming to the United States?

Discussion Questions

1. What are the advantages of a hypermarket for the consumer?
2. What are the disadvantages for the consumer?
3. Are there discount stores in your hometown? If so, do you shop at them? Why or why not? If not, would you like one to be built? Why or why not?

Group Activities

In groups of four or five, compile a list of ideal features that you'd like a store to have. You may wish to consider the following in your discussion:

A. Range of selection of merchandise;
B. Prices;
C. Hours and days of service;
D. Other amenities.

Present your list of features to the class.

Individual Work

Keep a diary for a day of the stores that you go into and what you do or purchase in each one. Do you tend to do all your shopping in a few stores, or do you make many different stops? Write a brief summary (one page maximum) of your activities.

Grammar Revision

Exercise One. Complete the sentences with *as* or *like*, or put *as*/*like* if both are possible.

1. While I was at university I sometimes worked _____ as ___a waiter.
2. The negotiations are going very slowly, _____ I expected.
3. Anna's so funny! She's _____ a comedian.
4. We'll send the order in two consignments, _____ we agreed in the meeting.
5. This crisis is not _____ the last one. It's worse!
6. I'm lucky. I have a small room at home that I use _____ my study.
7. You look just _____ your brother.
8. In a situation like this, you should do exactly _____ it says in the book.

Exercise Two. *Underline* the correct word/s in this dialogue.

Jack: Oh, hi, Pamela. Could you give me some advice?
Pamela: Yeah, sure.
Jack: It's about my laptop. I use it a lot when I'm out of the office, (1) *so* / *like* I wanted to talk to you about saving my files _____ I, er, don't want to lose everything if there's a problem.
Pamela: Hmm. Do you back-up your files (2) *for* / *to* make sure your work is safe?
Jack: Oh yes. I have a small storage device that plugs into the USB port – it's (3) *as* / *like* a portable hard disk. And so if anyone stole my laptop it wouldn't be such a disaster (4) *because* / *for* I would still have all my files.
Pamela: Well, that's OK then.
Jack: The problem is I often keep this device in the same place as my laptop (5) *for* / *so that* it's easy for me to find. And that's what worries me.
Pamela: Oh?
Jack: Well, yes. It's easy for me to find, (6) *so* / *so that* it's easy for the thief too.
Pamela: Ah, hah. It sounds (7) *as* / *as if* you're getting a little bit paranoid, Jack.
Jack: So, is there some kind of solution (8) *for* / *to* people (9) *as* / *like* me _____ who are worried?
Pamela: Do you use your laptop (10) *to* / *for* access the Internet?
Jack: Of course.
Pamela: Well, (11) *not to worry* / *so as not to worry* about losing your files how about using on-line storage?
Jack: Um, what's that?
Pamela: It works (12) *as* / *as if* hard disk, (13) *as* / *like* your portable device, but it's an Internet site.
Jack: Oh.
Pamela: You can upload files to the site whenever you want (14) *so that* / *like* they are there to download on another occasion. It could be with another computer. I use it all the time (15) 50 *that* / *to* keep copies of my most important files.
Jack: Ah, I see. That sounds (16) *as* / *like* a really good idea. Well, thanks a lot. I'll do.

Exercise Three. Complete the dialogue using the verbs from the list below in the past simple. There is a mixture of affirmative, negative and question forms. There is one negative question:
go; *take*; *think*; *sell*; *like*; *have* (×2); *make* (×2); *be* (×4); *buy.*
Dale: Hi, Jill. You (1) _____ went to the Milan Fashion Show last week, didn't you? (2) _____ you _____ a good trip?
Jill: Yes, it was great.
Dale: (3) _____ you _____ any useful contacts?
Jill: Well, there (4) _____ loads of people at the show, and I (5) _____ a lot of good contacts but we (6) _____ nearly as many orders as last year.
Dale: Oh, why was that? (7) _____ they _____ our new styles?
Jill: No, no, that (8) _____ the problem. The shoes (9) _____ really well, but we (10) _____ so successful with some of our other products, like handbags, for example, and there (11) _____ much more competition this year.
Dale: Who from?
Jill: Well, the Paul Smith stand was really busy.
Dale: Oh, but his clothes are expensive _____ Um, (12) _____ people at the show our prices were too high?
Jill: Possibly. But we (13) _____ the authority to lower them at the time.
Dale: Oh, what a shame. So it was a waste of a trip then?
Jill: Well, not exactly _____ I (14) _____ this great pair of Prada shoes and this Gucci handbag _____.

Exercise Four. Complete this dialogue by putting each of the verbs in brackets into the future. Choose between *will* and *going to.* Sometimes either answer may be possible, but decide which form is the most natural. Use contractions where possible.

Joanna: Please, come in, have a seat. Would you like a drink? Coffee? Mineral water?
Greg: Oh, I (1) _____ 'll have _____ (have) a coffee please.
Joanna: Lucy _____ could you make two coffees? (sighs) Well, thanks for coming this morning. I (2) _____ (tell) you why I asked you here. Um, as you know, there (3)… (be) some big changes in the company. In fact, we (4) _____ (restructure) the whole department.
Greg: Yes, I know. When (5) _____ (it/happen)?
Joanna: Everything (6) _____ (be) finished by the summer. Um, the thing is, under the new structure your job (7) _____ (probably/disappear).
Greg: Really? Is that certain?

Joanna: Well, we (8) _____ (have) a meeting next week to finalise all the plans, and of course I (9) _____ (let) you know what we decide. Anyway, you don't have to worry.

Greg: Oh?

(coffee arrives)

Joanna: Well, as I was saying, you don't have to worry. We (10) _____ (offer) you a new job. You (11) _____ (have) more responsibility, and the salary (12) _____ (be) much better.

Greg: That's wonderful, thank you very much. What exactly (13) _____ (the new job/involve)?

Joanna: Well, we (14) _____ (expand) the whole customer services area. If you accept the job, you (15) _____ (be) responsible for the new team. Um, it (16) _____ (mean) a lot more work, of course. What do you think?

Greg: It sounds great, but I (17) _____ (need) a day or two to think about it.

Joanna: Of course, no problem. Look, I (18) _____ ((not/be) in the office for the next few days – I (19) _____ (visit) our subsidiary in Hungary. (20) _____ (you/have) an answer for me by next week?

Greg: Yes, I (21) _____ (give) you my decision on Monday.

Exercise Five. Alan is talking about his first job. Complete what he says with the best form of the verb in brackets. Choose between the past simple, past continuous or past perfect.

Interviewer: So, Alan, why did you quit your last job?

Alan: Well, at the time I (1) _____ *was working* _____ (work) as a financial officer for an International Accountancy firm in London.

I (2) _____ (be) in the same company for three years.

Interviewer: How (3) _____ (you/get) the job?

Alan: Just after I (4) _____ (finish) university I (5) _____ (go) to a job fair. I still (6) _____ (decide) what I wanted to do and I was interested to see what kind of jobs there (7) _____ (be) at the fair. While I (8) _____ (look) at information on one of the stands for a large international accountancy firm, someone (9) _____ (give) me an application form to fill in. I thought this might be a good career opportunity for me as I (10) _____ (already/take) some accountancy exams for my degree. So I (11) _____ (complete) the form and (12 _____ (send) it off. They (13) _____ (interview) me the following week and I got job. At first, I (14) _____ (feel) satisfied with the job, but as time went by, things (15) _____ (change) and I began to hate working there.

Interviewer: So what (16) _____ (go) wrong?

Alan: Well, the situation was this: I (17) _____ (work) for a person who was very difficult, er _____ very demanding _____ never satisfied. What's more, my job (18) _____ (become) too repetitive and I really wanted to do something more creative. So, that's why I resigned I (19) _____ (not have) another job to go to, but I knew I (20) _____ (have) to make a change.

Unit Four

THE PROBLEMS OF GENETIC ENGINEERING AND THE GM FOOD

Task One. Read and translate the following article *The Uncertainty of Genetic Engineering*.

Exercise One. Define which paragraph (1, 2, 3, 4, 5) each statement (A, B, C, D, E) refers to.

A. People's fears are described here.
B. There are good and bad sides in genetic engineering.
C. Background information concerning the development of the subject is identified.
D. Potential positive effects are explored.
E. The progress of genetic engineering is impressive.

The Uncertainty of Genetic Engineering

1. In many ways, our grandparents had a harder life than we have today. Typing letters on clunky manual typewriters, canning their own vegetables, and sharing the telephone with neighbors on "party lines" were a few of the inconveniences they faced that we don't. However, in one area, at least, we have it harder than our grandparents did. The present generation has to live with uncertainty about the effects of genetic engineering.

2. What is genetic engineering? According to an educational leaflet by the Australian Biotechnology Association distributed on the World Wide Web, genetic engineering is a revolutionary new form of biotechnology. Scientists have learned how to manipulate genes-the chemical information inside living cells that tells the cells how to reproduce. They can copy a gene in one cell and transfer it to a cell in a different species, such as a mouse. Then the receiver cells start producing the desirable trait in the new species. Scientists can also take genes out of a cell and put them back in different combinations. Using genes, they have discovered how to clone cells, making exact duplicates of an original organism. Twenty years ago, such scientific achievements were only a dream.

3. If this sounds exciting, it is-up to a point. Animal and plant breeders used to take decades to develop improved species by mating subjects, trying to match up desirable traits. Even then, they couldn't guarantee that a cross between a dwarf, sweet tomato and a tall, bitter tomato would produce a tall, sweet tomato. It could produce a dwarf, bitter tomato. But now, using genetic engineering techniques, scientists can cut the development process down to two or three years, and better guarantee their results. For the first time in history, it is possible to talk seriously about designer vegetables. It is also possible to use the body of one animal as a "factory" to manufacture a chemical that another species needs. New animals created in labs can be patented, bringing substantial profits to the creators. It is not even hard to imagine that soon scientists will be able to clone human beings.

4. With so much to be said for genetic engineering, why would anyone be leery of it? Some people naturally fear the unknown, and there is much that we still don't know about how genes work. The greatest fear is that some dangerous organism could escape from a scientist's laboratory-an airborne AIDS virus, for example-spreading uncontrollably through the human population. People also point to the unplanned spread of pests such as starlings, fire ants, killer bees, or the kudzu vine in the southeastern United States as examples of how genetic experiments, too, could get out of hand. Scientists tell us there are safeguards; and that even if a mutant life-form does escape, it is not likely to survive in the evolutionary scheme of things. But many people have seen movies that depict scientists as distracted, onetrack minded, or even evil. They do not trust scientists' reassurances. It seems clear that not everyone who possesses knowledge uses it for the good of humanity. After all, computer hackers have been known to plant destructive viruses.

5. Still, genetic engineering is here, and we must deal with it. It's a good news/bad news situation. The good news is that the genie of genetic engineering is out of the bottle. It may be able to grant us some of our best wishes. The bad news is that we're not sure the genie is completely friendly, and we're quite sure we will never get it back into the bottle. Our grandparents would be and are amazed at what scientists have been able to accomplish. In their day, though, if they had been asked to choose between hardships they could see and understand, and using new-fangled conveniences that promised unknown side effects, I wonder which they would have chosen.

Exercise Two. Read the article and choose the best beginning from the given below to fill each of the gaps.

A. Certain scientific studies;
B. Today, bioengineering;
C. Commerce operates
D. But the reasons behind ordering a boy;
E. An end to baldness;
F. The day may come;
G. A more recently established practice.

Biogenetic Engineering: a Gamble for a Bright Future

1. _____ as methodically as a well-regulated clock: dutiful companies bring diverse household and business products to millions of eager customers. But industry's thirst to make people's lives easier and better may not be quenched by mere electric pencil sharpeners and automatic garage openers: soon market researchers will leave behind present-day fixation on electronic gadgetry and cleaning agents to penetrate the very fuse box of life itself-the great new world of DNA.

2. _____ when an ingenious researcher will knock confidently on the company president's door and, holding up a pink test tube, announce that after isolating the gene that causes baldness, he has succeeded in simulating a new one to replace it. The president's eyes will open wide (as his pupils enlarge to almost swallow the irises, and the whites become etched with scarlet lightning bolts) and the excited executive will jump up from his chair, his face assuming the look that Dr. Frankenstein must have worn when he first heard his monster breathe.

3. _____ is just one perhaps trivial example of the future as predicted by today's budding biotechnological industry. Not many people would object to ending the nuisance of baldness, but then what about tallness, obesity, sexual preference, facial features, etc.? Such characteristics blend to create our individuality. How would we feel if these qualities were for sale?

4. _____ is in its latent stage; however, it will undoubtedly display far fuller foliage in the very near future. Amniocentesis, for example, allows us to "look into" the unborn baby, finds out its sex, and discover whether the child has such disorders as Down's syndrome. Since this process gives us no method (except abortion) of defeating the prognosis, it cannot truly be considered genetic engineering.

5. _____, closely related to biotechnology, is the determination of sex by the process of filtering. If a couple wants a boy, the doctor filters the male's sperm to separate the "X" cells from the "Y" cells. A '"Y" sperm is joined with an egg and *voila* – a custom-ordered boy! Most couples who go through this procedure do so because of a defective gene from one of the parents that would affect offspring of only one gender. Thus, to ensure against a disorder in the child (and in future generations), the parents take the precaution of conceiving a baby of the invulnerable sex.

6. _____ or a girl are not always this practical: sheer preference often plays a large role. Certain traits like tallness, slimness, and blue eyes are social favorites. If we allow people to "catalog-order" their babies, we will get an increasing number of children with "popular" genes. And more and more popular traits engineered into babies will drastically lesson individuality; in future schools we may see "herds" of children with dimpled cheeks, Shirley Temple curls, and Jimmy Carter smiles. And who knows? Perhaps such "unpopular" traits as shyness or homosexuality or obesity serve some hidden evolutionary purpose.

7. _____ suggest that homosexuality, for which there is a genetic inclination, may be one of nature's guards against overpopulation. What if, by mass cooperation, we eliminated a gene whose presently unrecognized purpose might have saved us from a future catastrophe?

Exercise Three. Read the article below and choose the best word to fill each gap.

If we **(take / probe / understand)** a bit further into this hypothetical world, we become conscious of potential **(prejudices / points / features)** and injustices. If biotechnology makes **(selective / elective / expensive)** services widely available to the public, just what sort of people would benefit? Why, anyone who has the money for such a costly **(habit / extravagance / thing).** (In cases of health, all people should be equally eligible.) But in the capitalist society, many parents would be unable to **(give / afford / accept)** bioengineering for their offspring.

Although it's true that the above **(predictions / plans / ideas)** are a bit far-fetched, advances in genetic engineering could make them all possible. But what if we take a different route? Let's **(take / imagine / see)** it's the year 2150. Genetically **(produced / made / engineered)** babies have been bouncing around for some time now. Satisfaction and contentment **(show / characterize / describe)** most of the world's populace. Our planet is at rest: all of today's **(lethal / dead / unavoidable)** bacteria and viruses have been **(killed / exterminated / ousted)** and humans are now engineered with only "good" genes. But, during this period of global health and well-

being, a mutant **(virus / bacteria / gene)** has arisen, unnoticed and unfeared. The new virus multiplies and invades the human body. The by-now vastly narrowed gene pool of human beings (everyone similarly "engineered") has no means of dealing with so sudden a **(mistake / flaw / threat)**. Perhaps one of those mysterious genes that was weeded out of the human **(species / kind / sort)** could have saved a few people from this plague, but for bioengineering.

Task Two. Read the article and define which paragraph (1, 2, 3, 4, 5) each statement (A, B, C, D, E) refers to.

A. The new technology produced human insulin.
B. There are many opponents to the technology.
C. Transgenic organisms are applied in many spheres of life.
D. The new method caused fears in scientific and public circles.
E. A GMO is a method of studying basic biological processes and creating new cells.

1. A genetically modified organism (GMO) or **genetically engineered organism (GEO)** is an *organism* whose *genetic* material has been *altered* using *genetic engineering* techniques. These techniques are generally known as *recombinant DNA* technology. With this technology, DNA *molecules* from different sources are combined into one molecule to create a new set of *genes*. This DNA is then transferred into an organism and causes the organism to acquire modified or novel traits. The term "genetically modified organism" does not always imply, but can include, targeted insertions of genes from one into another *species*. For example, a gene from a jellyfish, encoding a *fluorescent* protein called *GFP*, can be physically linked and thus co-expressed with mammalian genes to identify the location of the protein encoded by the GFP-tagged gene in the mammalian cell. These and other methods are useful and indispensable tools for *biologists* in many areas of research, including those that study the mechanisms of human and other diseases or fundamental biological processes in *eukaryotic* or *prokaryotic* cells.

2. The general principle of producing a GMO is to add a lot of genetic material into an organism's *genome* to generate new *traits* – *Genetic engineering* – was made possible through a series of scientific advances including the discovery of *DNA* and the creation of the first recombinant *bacteria* in 1973. This led to concerns in the scientific community about potential risks from genetic engineering which have been thoroughly discussed at the *Asilomar Conference* in Pacific Grove, California.

3. The recommendations laid out from this meeting were that government oversight of recombinant DNA research should be established until the technology was deemed safe. *Herbert Boyer* then founded the first company to use recombinant DNA technology, *Genentech*, and in 1978 the company announced the creation of an *E. coli* strain producing the human protein *insulin*.

4. In 1986, field tests of bacteria genetically engineered to protect plants from frost damage (*ice-minus bacteria*) at a small biotechnology company called Advanced Genetic Sciences of *Oakland*, *California*, were repeatedly delayed by opponents of biotechnology. In the same year, a proposed field test of a microbe genetically engineered for a pest resistance protein by *Monsanto* was dropped.

5. Examples of GMOs are highly diverse, and include transgenic (genetically modified by recombinant DNA methods) *animals* such as *mice*, fish, *transgenic plants*, or various *microbes*, such as fungi and *bacteria*. The generation and use of GMOs has many reasons, chief among them are their use in research that addresses fundamental or applied questions in biology or medicine, for the production of *pharmaceuticals* and industrial enzymes, and for direct, and often controversial, applications aimed at improving human health (e.g., *gene therapy*) or agriculture (e.g., *golden rice*).

Exercise One. Read the article and choose the best beginning phrase from the given below to fill each of the gaps.

A. For instance, the bacteria;
B. In addition to bacteria;
C. Bacteria were the first organisms;
D. Genetically modified bacteria.

Transgenic microbes

1. _____ to be modified in the laboratory, due to their simple genetics. These organisms are now used in a variety of tasks, and are particularly important in producing large amounts of pure human *proteins* for use in medicine.

2. _____ are used to produce the protein *insulin*, to treat *diabetes*. Similar bacteria have been used to produce *clotting factors* to treat *haemophilia*, and human *growth hormone* to treat various forms of *dwarfism*. These recombinant proteins are much safer than the products they replaced, since the older products were purified from cadavers and could transmit diseases. Indeed the human-derived proteins caused many cases of *AIDS* and *hepatitis C* in haemophilliacs and *Creutzfeldt-Jakob disease* from human growth hormone.

3. _____ being used for producing proteins, genetically modified viruses allow *gene therapy*. Gene therapy is a relatively new idea in medicine. A virus reproduces by injecting its own genetic material into an existing cell. That cell then follows the instructions in this genetic material and produces more viruses. In medicine this process is adapted to deliver a gene that could cure disease into human cells. Although gene therapy is still relatively new, it has had some successes. It has been used to treat *genetic disorders* such as *severe combined immunodeficiency*, and treatments are being developed for a range of other incurable diseases, such as *cystic fibrosis*, *sickle cell anemia*, and *muscular dystrophy*.

4. _____ in your mouth which causes tooth decay is called Streptococcus mutans. This bacteria eats left over sugars in your mouth and produces acid that eats away tooth enamel and causes cavities. Scientists have recently modified Streptococcus mutans to produce ethanol. This transgenic bacterium, if properly colonized in a person's mouth, could possibly eliminate cavities and other tooth related issues. Transgenic microbes have also been used in recent research to kill or hinder tumors, and fight *Crohn's disease*. Genetically modified bacteria is also used in some soils to facilitate crop growth, and can also produce chemicals which are toxic to crop pests.

Exercise Two. Read the article below and choose the best word to fill each gap.

Transgenic animals

Transgenic animals are **(used / made / built)** as experimental models to perform *phenotypic* tests with genes whose function is unknown or to generate animals that are **(sensitive / sensible / susceptible)** to certain compounds or stresses for testing in biomedical research. Other applications **(consist / include / compose)** the production of human hormones, such as *insulin*.

Frequently used in genetic **(study / survey / research)** are transgenic fruit flies (*Drosophila melanogaster*) as genetic models to study the effects of genetic changes on development. Flies are often **(preferred / chosen / taken)** over other animals for ease of culture, and also because the fly genome is somewhat simpler than **(that / some / one)** of *vertebrates*. Transgenic mice are often used to study cellular and tissue-specific **(responses / answer / reply)** to disease.

Exercise Three. Read the article below and write one word to fill the gap.

Transgenic plants

Transgenic plants **1.** _____ been developed for various purposes: resistance to pests, herbicides or harsh environmental conditions; improved shelflife; increased nutritional value – and many more. Since the first commercial cultivation of GM plants in 1996, GM plant events tolerant to the herbicides *glufosinate* or *glyphosate* and events producing the *Bt toxin*, an insecticide, **2.** _____ dominated the market. Recently, a new generation of GM plants promising benefits for consumers and industry purposes **3.** _____ becoming ready to enter the markets.

Whenever GM plants **4.** _____ grown on open fields without forms of containment, there is the possibility that there could **5.** _____ associated environmental risks. Therefore, most countries require biosafety studies prior **6.** _____ the approval of a new GM plant event, usually followed **7.** _____ a monitoring programme to detect environmental impacts.

Especially in Europe, the *coexistence of GM plants with conventional and organic crops* **8.** _____ raised many concerns. Since there is separate legislation for GM crops and a high demand from consumers for the freedom of choice between GM and non-GM foods, measures **9.** _____ required to separate GM, conventional and organic plants and derived food and feed. European research programmes such as *Co-Extra*, Transcontainer and SIGMEA **10.** _____ investigating appropriate tools and rules. On the field level, these are *biological containment* methods, *isolation distances* and *pollen barriers*.

Exercise Four. Read the article and decide whether the statements are true or false.

1. Genetic manipulation is not approved unanimously.
2. Global effects of GMOs are predictable.
3. The majority of the states decided to support GMOs.
4. PEI is against GM potatoes.
5. There is a great controversy in the use of GMOs in Australia.
6. Modern research does not use genetic engineering.

Government support for and ban of GMOs

The use of GMOs has sparked significant controversy in many areas. Some groups or individuals see the generation and use of GMO as intolerable meddling with biological states or processes that have naturally evolved over long periods of time, while others are concerned about the limitations of modern science to fully comprehend all of the potential negative ramifications of genetic manipulation.

While some groups advocate the complete prohibition of GMOs, others call for mandatory labeling of *genetically modified food* or other products. Other controversies include the definition of patent and property pertaining to products of genetic engineering and the possibility of unforeseen local and global effects as a result of transgenic organisms proliferating. The basic ethical issues involved in genetic research are discussed in the article on *genetic engineering*.

USA

In 2004, *Mendocino County*, *California* became the first county in the *United States* to ban the production of GMOs. The measure passed with a 57 % majority. In California, *Trinity* and *Marin* counties have also imposed bans on GM crops, while ordinances to do so were unsuccessful in *Butte*, *San Luis Obispo*, *Humboldt*, and *Sonoma* counties. Supervisors in the *agriculturally*-rich counties of *Fresno*, *Kern*, *Kings*, *Solano*, *Sutter*, and *Tulare* have passed resolutions supporting the practice.

CANADA

In 2005, a *standing committee* of the government of *Prince Edward Island* in *Canada* began work to assess a proposal to ban the production of GMOs in the province. PEI has already banned GM potatoes, which account for most of its crop. Mainland Canada is one of the world's largest producers of GM canola.

AUSTRALIA

Several states of Australia have had moratoria on the planting of GM food crops dating from around 2003. However, in late 2007 the states of New South Wales and Victoria lifted these bans while South Australia and Western Australia continued their bans. Tasmania has extended their moratorium to June 2008. The state of Queensland has allowed the growing of GM crops since 1995 and has never had a GM ban.

Currently, there is little international consensus regarding the acceptability and effective role of modified "complete" organisms such as plants or animals. A great deal of the modern research that is illuminating complex biochemical processes and disease mechanisms makes vast use of genetic engineering.

Exercise Five. Read, translate and make up questions covering the main points of the article.

Crosspollination concerns

Some critics have raised the concern that conventionally bred crop plants can be cross-pollinated (bred) from the pollen of modified plants. Pollen can be dispersed over large areas by wind, animals, and insects. Recent research with *creeping bentgrass* has lent support to the concern when modified genes were found in normal grass up to 21 km (13 miles) away from the source, and also within close relatives of the same genus (*Agrostis*). GM proponents point out that *outcrossing*, as this process is known, is not new. The same thing happens with any new open-pollinated crop variety–newly introduced traits can potentially cross out into neighbouring crop plants of the same species and, in some cases, to closely related wild relatives. Defenders of GM technology point out that each GM crop is assessed on a case by case basis to determine if there is any risk associated with the outcrossing of the GM trait into wild plant populations. The fact that a GM plant may outcross with a related wild relative is not, in itself, a risk unless such an occurrence has consequences. If, for example, a herbicide resistance trait was to cross into a wild relative of a crop plant it can be predicted that this would not have any consequences except in areas where herbicides are sprayed, such as a farm. In such a setting the farmer can manage this risk by rotating herbicides.

Exercise Six. Read the article and decide whether the statements are true or false.

1. The American population is not interested in their food calories.
2. Fat-free products lead to overweight.
3. Sugar is as useful as fat.
4. Dietary guidelines attract many consumers.
5. Replacement shakes are healthy.

Fat Substitutes Are Deceptive Cure-All for American Waistlines

We're all familiar with slogans such as "low-calorie" and "sugar-free." But those are phrases of the past. These days it's hard to walk down a supermarket aisle and not notice America's fixation, perhaps even obsession, with fat. It is a game of how little fat one can ingest while still enjoying all those snack-time favorites. In today's market of “nonfat" and "zero fat," it is even questionable whether products offering modest "low-fat" slogans can remain contenders. But how long can this fat- free frenzy hold its grip on the American population?

Waistlines have continued to grow even in an intense era of fat watching. A 1994 study published in the *Journal of American Medical Association* showed that one-third of adults were overweight between 1988 and 1991. In previous years, those figures held steady at one-quarter of the population. Despite America's current fixation on fat, Maureen Pestine, Northwestern campus nutritionist, said sugar may return as the focus of people's health in the future. "My big concern is that people are eating all these fat-free products thinking this is a way to lose weight," Pestine said. "Generally, the fat-free products have more sugar." Unfortunately, these empty calories are a culprit of weight gain. "I don't think the companies see it as a problem," Pestine said. "They think, 'Let's get rid of all the fat and give them all the sugar.' Fat leads to satiety, a feeling of satisfaction. Without it, people tend to feel less full and often eat more as a result. This leads to trouble for some people. "They think they can eat a whole box of fat-free somethings," Pestine said.

Current dietary guidelines issued by the American Dietetic Association call for a diet moderate in sugar that includes plenty of grain products, vegetables, and fruits. Making broader food choices, focusing on proportionality and balancing food with physical activity are additional suggestions. But such guidelines lack the magical, cure-all appeal Americans desire.

Dan Henroid, a dietitian for Evanston Hospital, sees a future trend in the increasing popularity of meal-replacement shakes. Boost, a shake made by Mead Johnson, is specifically marketed for people under 30. The availability of replacement shakes has risen, but consumers should be cautious, Henroid said. "1 don't necessarily view that as a good trend," he said. "Taking time to prepare a balanced meal is a preferred option."

Exercise Seven. Read the article below and write one word to fill the gap.

Olestra, Proctor and Gamble's brand of the fat replacer olean, **1.** _____ recently approved by the Food and Drug Administration. Though not available in products currently **2.** _____ the market and only appearing in test markets this fall, Olestra may **3.** _____ the trend of the future. Without sacrificing taste, Olestra allows consumers to cut **4.** _____ on fat and calories and satisfy their urge to crunch **5.** _____ the same time. Its additional fatty acids make Olestra **6.** _____ large to be digested or absorbed, so instead, it passes directly **7.** _____ the body. For example, a regular I-ounce bag **8.** _____ chips containing 10 grams of fat and 150 calories would **9.** _____ 0 grams of fat and only 70 calories with Olestra. Same taste. No guilt. Certainly there must **10.** _____ a catch.

Exercise Eight. Read the text below, some sentences are correct and there is an extra word in some of them, find the mistakes.

1. More than 100 tests have been performed on Olestra in over the past 25 years.
2. In high quantities, consumers may be experience abdominal cramps or loose stools.
3. A decrease in the absorption of karotenoids and the fat soluble vitamins A, D, E and K from such other foods can also occur.
4. While Olestra may appear to be a quick solution, some might use it as another excuse to jump up on the fat-free bandwagon.
5. Olestra may eliminate fat grams, but consumers must remain on the lookout for so lingering calories.
6. Henroid sees bio-engineered foods as very prominent in the nutrition world of the future.
7. Among the pioneers of these foods is Monsanto, a national company is based in St. Louis.
8. That currently offers a so slow-ripening, cross-bred tomato.

9. Such advancements might encourage much consumers to increase their fruit and vegetable intake, Henroid said.

10. "They might make (fruits and vegetables) such more available," he said. 'Personally. I think the flavor is much better".

11. And where does this leave the health-conscious shopper?

12. Scrutinizing popular trends, decreasing overall fat consumption and eating a reasonable amount of food are very solid suggestions.

13. But the maze of food and nutrition fetishes won't become any more clearer in the future.

14. "We're all going to need to be better consumers", said Patti Lucin, NU co-director of health education.

Task Four. Read, translate and discuss the following article on the GM food.

The **GM food controversy** is a dispute over the advantages and disadvantages of *genetically modified* (*GM*) *food* crops. No documented health hazards have come to light since GM food was introduced in the U.S. (1994). Supporters of GM food argue that close to 150 governmental and/or industry-financed studies, and at least 47 peer reviewed articles in scientific journals have been published to attest to theoretical claims of safety. Consumer rights groups, such as the *Organic Consumers Association*, and *Greenpeace* respond by claiming the long term health risks which GM could pose, or that the risks of GM have not yet been adequately investigated.

Some scientists and economists express concern about the alleged harm delaying welfare and environmental improvements, for instance by *provitamin A* enriched *Golden rice* which is said to have the potential to prevent children from Vitamin A deficiency, and insect protected, but rice which can potentially reduce exposure of farmers to synthetic insecticides.

Other scientists and studies, however, dispute such findings and argue that GM foods aren't tested to scientific standards before being released to the public.

Another controversy recently arose around biotech company *Monsanto*'s data on a 90-Day Rat Feeding Study on the MON863 strain of GM corn. In May 2005, critics of GM foods pointed to differences in kidney size and blood composition found in this study, suggesting that the observed differences raises questions about the regulatory concept of *substantial equivalence*.

The raising of this issue prompted the European Food Safety Authority (EFSA) to reexamine the safety data on this strain of corn. The EFSA concluded that the observed small numerical decrease in rat kidney weights were not biologically meaningful, and the weights were well within the normal range of kidney weights for control animals. There were no corresponding microscopic findings in the relevant organ systems, and all blood chemistry and organ weight values fell within the "normal range of historical control values" for rats. In addition the EFSA review found that the statistical methods used by Séralini et al in the analysis of the data were incorrect. The European Committee has approved the MON863 corn for animal and human consumption.

Séralini et al have now completed a similar analysis of the NK603 strain of corn and have come to similar conclusions as they did in their previously discredited study.

Exercise One. Read the article below and write one word to fill the gap.

Public perception

Research by the Pew Initiative on Food and Biotechnology **1.** _____ shown that in 2005 Americans' knowledge of genetically modified foods and animals continues to remain low, and their opinions reflect that they **2.** _____ particularly uncomfortable with animal cloning. The Pew survey also showed that **3.** _____ continuing concerns about GM foods, American consumers do not support banning new uses of the technology, but rather seek **4.** _____ active role from regulators to ensure that new products **5.** _____ safe. Only 2 % of Britons are said to be "happy to eat GM foods", and more than half of Britons are against GM foods being available to the public, according **6.** _____ a 2003 study. Interestingly, about 550 *Amish* farmers in Pennsylvania **7.** _____ adopted GM crops, because they allow for less intensive farming (fewer pesticides, etc.), are more productive (under most conditions), and do not conflict **8.** _____ the Amish lifestyle.

Opponents of genetically modified food often refer **9.** _____ it as **"Frankenfood"**, after Mary Shelley's character Frankenstein and the monster he creates, in her novel of the same name. The term was coined **10.** _____ 1992 by Paul Lewis, an English professor at Boston College who used the word in a letter he wrote to the *New York Times* in response **11.** _____ the decision of the US Food and Drug Administration to allow companies to market genetically modified food. The term "Frankenfood" has become a battle cry of the European side in the US-EU agricultural trade war.

Exercise Two. Choose the appropriate word in the following sentences about food and drink.

1. He was so hungry he _____ his bowl of pasta in minutes.
A) sent B) horsed C) wolfed D) flung

2. I want to lose weight so I've decided to cut _____ cakes and biscuits.
A) up B) off C) short D) out

3. He was not at all hungry and just there _____ at his food.
A) picking B) pecking C) pointing D) licking

4. I'm not good at dieting – I eat sensibly all week but then _____ out on fast food at the weekend.
A) work B) pig C) rent D) eat

5. I was so thirsty I _____ back three glasses of water one after the other.
A) sent B) knocked C) dropped D) headed

6. Eat darling _____ or you'll be late for school.
A) into B) in C) out D) up

Exercise Three. Read the article below and answer the questions:

1. What are the tasks of The European Union funds research programmes?

2. When does a patent holder have a right to control the use of crops?
3. What is the essence of the technology "Terminator"?
4. What is "terminator" in this context?
5. What is the technology "traitor" intended to do?
6. What companies develop this technology?
7. What did the terminator gene technology create?

The European Union funds research programmes such as Co-Extra, that investigate options and technologies on the coexistence of GM and conventional farming. This also includes research on biological containment strategies and other measures, that prevent outcrossing and enable the implementation of coexistence.

If patented genes are outcrossed, even accidentally, to other commercial fields and a person deliberately selects the outcrossed plants for subsequent planting then the patent holder has the right to control the use of those crops. This was supported in Canadian law in the case of Monsanto Canada Inc. v. Schmeiser.

An often cited controversy is a hypothetical "Technology Protection" technology dubbed 'Terminator'. This yet-to-be-commercialized technology would allow the production of first generation crops that would not generate seeds in the second generation because the plants yield sterile seeds. The patent for this so-called "terminator" gene technology is owned by Delta and Pine Land and the United States Department of Agriculture. Delta and Pine Land was bought by Monsanto in August 2006. Similarly, the hypothetical Trait-specific Genetic Use Restriction Technology, also known as 'Traitor' or 'T-gut', requires application of a chemical to genetically-modified crops to reactivate engineered traits. This technology is intended both to limit the spread of genetically engineered plants, and to require farmers to pay yearly to reactivate the genetically engineered traits of their crops. Traitor is under development by companies including Monsanto and AstraZeneca.

In addition to the commercial protection of proprietary technology in self-pollinating crops such as soybean (a generally contentious issue) another purpose of the terminator gene is to prevent the escape of genetically modified traits from crosspollinating crops into wild-type species by sterilizing any resultant hybrids. The terminator gene technology created a backlash amongst those who felt the technology would prevent re-use of seed by farmers growing such terminator varieties in the developing world and was ostensibly a means to exercise patent claims. Use of the terminator technology would also prevent "volunteers", or crops that grow from unharvested seed, a major concern that arose during the Starlink debacle. There are technologies evolving which contain the transgene by biological means and still can provide fertile seeds using fertility restorer functions. Such methods are being developed by several EU research programmes, among them Transcontainer and Co-Extra.

Exercise Four. Put the verbs in brackets into the correct form.

Allergenicity

A gene for an allergenic trait **(transfer)** unintentionally from the *Brazil nut* into genetically engineered soybeans while intending to improve soybean nutritional quality for animal feed use. Brazil nuts already **(know)** to produce food allergies in certain people prior to this study. In 1993 Pioneer Hi-Bred International **(develop)** a soybean variety with an added gene from the Brazil nut. This trait **(increase)** the levels in the GM soybean of the natural essential amino acid methionine, a protein building block commonly added to poultry feed to improve effective protein quality. Investigation of the GM soybeans **(reveal**) that they produced immunological reactions with people suffering from Brazil nut allergy, and the explanation for this is that the methionine rich protein chosen by Pioneer Hi-Bred **(be)** the major source of Brazil nut allergy. Pioneer Hi-Bred **(discontinue)** further development of the GM soybean and disposed of all material related to the modified soybeans.

This study **(indicate)** some of the possible risks of GM foods. In particular that there is no law or regulation in either the United States or Canada that required Pioneer Hi-Bred or any other company for testing for allergenicity or toxicity of GM foods prior to them being licensed to be grown and consumed in their respected countries. Food allergy problems **(occur)** with many conventional foods, and Kiwi fruit, for instance, as a relatively new food in many communities, **(become)** widely eaten despite provoking allergies in certain individuals.

Another allergy issue **(publish)** in November 2005, when a pest resistant field pea developed by the Australian CSIRO for use as a pasture crop was shown to cause an allergic reaction in mice.

Respected plant scientist Maarten J. Chrispeels (**make)** interesting comments about this example that illustrate how foods offer many different types of risks.

The immunologist who **(test)** the pea noted that the episode **(illustrate)** the need for each new GM food to be very carefully evaluated for potential health effects.

Exercise Five. Read the article and decide whether the statements are true or false.

1. GM crops are healthy both for people and animals.
2. GM crops kill weeds.
3. GM crops provide for food security and environment protection.
4. Growth of cities extinguishes farm land.
5. Consumer diets are against animal protein.
6. Global food security may be supported by genetic resources.
7. GM technologies will benefit developing countries.

Environmental and ecological impacts

There has been controversy over the results of a farm-scale trial in the United Kingdom comparing the impact of GM crops and conventional crops on farmland biodiversity. Some claimed that the results showed that

GM crops had a significant negative impact on wildlife. Others pointed out that the studies showed that using herbicide resistant GM crops allowed better weed control and that under such conditions there were fewer weeds and fewer weed seeds. This result was then extrapolated to suggest that

GM crops would have significant impact on the wildlife that might rely on farm weeds. In July 2005 the same British scientists showed that transfer of a herbicide-resistance gene from GM oilseed rape to a wild cousin, charlock, and wild turnips was possible. Many agricultural scientists and food policy specialists view GM crops as an important element in sustainable food security and environmental management. This point of view is summarized in the ABIC Manifesto: _____ .

On our planet, 18 % of the land mass is used for agricultural production. This fraction cannot be increased substantially. It is absolutely essential that the yield per unit of land increases beyond current levels given that: The human population is still growing, and will reach about nine billion by 2040; 70,000 km² of agricultural land (equivalent to 60 % of the German agricultural area) are lost annually to growth of cities and other non-agricultural uses; Consumer diets in developing countries are increasingly changing from plant-based proteins to animal protein, a trend that requires a greater amount of crop-based feeds. More skeptical scientists as Dr. Charles Benbrook point out that improvement of global food security is hardly being addressed by genetic research and that a lack of yield is often not caused by insufficient genetic resources. Regarding the issues of intellectual property and patent law, an international report from the year 2000 states: _____ .

If the rights to these tools are strongly and universally enforced – and not extensively licensed or provided pro bono in the developing world – then the potential applications of GM technologies described previously are unlikely to benefit the less developed nations of the world for a long time (i.e. until after the restrictions conveyed by these rights have expired).

Unit Five

CHOCOLATE PRODUCTION

This unit aims to present and practise English as it is used both in the explanation of modern everyday machines and the processes they carry out. It also covers describing the operations needed to get machines to work ad to show others how to undertake certain business operations.

Task One. **Read the article from the magazine "The Economist", August 2nd, 1997.**

Exercise One. Choose the best phrase from the given below to fill each of the gaps.

A. A second link with the Chelsea garden;
B. Today, when almost every pleasure;
C. Casanova was said to find chocolate;
D. To understand why an exhibition;
E. When the brown chocolate bean;
F. Like other mysteriously alluring substances;
G. In 1687 young Sloane.

History of chocolate

Healthy calories

1. _____ on the history of chocolate is being held in the unlikely venue of the Chelsea Physic Garden in London, you need to bear in mind the 17th century approach to medicine. It was almost the reverse of current practice. Today vast sums are poured into formulating treatments for old and new diseases. Three hundred years ago, as European explorers came back from distant lands bearing fragrant and exotic substances; the aim of medical entrepreneurs was to identify ailments for which these strange imports could plausibly be touted as a cure.

2. _____ was introduced into Britain from Mexico and the American colonies it was at first made into a drink, with supposed – if ill-defined –medicinal qualities. The self-indulgent chocolate bar came later; the after-dinner mint later still.

3. _____ is that Sir Hans Sloane, its chief early benefactor, was a pioneer chocolate fancier, credited with dreaming up the idea of mixing the powdered bean with milk. Sloane was a towering figure in Georgian London, a driving force behind the establishment of the British Museum as well as a landowner whose name lives on in some of the capital's most fashionable streets and squares. Less appreciated is his contribution to the development of a national addiction: the average Briton chomps through 8 kg (nearly 18lb) of chocolate a year, consumption exceeded only by the Swiss.

4. _____ sailed to Jamaica to become physician to the colonial governor, and noticed that the local women administered chocolate to their sick children. Returning to London two years later, he experimented with his milk recipe and, having perfected it, sold it to a Soho grocer, whose successors sold it on to Cadbury's.

5. _____, chocolate has from time to time been regarded as an aphrodisiac. Montezuma, the early 16th century Aztec ruler, was reputed to consume up to 50 cups a day before repairing to his harem. His conqueror, Hernando Cortes, asserted in 1528 that a single cup enabled a warrior to go all day without food.

6. _____ more effective for his purposes than champagne; and cheaper to boot. Brillat-Savarin, a 19th century gourmet, also recommended it as a stimulant. In Britain, though, it is often taken as a soothing bedtime drink, an aid to slumber rather than seduction – suggesting that its effects may be as much imagined as real. A prolific 17th century letter-writer, Madame de Sévigné, complained that it once provoked a 16-hour attack of colic and constipation, but she learned to love it in the end.

7. _____ is identified as addictive, a name has been coined for those unfortunates who cannot get enough of the stuff: chocoholics. One victim of the condition may have been Katharine Hepburn, who boasted of eating a pound of chocolates a

day but kept her sylph-like figure to her death. Not everybody's metabolism is so benign. Because of its fat and sugar content, chocolate is usually an enemy of slender elegance. Hence the guilt invariably associated with the dark, melting temptress–and hence the ambivalent title of the exhibition that runs at the Chelsea Physic Garden until September 7th: "Vice or Virtue?"

Task Two. **Read the description of the latest production developments. Highlight the expressions which are used to describe the new plant in a positive way.**

Exercise One. Read the article below and write one word to fill the gap.

Cadbury and New Technology

Cadbury operate three chocolate factories in the UK. Two are at Bournville producing chocolate bars and chocolate assortments; **1.** _____ other, the Somerdale factory, produces bars such **2.** _____ *Double Decker*, *Crunchie* and *Fry's Turkish Delight* which are known as 'countlines'.

The modernization programme at Bournville, begun in 1980, **3.** _____ involved the rationalization of production. This consisted **4.** _____ bringing together individual product processing, **5.** _____ the one hand, and the most modern processing and control technology, **6.** _____ the other. The specialist machinery comes from Britain and abroad and **7.** _____ number of these machines have **8.** _____ produced to Cadbury's own design and specification.

The new plants operate 24 hours a day producing Cadbury products **9.** _____ the highest standards of quality control. The new *Wispa* plant produces 1,680 bars per minute with such precision that the size of the tiny air bubbles in the chocolate **10.** _____ controlled. The *Creme Egg* plant will produce 300 million eggs a year at the rate of 1,100 per minute, and has the capacity to produce 370 million. **11.** _____ comparison the machinery which it replaced was capable **12.** _____ producing only 257 million eggs annually.

Each week the Bournville site alone produces 1,500 tonnes of chocolate – 1.6 million bars of various kinds plus 50 million *Hazelnut Whirls*, *Almond Clusters* and other individual chocolates.

Exercise Two. Mark whether the statements below are true or false:

1. The Bournville produces the countlines.
2. The specialist machinery is produced by Cadbury.
3. The size of air bubbles in the chocolate is precisely controlled.
4. The old machinery could only produce 257 million eggs annually.
5. Chocolates ae no longer individually packed.
6. Individual microprocessors control temperature changes.
7. The packing systems check the weight of the additional ingredients.

Exercise Three. Read the article below, there is an extra word in every sentence, find the mistakes.

1. Before the automation programme, manufacture was a series of operations individually supervised by at separate control points.
2. Now one person does supervises the whole operation from a control room full of computer terminals and TV screens.
3. In the new *Wispa* plant, individual microprocessors monitor temperature at about 1,000 different points and information is fed up into the central computers that can deal with some 360,000 instructions per minute.
4. A major revolution was has been the automation of the packing systems.
5. Where previously chocolates were individually placed out by hand in the boxes, machines now do this.
6. New high speed chocolate bar packing plants have been introduced which are capable of making and wrapping 800 chocolate bars a minute and considerably more than of the treat size bars.
7. These variable high speed systems will be check the weight and where chocolate is produced with added fruit and nuts will also check for even distribution of these additional ingredients.
8. The automation programme means that a dozen of individual manufacturing plants will have replaced 37 old plants.

Exercise Four. Look at the statements below and at the reviews of a few businesses. Which review (A, B, C, D, E, F) Does each statement 1 – 9 refer to? You will need to use some of these letters more than once.

1. The company didn't want to have branded chocolate products in stock.
2. The company is going to utilize innovative equipment.
3. The project of the new plant will benefit the public.
4. The company ignores its customers' health risks.
5. The company provides a set of services for finished products.
6. A new definition of confectionary products is approved of by this company.
7. The company products may be displayed at the exhibition.
8. The lawsuit is in store for the company.
9. The company chose a new place in California.

A. Kraft to possibly separate from parent company

Kraft may soon be spun off into a separate company. Altria, the largest American cigarette maker and controlling shareholder of Kraft, may try to unlock shareholder value by turning Kraft Foods and Philip Morris into separate companies. The threat of a $280 – billion government lawsuit, which sought to indict companies it claimed defrauded the public by promoting smoking despite knowing its risks, basically prevented Altria from separating the units earlier.

B. Callebaut opens new Calif. facility

Zurich-based Barry Callebaut unveiled its new $20-million chocolate factory in American Canyon, Calif. late last month. The 150,000-sq.-ft. production facility features lines for the manufacture of approximately 27,500 tons of solid chocolate products per year and employs 52 people.

It will also provide warehousing, distribution and customer service for all finished goods of the Barry Callebaut Group on the West Coast and Mexico. The location was selected in part for its proximity to Napa Valley and the Culinary Institute of America in St. Helena, Calif.

C. Sweet: and savory snacks added to 2007 All Candy Expo

In response to retailers' and wholesalers' needs, the National Confectioners Association's Board of Trustees voted to adopt the global definition of confectionery products to determine what may be displayed at the annual All Candy Expo. Starting in 2007, exhibits may include chocolate candy, non-chocolate candy, gum, cookies/biscuits, sweet snacks, nuts and other savory snack goods. Research with domestic and international confectionery retailers and wholesalers showed that a majority buy other related product categories outside of chocolate candy, non-chocolate candy and gum.

D. Sugar producers announce plans for new refinery

Cargill Sugar North America plans to join forces with Louisiana Sugar Cane Products, Inc. (LSCPI) to build a million-ton-per-year sugar refinery at Cargill's Terre Haute Marine Facility in Reserve, La. LSCPI will provide the entire raw sugar production from its ten sugar cane mills, which totals about 800,000 tons per year. CargilI will sell and distribute refined sugar products from the joint venture to food and beverage customers. The project will be of huge benefit to the area, which was devastated by Hurricane Katrina.

E. ADM announces new cocoa processing facility

Decatur, 1Il.-based Archer Daniels Midland Co. announced plans this month to build a new cocoa processing plant in the mid-Atlantic region of the United States. The company is currently in the process of selecting a site and expects the facility to be operational in mid-2007. "ADM is furthering its leadership position in the cocoa marketplace with this state-of-the-art facility," said Mark Bemis, vice president and president of ADM Cocoa. "ADM's investment illustrates our commitment to our customers' growing needs for premium cocoa ingredients."

F. Ferrero products now found at: AIdi

Italian confectioner Ferrero signed a deal with the world's biggest discount supermarket chain to supply the chain with its chocolate products. Seven of Ferrero's brands will now be sold in Aldi stores in Germany. Previously Aldi chose to use a hard discount strategy where it refused to stock branded goods in favor of its own private lines. Ferrero becomes the first outside company to have its goods in Aldi stores.

Task Three. **Consider these questions:**

1. What advantages and disadvantages do you see with the introduction of more automated plants?
2. Can you agree on areas where you think it is a good idea to use them?
3. What will industrial workers then do?
4. Is it the end of work, as we understand it? And the beginning of The Leisure Society?
5. What do you think about training people to work in such plants?
6. Who decides what should be made? What is your opinion of this?
7. What are the advantages of manufacturing processes where only one person is needed?
8. What prospects do you see for the spreading of such operations and processes in our country?

Exercise One. Read the article below and choose the best word to fill each gap.
***Operations*: Explaining how things work.**

Describing how things **(go / function / become)** in a non-technical fashion is frequently required in business. You may have to **(work / write / explain)** how to operate a machine like a computer or an automatic ticket machine, or how to use a gadget. Also you'll need to understand **(manual / guidelines / explanations)** of how to get machines or gadgets to work.

It's important to be able to **(adjust / use / show)** your language in order to take into account the people you're talking to, whether they are your customers, clients or colleagues. People who use modern **(techniques / machines / things)** aren't all experts who understand the technical processes and terms. To be user-friendly you'll need to employ simple instructions in language which isn't too (**easy / complex / technical)**. After all, you'll often be dealing with non-experts, and they may not know the difficult words, so you'll have to explain them.

Exercise Two. Choose the best phrase from the given below to fill each of the gaps:
on a day-to-day basis; *for example*; *quite likely*; *in a simplified way*; *in addition*; *increasingly*; *in the course of*; *the use of machines*.

You may have to describe commercial processes and tell others how things are done. Business operations are becoming increasingly more complex, and some parts of business deals may involve explaining specific arrangements or processes **1.** _____ .

Perhaps you'll have to describe how a manufacturing process is organized, or you may have to explain the details of services which are offered and how they're arranged. You'll need to explain when certain things happen and in what order. **2.** _____, in some business settings, when things don't go according to plan you may be required to refer to and clarify problems that arise **3.** _____ a production process or commercial operation.

'Technological' processes may be involved. These frequently take place on production lines, in factories or in workshops, where raw materials are transformed into finished products. In many countries **4.** _____ has long been associated with manufacturing goods. **5.** _____, such processes are being partly and even fully automated. Robots may be used to replace people in dangerous and unhealthy or boring and repetitive tasks. But people are always required in manufacturing, in maintaining the robots, **6.** _____ So it's practically impossible to deal with technical processes without considering the role that people involved in the business operations play. So, given the rate of change in industry and commerce, it's **7.** _____ that business people may be expected to refer to fairly complex manufacturing processes and operations, even if they aren't involved in them **8.** _____ .

Exercise Three. Read the article and choose the best beginning phrase from the given below to fill each of the gaps.

A. Along those lines;
B. Chocolate has been;
C. Although other trends;
D. These findings from trend research;
E. Zurich-based Barry Callebaut.

1. _____ in the news more than ever over the past several weeks, with a constant stream of new studies and products touting the recently discovered health benefits of the traditional confectionery ingredient. These headlines have led many leading chocolate and cocoa companies to shift to the dark side. Not *that* dark side–the dark side of chocolate.

2. _____ continue to emerge in the category, including chocolate fountain products and new flavor combinations, high-cocoa content dark chocolate products prove to be the most popular with customers.

3. _____ has released several products recently, but finds that current consumer trends basically fit into three categories: health and well being, taste experience/indulgence and convenience.

4. "_____ and consumer observation serve as a guide in the pursuit of innovation throughout our company. We are offering our industrial customers more products that combine great taste with good nutrition", says vice president of corporate communications Gaby Tschofen. "Those consumers who are looking for great taste can try chocolate rich in cocoa and at the same time benefit from the high concentration of healthy, natural polyphenols".

5. _____, the company's most popular products with customers are dark chocolates with high cocoa contents and single-origin chocolates. Callebaut's newest products, however, fit more into the organic and new flavor categories, with the company's release of a honey milk chocolate and "a lot of developments currently going on for organic chocolates and Fair Trade chocolates," according to Tschofen.

Exercise Four. Read the article below and write one word to fill the gap.

ADM Cocoa, producer of the *Merkens*, *Ambrosia* and *De Zaan* brands, also recognizes customers' attraction **1.** _____ the dark side with two new dark chocolate products released under the *Merkens* brand. The company introduced new versions of its *Yucatan* and *Beaujolais* products, *Yucatan* Seventy and *Beaujolais* Seventy, which **2.** _____ 70 % cocoa-content dark chocolate.

"Consumers continue to be aware **3.** _____ the growing evidence that chocolate can be a 'good for you' product," says vice president of confectionery sales and marketing Bill Ryan. "It seems when they want chocolate, they prefer high-end offerings".

The company also recently introduced *Merkens* Falls Milk Chocolate and Dark Chocolate–products designed **4.** _____ use, without any additions, in chocolate fountains.

To help their effort to join the dark side, the Peter's Chocolate brands, owned **5.** _____ Cargill, now include new semisweet and bittersweet products among their ranks. New *Bennigton* Semisweet Chocolate is a rich, dark chocolate that's good for one-shot moulding. The company's new high-cocoa content product is their *Cambra* Bittersweet Chocolate, which contains 72 % cocoa solids.

"*Cambra* Bittersweet Chocolate was introduced to meet the **6.** _____ of confectioners who are interested **7.** _____ creating confections with a higher cocoa content," says Cargill marketing associate Courtney LeDrew. "Dark chocolate is gaining in popularity in part **8.** _____ the recent headlines touting its potential health benefits and *Cambra* Bittersweet Chocolate gives confectioners an opportunity to meet this demand."

New products from Wilbur Chocolate (also Cargill-owned), on **9.** _____ other hand, focus more on the growing popularity of chocolate fountains and new flavor combinations. *Tambora Milk* Chocolate and *Bandelier* Semisweet Chocolate, in wafer form, are low in viscosity, making them ideal **10.** _____ use in chocolate fountains.

Exercise Five. Read the article below and put the verb into the appropriate tense form.

"The popularity of chocolate fountains at weddings and parties **1. (grow)** with the widespread availability of affordable chocolate fountains", LeDrew comments. "Wilbur's Chocolate Fountain Chocolate **2. (meet)** the demand of confectioners and caterers for high quality, great tasting chocolate that is crafted to function in fountains".

Wilbur's other new product, *Hot Coats* Confectionery Coatings, **3. (feature)** spicy flavors (ginger, jalapeno and chili) to capitalize on the growing popularity of unique chocolate flavor combinations.

"Chocolatiers **4. (begin)** to experiment with flavors that historically **5. (not pair)** with chocolate. They can be ethnic, they can be exotic, or they can be surprising", says LeDrew.

Despite many companies' increased focus on dark chocolates and new flavors, LeDrew **6. (be)** quick to point out that milk chocolate remains popular saying that it is "still North America's favorite and sales of the highest-quality milk remain robust".

To satisfy customers who continue to look for new ways to use this old favorite, Peter's Chocolate also **7. (introduce)** a second new semisweet chocolate and a new milk chocolate product. *Lenoir* Semisweet Chocolate features a robust vanilla flavor with fudgy and fruity notes while *Maridel* Milk Chocolate is a well-balanced milk chocolate flavored with natural vanilla.

While it's clear that chocolate and cocoa producers **8. (not totally shift)** over to the dark side, consumers have pushed dark chocolate–with its associated health benefits–out of the shadows and onto center stage.

Task Four. **Listening comprehension: Chocolate Production.**

Make the flowchart of the process and number the operations of chocolate production after listening to the recording.

Speaker: In the case of all Cadbury's chocolate products the basic ingredients are, of course, ***cocoa beans***. We buy our cocoa beans from Ghana and some from Malaysia 50,000 tonnes of cocoa beans are processed each year at the factory but that's before the actual chocolate-making process can be started.

When they arrive at the cocoa factory the cocoa beans are sorted and ***cleaned***. And then they're ***roasted*** in revolving drums at a temperature of about 135 degrees. The actual time for roasting depends on whether the use at the end is for cocoa or chocolate.

Now after that, the next processes are called ***kibbling*** and ***winnowing***. Well first, in the kibbling stage the beans are broken down into small pieces. And at the same time the shells are blown away by air currents. The technical term for that process is 'winnowing'. And so, then you've got the broken pieces of cocoa beans. And those are known as 'nibs'. OK?

Well, now in the next stage the nibs are taken and **ground** in mills until the friction and the heat of milling reduces them to a thick chocolate coloured liquid. The result of the grinding stage is known as 'mass'. Now, this contains 55 to 58 % cocoa butter and, of course, that solidifies as it cools. And it's the basis of all chocolate and cocoa products.

Cocoa *powder is* made by extracting about half the cocoa butter through ***pressing*** in heavy presses. And that cocoa butter is later added back in the chocolate making process.

Right then, now after the mass has been produced, we come to the actual chocolate making process itself. I'm going to tell you about the production of *milk* chocolate.

Well, at the milk factory the mass, the cocoa mass, is ***mixed*** with liquid full cream milk and sugar which has already been ***evaporated*** to a very thick liquid. The resulting chocolate creamy liquid is then dried. At that stage it's called 'chocolate ***crumb***'. Then that's taken to our factories at Bournville and Somerdale in Bristol.

There, the 'crumb' is mixed with the additional cocoa butter and special chocolate flavourings. And this is then turned into a kind of ***paste***. And it's ***ground*** again and pulverized further.

The chocolate, which has had sugar and cocoa butter added to the mass before grinding and pulverizing, now undergoes the final special production stages. Now, the most important component of chocolate as far as the texture is concerned, is the addition of fats. The final processes of '***conching***' and then '***tempering***' are essential in the process they control the texture and ***viscosity*** of the chocolate before it can be used in the manufacturing process. Are you with me so far? Good!

Now 'conching' involves mixing and beating the semi-liquid mixture to develop flavour and reduce the viscosity and the size of the ***particles***. Well, basically, what this means is that it stops it becoming too sticky and enables it to be manipulated. And then comes the tempering. This is the last stage and it's crucial: what it means is mixing and cooling the liquid chocolate under very carefully controlled conditions to produce chocolate in which the fat has set in its most stable ***crystalline*** form.

It is the tempering of the chocolate that gives it the famous Cadbury smoothness, and gloss and the snap. Without this last process the chocolate would be very soft and gritty, and there'd be large crystals inside it and it would have a very dull grey appearance.

Well then, there we are, that's how milk chocolate is made …

Exercise One. Read the article and decide whether the statements are true or false.

1. Different frictions are needed to be changed effortlessly and individually.
2. Adjustment of frictions between the rollers goes with changing gears.
3. Downtimes resulting from recipe changes are greatly increased.
4. The five-roll-refiner is ideal for heat-sensitive products.
5. Some air is incorporate in the cooling water system.
6. Cooling water is kept in a very even way under the whole surface of the roll.

Innovations

Given its rich history with five-roll refiners, it was only natural that F.B. Lehmann introduced a new generation of such refiners at Interpack 2005. Two key developments highlight the innovations:

1) The new generation of F.B. Lehmann five-roll refiners contains five rollers, five motors and five frequency converters. The result is an absolutely flexible, immediate adjustment of frictions between the rollers without changing gears. Different frictions are needed for different recipes, such as for milk chocolate and darker chocolate. The different settings of each roller can be stored and recalled back as a recipe in the Multipanel. The speeds and therefore the frictions can be changed effortlessly and individually. A very fine selective adjustment can be made to optimize taste, fineness and capacity. Downtimes resulting from recipe changes are greatly reduced.

2) In combination with a newly developed forced cooling water system, the five-roll-refiner is ideal for heat-sensitive products, such as milk chocolates as well as for superior, absolutely fine chocolates (17 and 18 microns). The reason: The heat is guided away from the friction area in an optimum manner, to preserve the fine taste even under tough friction conditions.

Cooling water is pressed through the rollers in a safe "first in, first out" process. No air is incorporate in the cooling water system. As a result, cooling directly under the hardened surface of the roll very near to the friction area is ensured. In addition, cooling water is distributed in a very even way under the whole surface of the roll by a U-turn channel design (displacement internal jacket).

The new five-roll-refiner generation is ideal for a high production flexibility and highest quality products. Primarily because of the forced cooling water system, the new generation is able to grind remarkable higher capacities than other machines with the same roller dimensions on the market.

Exercise Two. Read the article below and choose the best word to fill each gap.

Fast Track Engineering

Fast Track Engineering, a new Australian company, was **1. (created / made / built)** to provide the confectionery industry with new ideas and opportunities in the manufacure of soft-boiled candies. The company aims at improving day-to-day operations while creating a superior product **2. (in connection with / in regards to / regardless)** quality, taste and texture.

Fast Track Engineering's main expertise **3. (goes / results / comes)** from the knowledge – gathered over decades – of how to design and manufacture high quality confectionery machines while working with the purchaser to ensure ultimate satisfaction. That relationship continues, as FastTrack **4. (provides / gives / offers)** the purchaser with the afterservice support required to guarantee a long-lasting investment.

The company's broad range of mogul equipment **5. (takes / includes / engages)** auxiliary equipment such as sugar sanders, oiling machines and finishing conveyor systems. It also includes all key equipment to provide customers with a complete **6. (turnkey / clear / full)** system, such as starch drying/cooling system, dust collectors with a built-in starch balancing hopper **7. (also / as well as / both)** free-standing dust collectors with a rotary valve and screw conveyor system. Fast Track Engineering also offers a custom-designed, fully intergraded pallet transport and product drying system, which no other organization **8. (does / builds / creates)** worldwide.

Given the company's **9. (internal / professional / in-house)** skills, Fast Track Engineering can support existing mogul users in daily operations. This expertise extends beyond design and manufacturing **10. (techniques / ways / technology)**, encompasses technical, operational and mechanical service advice. Please note that the company can also recondition existing pumps.

Because Fast Track Engineering is a very competitive organization, it invites customers to test its expertise and equipment against others.

Task Five. Read the article on making candy and answer the following questions.

1. What was the old way of candymaking?
2. What is Abdallah Candies famous for?
3. What was the company approach to candymaking in the past?
4. How does the company update its practice?
5. What kind of customers does the company cater to?
6. What products are the most popular with their customers?
7. What is the traditional method for making caramel-base products?
8. What do single-serve products include?
9. Which is the fastest-growing market segment today?
10. What do customers think about sugar-free products?

While many candy companies fervently search for the latest and greatest to try to outwit competitors, there are a few that remain successful by staying with the old tried-and-true methods of candymaking. By concentrating on satisfying their current customers, new ones appear.

Burnsville, Minn.-based Abdallah Candies, a fourth-generation family-owned company known for its caramel, toffee and chocolate candies, still makes candy in small batches. Moreover, it still operates several pieces of equipment that go back more than three generations. Although the company has started to expand and update its practices, one foot remains firmly planted in the past.

"You're usually either production-oriented or sales-oriented and up until not that long ago, we were always very production-oriented", says company president Steven Hegedus Jr., whose great-grandfather started the company in 1909. "Coming up to this point it's pivoted a little after hiring a national sales manager, but it's always been just produce what we can and make sure we take care o[our existing customers. Expansion wasn't really our primary goal. Our goal was to satisfy the customers we had". Along those lines, Abdallah's wholesale business (which comprises the bulk of the company's sales) still caters to the small customer. The company only requires a $100 minimum for first-time customers, with no minimum for reorders. Most of their 6,500 wholesale customers consist of upscale grocery stores, hospital gift shops, university bookstores, card shops and other general gift stores. "You don't have to buy a large quantity to buy from Abdallah and that's one of the reasons why we have so many customers", says Steven. "We have a lot of small customers. In any day we could gain a dozen, and three or four can go out of business". The company also does private-label manufacturing, with about 25 % of its production focusing on this area.

According to Steven, any of their caramel-based products, from the 14 different varieties of wrapped caramels to their Cashew *Grizzlies* (a Turtle-like combination of cashews, caramel and chocolate) are the most popular with their customers. Although some of the wrapped caramel flavors are slightly unusual, including licorice and chocolate mint, the company sticks to traditional methods for making them. Corn syrup, sugar, sweetened condensed milk and cream are mixed together and cooked in a Savage Bros. copper kettle for 45 minutes before being poured out onto a water-cooled table. After cooling, employees cut the caramel into long strips and feed them into an APV wrapping machine that individually wraps each piece of caramel at a rate of 450 pieces a minute.

Also popular with customers are the company's single-serve products, which include individually wrapped cashew, peanut and pecan *Grizzlies*, butter almond toffee, Birch Bark (white coating and almonds) and Alligators (Abdallah's version of a *Turtle*) among several others. "That's our fastest-growing segment of the market: the pickup, single-serving candy", says Steven, who also mentions that their sugar-free products, available in single-serving and larger gift packages, are popular as well.

"I know a lot of people make sugar-free, but I don't think there are too many people who make good sugar-free. With sugar-free, people are kind of expecting it not to be good, so they don't really think that it can be".

Exercise One. Read the article below and write one word to fill the gap.

Although no one knows for sure what **1.** _____ the very first candy products produced by Abdallah Candies way back in 1909, records clearly identify the founders **2.** _____ Lebanese immigrant Albert Abdallah and his American wife, Helen Trovall. Albert had previously owned a small fruit store and soda fountain **3.** _____ Minneapolis, Minn., which was where he met his future wife. Married in 1909, Albert sold his current business **4.** _____ that he and Helen could take a six-month honeymoon in his native Syria. Upon their return, the pair opened the first Abdallah Candies location, called Abdallah's Candy and Ice Cream Shop **5.** _____ the time, on Hennepin and Lake in Minneapolis.

"My grandmother did flowers and they **6.** _____ first buying the candy, but then my grandfather started making the candy", says Steven's mother Vicke Hegedus, Albert and Marie's granddaughter. "**7.** _____ those days someone would come around and sell you a recipe. So my grandfather would buy a recipe, but as anyone in the candymaking business knows, there's more **8.** _____ just the recipe involved. He got to the point where he wouldn't buy a recipe **9.** _____ that person would make a batch with him so he would know how to make it. And that's how he got his recipes". Albert started **10.** _____ these recipes and developed them into his own, later helped by his son-in-law, Glenn Oletzke. **11.** _____ one time the business included a restaurant that could seat 200 with an attached candy shop. Glenn first started working at the Abdallah restaurant and candy shop while attending business school and it was **12.** _____ his time serving customers that he met Albert's daughter, Marie. The two married **13.** _____ 1935 and Glenn eventually served as company president for many years. Vicke remembers helping with the business from early on **14.** _____ her childhood.

Exercise Two. Choose the best phrase from the given below to fill each of the gaps:

A. We used to come as a family;
B. After surviving bankruptcy;
C. We used to make ice cream;
D. My dad's chief candy maker;
E. During his time running the company.

1. "_____ and I was supposed to get some of my friends after Bible school in the spring and we would have to pick the tops off of strawberries. Those strawberries were used in the ice cream and toppings", she says. "Then when I was older we used to hand-foil some candies so I got to do those and in high school I worked some in the shop. It's always been a part of my life; it's always been there because my parents worked so many hours in the business." The family business's presence continued into her adult life; just 10 months after marrying her husband, Stephen (Steve) Hegedus Sr., Steve went to work for Abdallah Candies as well.

2. "_____ got called up for the Bay of Pigs. He needed a candymaker so he asked if [Steve] wanted to come work for him and he did", says Vicke. Although Steve had no previous candymaking experience, he was eager to learn the trade from his father-in-law. "I had a really good teacher. He was a disciplinarian, very stern, but I didn't mind learning", says Steve (Sr.), who currently serves as CEO.

3. _____ in 1935 due to the Depression and a devastating fire in 1965, the third generation started running the company in 1973 when Glenn and Marie retired. Steve Sr. became president and with that position took on responsibilities that often kept him up at night. "I would wake up at night and I'd have pressure thinking if the prices were right. My father-in-law was always telling me, 'You gotta have the right prices.' And I had 14 people here who were counting on their jobs. You wake up and all of a sudden you think, 'that's your responsibility now", Steve (Sr.) remembers.

4. _____, Steve (Sr.) stayed fairly conservative, making sure to take care of Abdallah's current customers, but not necessarily eager to take on new ones. "I was very content being where I was. We always grew 5 % to 10 % every year and that was fine", he says. "We were very conservative in those days to not step over our boundaries of what we could produce". Once her children were in school, Vicke also became more involved with the business, taking over the company's only retail store, located right outside the factory.

5. _____ Dad, Mom, me and my sister would come on Sundays and we'd be sitting on the packing belt-just the four of us-filling orders because you'd have the shelves behind you that were empty", says Steven (Jr.).

"I used to come to fold boxes in the corner. I think Dad used to forget about me because I would just have hundreds of boxes around me".

Exercise Three. Read the article and decide whether the statements are true or false.

1. The company brand makes customers familiar with the company product.
2. The national sales manager had experience in candy making.
3. Steven (Jr.) didn't want to expand their presence in the gift industry.
4. The new boxes feature various muted colors with the new Abdallah logo and a bow on the upper right corner.
5. It took three years to develop a simple box with a logo and a bow.
6. The recipe for the company's caramels didn't change to increase shelf life and productivity.
7. To accommodate the large number of caramel apples the company makes during the fall, the company developed continuous caramel cooker.
8. The Yorkshire Process Plant continuous caramel cooker that currently makes caramel dip may be used for all of the company's caramels.

"My goal is to build the Abdallah brand, to do solid brand building so people are familiar with Abdallah in our new areas that we're into, outside of the Minneapolis area. That's what's gotten us here today", says Steven (Jr.). Part of realizing this goal involved hiring a national sales manager, Madonna Schmitz. She joined two and a half years ago to help expand the line through outside sales people. Interestingly, Schmitz had experience in the gift industry rather than in candy, which Steven (Jr.) saw as a strength. "When she came on board, she said, 'What's a wrapped caramel?' and 'What's a Cashew *Grizzly*?' She started from the very bottom. She was [then] able to spell out this program and dissect it [to other people] ", he explains. "So when we would have sales people sell it, it would be easy for them to understand and pickup and sell".

Steven (Jr.) also changed the packaging the company used, which had been the same for decades, in order to expand their presence in the gift industry. "We've just redone our packaging so it's more of a gift box. Before it was just a brown box with a clear lid, so you could see the candy, but there really was no packaging to speak of" he says. The new boxes feature various muted colors with the new Abdallah logo and a bow on the upper left corner. Despite the relative simplicity of the design, it took a long time to finalize. "It took a couple years to develop a simple box with a logo and a bow. You sit there and you examine every little thing. We probably spent a whole day discussing whether that rose pictured above the Abdallah name on the logo should be over here a little bit more or over here. But we knew whatever we stuck with was going to be our brand", says Steven (Jr.).

Some of the processes used to make the candy have also changed, with some changes occurring under Steve (Sr.), some under Steven (Jr.) and some to come in the future. During Steve's (Sr.) time as president, the recipe for the company's caramels changed to increase shelf life and productivity. To accommodate the large number of caramel apples the company makes during the fall, the company developed its own caramel apple-dipping machine, which produces 4,000 apples an hour. The machine dramatically cut down on the amount of space and the number of employees needed with the old hand dipping method. In the future, Steven (Jr.) hopes to be able to use the Yorkshire Process Plant continuous caramel cooker, which currently makes caramel dip, for all of the company's caramels. The switchover would boost output versus making caramel in copper kettles. They are currently working on tweaking the recipe for their wrapped caramels to allow them to do this.

Exercise Four. Read the article below and choose the best word to fill each gap.

Despite his conservative business approach as company president, Steve (Sr.) knew that changes were **(*made* / *bound* / *chosen*)** to happen with future generations. In order to help their son **(*achieve* / *gain* / *reach*)** what he wanted with the company, Steve (Sr.) and Vicke bought a new piece of property in Burnsville in 1987 and eventually built a bigger facility, which they **(*came* / *went* / *moved*)** into in 1997. "We bought the property thinking that someday we might need it. But we were at the **(*moment* / *point* / *time*)** where we were thinking, "we don't want to get bigger", Vicke remembers. "Yet Steven, who was coming up in the business, had no room to grow. Steve and I talked and thought, we had our **(*chance* / *time* / *moment*)** to do our thing, and if we build the building, Steven will have his chance to do his thing. So without the bigger building the growth wouldn't have been here, it would have been **(*stable* / *firm* / *stagnant*)**".

The move more than doubled the company's space – 15,000 sq. ft. to 32,00l} sq. ft. Although adequate at first, Abdallah Candies was **(*given* / *caused* / *forced*)** to expand again seven years later, thus in Dec. 2004 they built an addition, boosting the facility's size to 60,000 sq. ft. With the expansion the family hoped to **(*include* / *be* / *get*)** a tour area so customers could walk through the building and watch the candies being made, but due to space constraints they settled on a **(*watching* / *looking* / *viewing*)** area. Customers can now watch employees hand-dip certain varieties of truffles and make Heavenly Hash (a combination of chocolate, marshmallows and walnuts), among other handmade products, through a **(*window* / *door* / *slot*)** in the retail store. The extra space this arrangement gives allows the family to plan on staying at their current location long into the future.

"We're at capacity as far as the building is **(*concerned* / *taken* / *made*)** but we're far from capacity in production. We have a long way to go before outgrow this building," says Steve (Jr.). Given the constant balancing act of expansion while **(*preserving* / *keeping* / *reserving*)** tradition and quality, Steve (Jr.) echoes the feelings about pressure that his father felt over 30 years ago. "I feel it is a lot more responsibility", he says. "We have over 100 employees, and I feel a great deal of **(*duty* / *responsibility* / *commitment*)** toward them and their livelihoods. The family legacy is important to hold up, too, as well as the quality". With a little luck, Steve (Jr.)'s heirs will also bear that responsibility in the future.

Exercise Five. Define which paragraph (1, 2, 3, 4, 5) each statement (A, B, C, D, E) refers to.

A. Wrigley has definitely prepared to protect its share of the market.
B. The January 2006 rollout also includes four new sorts of gums.
C. Wrigley is feeling lack of space.
D. Wrigley's commitment to product development came with investment and innovation activities.
E. The new brands resulted in about two- thirds of the volume gain for the quarter and about a third of the volume gain year-to-date.

1. Just five months after finalizing their acquisition of confectionery brands from Kraft Foods, Chicago-based Wm. Wrigley Jr. Co. continues to expand and grow, preparing to release eight new products in January 2006.The new products, which include *Douhlemint* mints, Cool Watermelon *Extra* and Cinnamon Inferno and Midnight Cool *Eclipse*, follow a previous major rollout of seven new items in June, which was then the biggest expansion over any comparable period in the company's 114-year history. The January 2006 rollout also includes extensions of former Kraft brands, with new Wintermint *Orbit White*, Mango Sour *Altoid* mints, tropical *Creme Savers* and Berry Sours *Lifesaver Gummies* to be introduced.

2. This announcement marks a significant shift in business strategies for Wrigley over the past several years. New products now constitute 20 % of sales, up from 5 % in 1999 when Bill Wrigley first became chief executive of the company. "It has definitely been a step up with investment and innovation activities", says senior director of corporate communications Christopher Perille. "Everything really begins and ends with consumers, though. As long as we see continued opportunities with the brands, we'll continue developing new products." Further evidence of Wrigley's commitment to product development came with the opening of the $45 million Global Innovation Center last month, where Wrigley scientists and food technicians will work on new products and conduct focus groups.

3. Wrigley also recently announced results for the three-month and nine-month periods ending on Sept. 30, 2005. Sales are up 16 % for the quarter and 14 % in the nine-month period, with worldwide volume gains of 20 % and 14 %, respectively. The new brands account for about two- thirds of the volume gain for the quarter and about a third of the volume gain year-to-date. "In the third quarter we were really running the new brands as is," says Perille. "About 30 days after the acquisition was finalized we had a meeting to bring together the team and introduce them to the brands and the opportunities associated with them. Then we had the national sales meeting in September and that's where we laid out the January releases."

4. With all the recent changes and expansions, Wrigley is beginning to run out of room in their current offices. The company signed a lease early this month for about 100,000 sq. ft. of space at 600 W. Chicago Ave. in Chicago, the former headquarters for Montgomery Ward & Co. Although the number of employees who will be moved to the new offices has not yet been determined, the space should be ready early next year, according to PeriIle.

5. With gum being the fastest growing confectionery category, Wrigley is facing some steep competition from its rival Cadbury Schweppes. The UK-based conglomerate bought Adams gum from pharmaceutical group Pfizer two years ago and is making inroads in some of Wrigley's biggest markets, including the U.S. and Canada. Wrigley still commands 35.4 % of the gum industry, though, compared to 26 % for Cadbury, according to Euromonitor. With its new product releases, new brands and new facilities, Wrigley has definitely geared up to defend its share of the market.

Exercise Six. Look at the statements below and at the reviews of a few businesses. Which review (A, B, C, D, E, F) does each statement 1 – 9 refer to? You will need to use some of these letters more than once.

1. Internet is used to coordinate the company performance.
2. The product line is of great variety in this company.
3. This product just melts on the tongue.
4. A new sweetener like sugar may appear in the near future.
5. Environmentalists are concerned with lack of light.
6. This company expands its chain of stores.
7. This product contributes to improving people's health.
8. This company shows the cocoa content on its product packages.
9. People are against air polluting in their neighborhood.

A. Blommer cited for cocoa dust emissions

The U.S. Environmental Protection Agency cited the Blommer Chocolate Coo's Chicago plant earlier this month for violating limits on opacity, or the amount of light blocked by the factory's grinder dust. After a neighbor complained about the smell of burnt chocolate, the EPA sent an inspector to the plant in early Sept., leading to the citing and possibly a future government fine. Blommer says it is installing new filtering equipment to prevent opacity violations from recurring.

B. Ghirardelli UpS cocoa content in baking chocolate

Improving its already popular dark baking chocolate, San Leandro, Calif.-based Ghirardelli Chocolate Co. announced a formula change that includes higher cocoa content. The Bittersweet Chocolate Baking Bar and Bittersweet Chocolate Chips now contain 60 % cocoa, giving their chips the highest cocoa content of any national baking chip brand. The company also added a new Extra Bittersweet Chocolate Baking Bar with 70 % cocoa. Ghirardelli becomes the first nationally available brand of baking chocolate to include cocoa percentage information on the packaging of its dark chocolate products.

C. Fanny May opens both seasonal and permanent locations

Preparing for increased demand with the coming holiday season, Fanny May Candies opened their 50th retail store earlier this month in Mount Prospect, Ill. Located at 201 S. Main St., the first 50 customers to the store received a I-lb. box of Pixies. Three other Chicago-area stores will open throughout November in Orland Park, Palos Heights and Romeoville, with six other seasonal locations also opening this month in Chicago-area shopping malls.

D. Company introduces chocolate line with herb blends

A new range of Swiss chocolate bars was introduced by Orgasmic Chocolates this month. Launched in the UK, these bars contain organic and Fair Trade-certified cocoa beans and herbs to produce a mellowing effect. Different blends of Chinese herbs are used: Sage root to invigorate blood circulation, Longan fruit to reduce stress and Radix ginseng to increase stamina and recovery.

E. Gertrude Hawk launches new Web site

Together with Pipeline Interactive, Dunmore, Penn.-based Gertrude Hawk Chocolates launched a new company Web site. The site was restructured to provide greater integration with company stores in New York, Pennsylvania and New Jersey. Sections include products, gifts, corporate gifts and fundraising, with sections for wedding gift and baby shower favors to be added in the near future. Pipeline also worked with Gertrude Hawk on a full promotional campaign including search engine marketing and e-mail broadcasts. The site can be viewed at http://www.gertrudehawkchocolates.com.

F. New study reveals how taste buds react to sugar

According to a study conducted by The University of Manchester and The University of Maryland School of Medicine, a low-calorie sweetener that tastes exactly like sugar could be just around the corner. The study measured for the first time how sugar and some synthetic sweeteners interact with two types of taste receptors on the tongue. Some synthetic sweeteners only interact with one receptor while sugar interacts with both. Sucralose, or *Splenda* (manufactured by Tate & Lyle) interacted with both receptors, but with a greater intensity than sugar.

Task Six. Read the article and choose the best beginning phrase from the given below to fill each of the gaps.

A. Not only can the XZ depositor;
B. Drawing upon years;
C. From there, the ready mass;
D. These marshmallow products;
E. In other words;
F. In view of the short product life;
G. Once cooked;
H. After cooling.

Haas-Mondomix

Ensuring variety and flexibility

1. _____ of development and its extensive field experience, Ea Almere, Netherlands-based Mondomix continues to add innovation and flexibility within the marshmallow and aerated products sector. The company recently installed a number of lines, all of which are capable of producing a wide variety of novelty marshmallow as well as aerated chocolate products.

2. _____ are deposited on a flat belt and range from animal shapes to various 3-D shapes. For manufacturers, the key advantage here involves the ability to turn out a multitude of products on the same line.

3. _____ cycles prevalent in the marketplace, Mondomix understands the need to produce and sell equipment that provide its customers maximum flexibility and versatility. For example, there's been great interest in the production of marshmallow chicks and bunnies. Typically, marshmallow production begins with the buffering of raw ingredients (sugar, water, dextrose, gelatin and additives) in stainless steel vessels. After weighing, the ingredients are premixed and then fed to a steam-jacketed buffer in a continuous cooking process or to a thermosyphon cooker in batch cooking process.

4. _____, the syrup needs to be cooled. This can be done either batch-wise by means of two cooling vessels with a stirrer or alternatively by means of a continuous scraped surface heat exchanger. Either system is executed with temperature controllers and necessary control systems.

5. _____, the product undergoes buffering before it can be aerated. The main feed pump of the aerator is executed with a frequency controller, which transmits a signal to the control panel in order to have the pump synchronized with the air injection system.

6. _____, regardless of the capacity, the outgoing product has the same density/consistency. The injection of a gas takes place just prior to the mixing head. Pins on rotor and stator see to it that the gas is evenly dispersed under pressure into the product. The 3A-certified mixing head provides constant sheer. Discharge of the aerated product to the manifold depositor is by means of jacketed pipework.

7. _____ is fed to the manifold depositor. Two types of depositors are available: the XZ depositor, whereby the manifold can move up and down, forward and backward, or the XYZ depositor which includes all the movements of the XY as well as a sideways direction.

8. _____ produce items such as an angel kiss, snow balls, tea cakes etc., it can also turn out animal shapes such as chickens, ducks, etc. Moreover, the line can make jam-filled products, or other encapsulated products. A simple manifold change allows manufacturers to change product shape. With the XYZ depositor, companies are producing a broad range of 3-D shapes, including marshmallow pretzels, Christmas trees, candy canes, donuts, etc.

Exercise One. Look at the statements below and at the reviews of a few businesses. Which review (A, B, C, D,) does each statement
1-7 refer to? You will need to use some of these letters more than once.

1. Customers approve of nutritional nuts.
2. Its recipe contains fruit and nuts.
3. This product is used in many others.
4. Sweeteners don't change the taste of this product.
5. A new ingredient covers a lot of different qualities.
6. There is no water in the product.
7. This product can be ordered by phone and e-mail.

A. The Hook:

Available in Almond Raisin, Apple Cinnamon, Peanut and Cranberry Crunch flavors, every variety is 100 % certified organic and contains no cholesterol or trans fat. Each 1.4-oz. bar contains 3 to 6 g. of protein, is low in sodium and, except the Apple Cinnamon variety, is gluten-free. They are available in bulk by calling (877) 330-2746 and on the company's Web site at www.healthyroads.com. **Ingredients:** (Apple Cinnamon) Rolled oats, raisins, agave syrup, peanuts, apples, almonds, rice syrup, crisp brown rice, cinnamon. **Suggested Retail Price:** $42.96 per 24-count box.

B. New fruit ingredient released by SVZ

Cosun company SVZ recently introduced their new product, *Verifruit*, with an official release scheduled at Fi Europe. *Verifruit* is a new fruit ingredient that has many of the same properties of fresh fruit, including color, juiciness and softness, but with most of the water replaced by sugar in a cold infusion process developed by the company. The product is available with syrup, without syrup and dried for use in pastries, cakes and snacks, among other products.

C. Nutrinova features *Sunett's* benefits at Fi Europe

During this year's Fi Europe show, Germany-based Nutrinova plans to highlight how sweetener technology can make finished products healthier. By holding beverage taste tests, the company will demonstrate how different blends of *Sunett*, a high-intensity sweetener produced by Nutrinova, can reduce the sugar content of various food products without compromising taste.

D. Consumers embrace almonds in new products

The Almond Board's 2005 consumer research shows consumers' positive view of almonds, leading to a doubling-of the annual per capita consumption over the past five years. Of those surveyed, 90 % agreed that almond-enhanced products have a better nutritional profile, 81 % felt that almonds add interest and appeal to food products and 80 % rated almonds as a good or excellent source of energy. Although the 2005 almond supply is estimated at 880 million pounds, down 12 % from last year, subsequent years should see a steady increase.

Exercise Two. Read the article below and use one word to fill each gap.

Bosch Confectionery & Chocolate

Complete production, packaging lines from one reliable partner

Bosch Confectionery & Chocolate, a business unit of Bosch Packaging Technology, encompasses the entire competency behind *Bosch*, *Hansella*, *Makat*, *Sapal* and *Togum.* These five brands combine tradition and reputation totalling more **1.** _____ 300 years, and handle everything involving candy processing and packaging. High technical standards, systems compatibility, flexibility and economical efficiency are the main criteria **2.** _____ the company's machines and production lines.

Bosch Confectionery has once again asserted its leading position **3.** _____ the production of high-boiled sweets with the latest generation of its Uniplast high-performance forming machine (up to 240 meters per minute rope speed). The rotary die head-forming principle guarantees high, uniform forming quality **4.** _____ terms of shape, weight and filling quantity of the sweets. Optimized rope guidance and improved drive concept are two important quality attributes.

With the development **5.** _____ the new generation of extruders, *Togum* together with its RopeX family, handles the complete range of output requirements, ranging from 850 to 5,000 kilogram per hour. The RopeX can be used as a forming, filling, pre-and co-extruder for the processing of chewing gum, chewy candy and other similar products. In combination **6.** _____ the RotoTwin ball forming machine, rolling and scoring or Uniplast forming lines, Bosch Confectionery & Chocolate offers complete solutions for all customer needs.

A high quality product requires high quality packaging. This can **7.** _____ achieved with the highly efficient wrapping machine BVH 1000AU. The world's first continuous-motion wrapping machine in the medium performance range wraps up to 1,200 candies **8.** _____ minute. The new "ChocoSprint PillowTwist", which will be introduced shortly to the market, combines the BVH 1000AU with Sapal's competency **9.** _____ packaging chocolate products. It is possible to handle all kinds of rectangular, square, oval and round chocolate products with a flat base, moulded or enrobed. Moreover, ChocoSprint PillowTwist can achieve a pillowpack/flow-wrap with either cold- or hot-seal wrapping material, a regular or a sealed double-twist wrap. With a broad experience and an excellent service, Bosch Confectionery & Chocolate is a reliable partner for the entire lifecycle. Be it spare parts, software/product upgrades, or keeping availability on a high technical level, all of these remain paramount **10.** _____ maintaining a partnership with the company's customers.

Unit Six

BUTTER MANUFACTURE

Butter Manufacture includes:

1. Definitions and Standards;
2. Overview of the Butter making Process;
3. The background science of butter churning;
4. Crystallization of milk fat during aging;
5. Butter Structure;
6. Continuous Butter making;
7. Yield Calculations;
8. Whipped Butter;
9. Anhydrous Milk fat.

Task One. Read the article below and write one word to fill each gap.

Butter **1.** _____ essentially the fat of the milk. It is usually made **2.** _____ sweet cream and is salted. However, it can also **3.** _____ from acidulated or bacteriological soured cream and selfless (sweet) butters are also available. Well into the 19th century butter was still made from cream that had been allowed **4.** _____ stand and sour naturally. The cream was then skimmed from the top **5.** _____ the milk and poured into a wooden tub. Butter making was done **6.** _____ hand in butter churns. The natural souring process is, however, a very sensitive one and infection by foreign micro-organisms often spoiled **7.** _____ result. Today's commercial butter making is a product of the knowledge and experience gained **8.** _____ the years in such matters as hygiene, bacterial acidifying and heat treatment, as well **9.** _____ the rapid technical development that has led **10.** _____ the advanced machinery now used. The commercial

cream separator was introduced **11** _____ the end of the 19th century, the continuous churn had been commercialized **12.** _____ the middle of the 20th century.

T a s k T w o. Sum up the main facts from the following text.

Definitions and Standards

Milk fat

– the lipid components of milk, as produced by the cow, and found in commercial milk and milk-derived products, mostly comprised of triglyceride.

Butterfat

– almost synonymous with milk fat; all of the fat components in milk that are separable by churning. Anhydrous Milk fat (AMF);

– the commercially – prepared extraction of cow's milk fat, found in bulk or concentrated form (comprised of 100 % fat, but not necessarily all of the lipid components of milk).

Butter oil

– synonymous with anhydrous milk fat ; (conventional terminology in the fats and oils field differentiates an oil' from a fat based on whether it is liquid at room temp, or solid, but very arbitrary).

Butter

– a water-in-oil emulsion, comprised of 80 % milk fat, but also containing water in the form of tiny droplets perhaps some milk solids-not-fat, with without salt (sweet butter); texture is a result of working/kneading during processing at appropriate temperatures, to establish fat crystalline network that result in desired smoothness (compare butter with melted and recrystallized butter); used as a spread, a cooking fat, or a baking ingredient.

The principal constituents of a normal salted butter are fat (80…82 %), water (15.6…17.6 %), salt (about 1.2 %)as well as protein, calcium and phosphorous (about 1.2 %). Butter also contains fat-soluble A, D and E. Butter should have a uniform color, be dense and taste clean. The water content should be dispersed in fine droplets so that the butter looks dry. The consistency should be smooth so that the butter is easy to spread and melts readily on the tongue.

E x e r c i s e O n e. Read the article below and choose the best phrase from the given below to fill the gaps:

A. As a rule, aging;
B. Thus the cream is split;
C. The butter making process;
D. After salting;
E. Salt is used;
F. If the cream is separated;
G. From the intermediate storage;
H. In the aging tank;
I. After draining.

Overview of the Butter Making Process

1. _____ involves quite a number of stages. The continuous butter maker has become the most common type of equipment used. The cream can be either supplied by a fluid milk dairy or separated tram whole milk by the butter manufacturer. The cream should be sweet (pH > 6.6; TA = 0.10…0.12 %), not rancid and not oxidized.

2. _____ by the butter manufacturer, the whole milk is preheated to the required temperature in a milk pasteurizer before being passed through a separator. The cream is cooled and led to a storage tank where the fat content is analyzed and adjusted to the desired value, if necessary. The skim milk from the separator is pasteurized and cooled before being pumped to storage. It is usually destined for concentration and drying.

3. _____ tanks, the cream goes to pasteurization at a temperature of 95 °C or more. The high temperature is needed to destroy enzymes and micro-organisms that would impair the keeping quality of the butter.

If ripening is desired for the production of cultured butter. The colder the temperature during ripening the more the flavor development relative to acid production. Ripened butter is usually not washed or salted.

4. _____, the cream is subjected to a program of controlled cooling designed to give the fat the required crystalline structure. The program is chosen to accord with factors such as the composition of the butterfat expressed, for example, in terms of the iodine value which is a measure of the unsaturated fat content. The treatment can even be modified to obtain butter with good consistency despite a low iodine value i.e. when the unsaturated proportion of the fat is low.

5. _____ takes 12 – 15 hours. From the aging tank, the cream is pumped to the chum or continuous butter maker via a plate heat exchanger which brings it to the requisite temperature. In the churning process the cream is violently agitated to break down the fat globules, causing the fat to coagulate into butter grains, while the fat content of the remaining liquid, the buttermilk, decreases.

6. _____ is split into two fractions: butter grains and buttermilk. In traditional churning, the machine stop when the grains have reached a certain size, whereupon the buttermilk is drained off. With the continuous butter maker the draining of the buttermilk is also continuous.

7. _____, the butter is worked to a continuous fat phase containing a finely dispersed water phase. It used to be common practice to wash the butter after churning to remove any residual buttermilk and milk solids but this is rarely done today.

8. _____ to improve the flavor and the shelf-life, as it acts as a preservative. If the hotter is to be salted, salt (1…3 %) is spread over its surface, in the case of batch production. In the continuous butter faker, a salt slurry is added to the butter. The salt is all dissolved in the aqueous phase, so the effective salt concentration is approximated 10 % in the water.

9. _____, the butter must be worked vigorously to ensure even distribution of the salt. The working of the butter also influences the characteristics by which the product is judged – aroma, taste, keeping quality, appearance and color. Working is required to obtain a homogenous blend of butter granules, water and salt. During working, fat moves from globular to free fat. Water droplets decrease in size during working and should not be visible in properly worked butter. Overworked butter will be too brittle or greasy depending on whether the fat is hard or soft. Some water may be added to standardize the moisture content. Precise control of composition is essential for maximum yield. The finished butter is discharged into the packaging unit, and from there to cold storage.

Exercise Two. Mark whether the statements below are true or false:

1. Milk fat is comprised only of triglycerides.
2. The triglycerides (98 % of milk fat) are of diverse composition with respect to their component fatty acids.
3. The globule membrane is comprised of surface active materials: phospholipids, glycolipids, and lipo-proteins.
4. Many milk products hardly ever foam.
5. Fats tend to spread over the air-water interface and destabilize the foam.
6. Disruption of the fat globule by interaction between the fat globule and air bubbles is frequent.
7. Milk fat is essential for the formation of stable whipped products.
8. When cream is beaten air cells form more slowly partly because of lower viscosity.
9. Churning does not occur at hot temperature.
10. If beating continues the fat clumps increase in size.

The background science of butter churning

The fat globule

Milk fat is comprised mostly of triglycerides, with small amounts of mono- and diglycerides, phospholipids, glycolipids, and lipo-proteins. The triglycerides (98 % of milk fat) are of diverse composition with respect to their component fatty acids; approximately 40 % of which are unsaturated fat firmness varies with chain length, degree of instauration, and position of the fatty acids on the glycerol. Fat globules vary from 0.1 – 10 micron in diameter. The globule membrane is comprised of surface active materials: phospholipids and lipoproteins, Fat globules typically aggregate in three ways: flocculation, coalescence, partial coalescence.

Whipping and Churning

Many milk products foam easily. Skim milk foams copiously with the amount of foam being very dependent on the amount of residual fat – fat depresses foaming. The foaming agents are proteins, the amount of proteins in the foam are proportional to their contents in milk. Foaming is decreased in heat treated milk, possibly because denaturated proteins produce a more brittle protein layer at the interface. Fats tend to spread over the air-water interface and destabilize the foam; very small amounts of fats (including phospholipids) can destabilize a foam.

During the interaction of fat globules with air bubbles the globule may also be disrupted (this is the only way that fat globules can be disrupted without considerable energy input). Disruption of the fat globule by interaction between the fat globule and air bubbles is rare except in the case of newly formed air bubbles where the air-water interfacial layer is still thin. If part of the fat globule is solid, churning will result, hence the term "flotation churning" – from repeated rupturing of air bubbles and resulting coalescence of the adsorbed fat.

In spite of the above comments on the destabihzation of foams by fat, milk fat is essential for the formation of stable whipped products which depend on the interaction between fat globules, air bubbles and plasma components (esp. proteins).

When cream is beaten air cells form more slowly partly because of higher viscosity and partly because the presence of fat causes immediate collapse of most of the larger bubbles. If most of the fat is liquid (high temperature) the fat globule membrane is not readily punctured and churning does not occur at cold temperature where solid fat is present, churning (clumping) of the fat globule takes place. Clumps of globules begin to associate with air bubbles so that a network of air bubbles and fat clumps and globules form entrapping all the liquid and producing a stable foam.

If beating continues the fat clumps increase in size until they become too large and too few to enclose the air cells, hence air bubbles coalesce, the foam begins to "leak" and ultimately butter and butter milk remain.

Exercise Three. Choose the best phrase from the given below to fill each of the gaps:

So by modifying the cooling program; *The more violent the cooling process*; *heat treatment*; *Before churning*; *low-melting fatty acids*; *the other hand*; *In the former case*; *to their surface by adsorption*; *If cooling is rapid*; *A soft milk fat*; *is always subjected*; *The consistency of butter*.

Crystallizing of the milk fat during aging

1. _____, cream is subjected to a program of cooling designed to control the fat so that the resultant butter has right consistency. **2.** _____ is one of its most important quality-related characteristics, both directly and indirectly, since it affects the other characteristics – chiefly taste and aroma. Consistency is a complicated concept and involves properties such as hardness, viscosity, plasticity and spreading ability. The relative amounts of fatty acids with high melting point determine whether the fat will be hard or soft. Soft fat has some content of **3.** _____ and at room temperature this fat has a large continuous fat phase with a low solid phase, i.e. crystallized high-melting fat. **4.** _____, in a hard fat, the solid phase of high-melting fat is much larger than the continuous fat phase of low-melting fat is much larger than the continuous fat phase of low-melting fatty acids.

In butter making, if the cream **5.** _____ to the same heat treatment it will be the chemical composition of the milk rat that determines the butter's consistency. **6.** _____ will make a soft and greasy butter, whereas butter from hard milk fat will be hard and stiff. If, however the heat treatment suits the iodine value of the fat the constancy of the butter can he optimized. For the **7.** _____ regulates the size of the fat crystals, and the relative amounts of slid fat, and the continuous phase – the factors that determine the consistency of the butter.

Pasteurization causes the fat in the fat globules to liquefy. And when the cream is subsequently cooled a proportion of the fat will crystallize. **8.** _____, the crystals will be many and small; if gradual the yield will be fewer but larger crystals. **9.** _____ the more solid be the fat that will crystallize to form the solid phase, and the less the liquid fat that can be squeezed out of the fat globules during churning and working.

The crystals bind the liquid fat **10.** _____ Since the total surface area is much greater if the crystals are many and small, more liquid fat will be adsorbed than if the crystals were larger and fewer. **11.** _____, churning and working will press only a small proportion of the liquid fat from the fat globules. The continuous fat phase will consequently be small and the butter firm. In the latter case, the opposite applies. A larger amount of liquid fat will be pressed out; the continuous phase will be large and the butter soft.

12. _____ for the cream, it is possible to regulate the size of the crystals in the fat globules and in this way influence both the magnitude and the nature of the important continuous fat phase.

Exercise Four. Read the article below and write one word to fill the gap.

Treatment of hard fat

For optimum consistency where the iodine value **1.** _____ low, i.e. the butterfat is hard, as much **2.** _____ possible of the hardest fat must **3.** _____ converted to as few crystals as possible, so that little of the liquid fat is bound **4.** _____ the crystals. The liquid at phase in the fat globules will thereby be maximized and much of it can be pressed out during churning and working, resulting **5.** _____ butter with a relatively large continuous phase of liquid fat and with the hard fat concentrated at the solid phase.

The program of treatment necessary to achieve this result comprises the following stages:

- rapid cooling to about 8 °C and storage for about 2 hours **6.** _____ this temperature;
- heating gently to 20…21 °C and storage at this temperature for at least 2 hours (water at 27…29 °C is used for heating);
- cooling to about 16 °C.

Cooling to about 8 °C causes the formation of **7.** _____ large number of small crystals that bind fat from the liquid continuous phase to their surface.

When the cream is gently heated to 20…21 °C the bulk of the crystals melt, leaving only the hard fat crystals which **8.** _____ the storage period at 20…21 °C, grow larger.

After 1 – 2 hours most of the hard fat **9.** _____ crystallized, binding little of the liquid fat. **10.** _____ dropping the temperature now to about 16 °C, the hardest portion of the fat will **11.** _____ fixed in crystal form while the rest is liquefied. During the holding period at 16 °C, fat with a melting point of 16 °C or higher will be added **12.** _____ the crystals. The treatment has thus caused the high-melting fat to collect in large crystals with little adsorption of the low-melting liquid fat, so that a large proportion of the butter oil can be pressed out during churning and working.

Unit Seven

CHEESE PRODUCTION

Exercise One. Read the article below and write one word to fill the gap.

Cheese

Traditionally, cheese **1.** _____ made as a way of preserving the nutrient of milk. In a simple definition, cheese is the fresh or ripened product obtained **2.** _____ coagulation and then separation of milk, cream or partly skimmed milk, buttermilk or a mixture **3.** _____ these products. It is essentially the product **4.** _____ selective concentration of milk. Thousands of varieties of cheeses have evolved that are characteristic **5.** _____ various regions of the world.

Exercise Two. Mark whether the statements below are true or false:

A. Lipases, normally present in raw milk, are activated during pasteurization.
B. Nitrates may all be added to the cheese.
C. The addition of hydrogen peroxide is sometimes used as an alternative treatment for full pasteurization.
D. Homogenization is usually done for most cheese milk.
E. This less severe heat treatment results in a worse final flavor cheese.
F. An alternative heat treatment of 60 °C for 16 sec may also be used.
G. This treatment results in an increase of high initial bacteria counts before storage.
H. Cheese milk must first be clarified, separated and standardized.

Treatment of Milk for Cheese making

Like most dairy products, cheese milk must first be clarified, separated and standardized. The milk may then be subjected to a sub-pasteurization treatment of 63…65 °C for 15 to 16 sec. This treatment results in a reduction of high initial bacteria counts before

storage. It must be followed by proper pasteurization. While pasteurization (72 °C for 16 sec) is often used, an alternative heat treatment of 60 °C for 16 sec may also be used. This less severe heat treatment is thought to result in a better final flavor cheese by preserving some of the natural flora. If used, the cheese must be stored for 60 days prior to sale, which is similar to the regulations for raw milk cheese.

Homogenization is not usually done for most cheese milk. It disrupts the fat glob and increases the fat surface area where casein particles adsorb. This results in a soft, weak curd at reuniting and increased hydrolytic rancidity.

Additives

The following may all be added to the cheese milk: Calcium chloride, nitrates, color, hydrogen peroxide, lipases

Because milk color varies from season to season, color may add to standardize the color of the cheese throughout the year. Annatto, Beta-carotene, and paprika are used. The addition of hydrogen peroxide is sometimes used as an alternative treatment for full pasteurization. Lipases, normally present in raw milk, are inactivated during pasteurization. The additions of kid goat lipases are common to ensure proper flavor development through fat hydrolysis.

Exercise Three. Read the article below and choose the best word to fill each gap.

Inoculation and Milk Ripening

The basis of cheese **(*building* / *boiling* / *making*)** relies on the fermentation of lactose by lactic acid bacteria (LAB). LAB produce lactic acid which lowers the pH and in turn **(*assists* / *gives* / *produces*)** coagulation, promotes sunrises, helps prevent spoilage and pathogenic bacteria from growing, contributes to cheese texture, flavor and keeping quality. LAB also produces growth **(*facts* / *factors* / *things*)** which encourages the growth of non-starter organisms, and provides lipases and proteases necessary for flavor **(*development* / *emergence* / *advance*)** during curing.

After inoculations with the **(*starter* / *initial* / *first*)** culture, the milk is held for 45 to 60 min at 25 to 30 °C to ensure the bacteria are active, growing and have developed acidity. This stage is called ripening the milk and **(*has* / *is* / *was*)** done prior to reuniting.

Exercise Four. Read the article below and choose the best phrase from the given below:

can be recovered; *the formation of a gel*; *With the addition of acid*; *with the starter culture*; *denaturation of the whey proteins*; *accomplished with*; *in the newly formed matrix*.

Milk Coagulation

Coagulation is essentially **1.** _____ by destabilizing the casein micelles causing them to aggregate and form a network which partially immobilizes the water and traps the fat globules **2.** _____ This may be **3.** _____: enzymes, acid treatment, heat-acid treatment.

Enzymes

Chamois, or rennet, is most often used for enzyme coagulation.

Acid Treatment

Lowering the pH of the milk results in casein micelle destabilization or aggregation. Acid curd is more fragile than rennet curd due to the loss of calcium. Acid coagulation can be achieved naturally **4.** _____, or artificially with the addition of gluconodeltalactone. Acid coagulated fresh cheeses may include Cottage cheese, Quark, and Cream cheese.

Heat-Acid Treatment

Heat causes **5.** _____ The denatured proteins then interact with the caseins**. 6.** _____, the caseins precipitate with the whey proteins. In rennet coagulation, only 76…78 % of the protein is recovered, while in heat-acid coagulation, 90 % of protein **7.** _____ Examples of cheeses made by this method include Paneer, Ricotta and Queso Blanco.

Exercise Five. Read the article below and answer the following questions:

1. How is the milk gel cut?
2. Why is it done?
3. What happens to the curd pieces?
4. What is meant by the cooking stage?
5. What contributes to the shrinkage of the curd particles?
6. What is the moisture content dependent on?
7. When are the curds separated from the whey?
8. How can the whey be removed?
9. Why is curd mixture placed in moulds?
10. What do some cheese varieties include?

Curd Treatment

After the milk gel has been allowed to reach the desired firmness, it is carefully cut into small pieces with knife blades or wires. This shortens the distance and increases the available area for whey to be released. The curd pieces immediately begin to shrink and expel the greenish liquid called whey. This process is further driven by a cooking stage. The increase in temperature causes the protein matrix to shrink due to increased hydrophobic interactions, and also increases the rate of fermentation of lactose to lactic acid. The increased acidity also contributes to shrinkage of the curd particles. The final moisture content is dependant on the time and

temperature of the cook stage. This is important to monitor carefully because the final moisture content of the curd determines the residual amount of fermentable lactose and thus the final pH of the cheese after curing.

When the curds have reached the desired moisture and acidity they are separated from the whey. The whey may be removed from the top or drained by gravity. The curd-whey mixture may also be placed in moulds for draining. Some cheese varieties, such as Colby, Gouda, and Brine Brick include a curd washing which increases the moisture content, reduces the lactose content and final acidity, decreases firmness, and increases openness of texture.

Curd handling from this point on is very specific for each cheese variety. Salting may be achieved through brine as with Gouda, surface salt as with Feta, or vat salt as with Cheddar To achieve the characteristics of Cheddar, a shuddering stage (curd manipulation), milling (cut into shreds), and pressing at high pressure are crucial.

Exercise Six. Read the article below, there is an extra word in every sentence, find the mistakes.

Cheese Ripening

1. Except for fresh cheese, the curd is ripened, or matured, at about various temperatures and times until the characteristic flavor, body and texture profile is achieved.
2. During ripening, degradation of lactose, proteins and fat are carried on out by ripening agents.
3. The ripening of agents in cheese is: bacteria and enzymes of the milk lactic culture, rennet, lipases, added moulds or yeasts, environmental contaminants.
4. Thus the microbiological content of the curd, the biochemical composition of the curd, as well as temperature and humidity affect on the final product.
5. This final stage varies from weeks to years according with to the cheese variety.

Exercise Seven. Read, translate and discuss the process of yogurt production. Make up questions disclosing its method.

Yogurt Manufacturing Method

The milk is clarified and separated into cream and skim milk, then standardized to achieve the desired fat content. The various ingredients are then blended together in a mix tank equipped with a powder funnel and an agitation system. The mixture is then pasteurized using a continuous plate heat exchanger for 30 min at 85 °C or 10 min at 95 °C. These heat treatments, which are much more severe than fluid milk pasteurization, are necessary to achieve the following: produce a relatively sterile and conducive environment for the starter culture denature and coagulate whey proteins to enhance the viscosity and texture.

The mix is then homogenized using high pressures of 2000 – 2500 psi. Besides thoroughly mixing the stabilizers and other ingredients, homogenization also prevents creaming and wheying off during incubation and storage. Stability, consistency and body are enhanced by homogenization. Once the homogenized mix has cooled to an optimum growth temperature, the yogurt starter culture is added.

A ratio of 1:1, ST to LB, inoculation is added to the jacketed fermentation tank. A temperature of 43 °C is maintained for 4 – 6 h under quiescent (no agitation) conditions. This temperature is a compromise between the optimums for the two microorganisms (ST 39 °C; LB 45 °C). The turntable acidity is carefully monitored until the TA is 0.85 to 0.90 %. At this time the jacket is replaced with cool water and agitation begins, both of which stop the fermentation. The coagulated product is cooled to 5…22 °C, depending on the product. Fruit and flavor may be incorporated at this time, then packaged. The product is now cooled and stored at refrigeration temperatures (5 °C) to slow down the physical, chemical and microbiological degradation.

Unit Eight

ICE CREAM PRODUCTION

Task One. Read, translate and discuss the following article on ice cream history.

Exercise One. Choose the best phrase from the given below to fill each of the gaps.

A. This story is just one;
B. Unfortunately;
C. Once upon a time;
D. Most of the following material;
E. Most books are full.

Ice Cream History and Folklore

1. _____ has been extracted from "The History of Ice Cream", written by the **I**nternational **A**ssociation of **I**ce **C**ream **M**anufacturers **(IAICM),** Washington DC, 1978. As you will note below, however, much of the early history of ice cream remains unproven folklore.

2. _____ hundreds of years ago, Charles I of England hosted a sumptuous state banquet for many of his friends and family. The meal, consisting of many delicacies of the day, had been simply superb but the "coup de grace" was yet to come. After much preparation, the King's French chef had concocted an apparently new dish. It was cold and resembled fresh- fallen snow but was much creamier and sweeter than any other after – dinner dessert. The guests were delighted, as was Charles, who summoned the cook and

asked him not to divulge the recipe for his frozen cream. The King wanted the delicacy to be served only at the Royal table and offered she cook 500 pounds a year to keep it that way. Sometime later, however, poor Charles fell into disfavor with his people and was beheaded in 1649. But by that time, the secret of the frozen cream remained a secret no more. The cook, named DeMirco, had not kept his promise.

3. _____ is just one of many of the fascinating tales which surround the evolution of our country's most popular dessert, ice cream. It is likely that ice cream was not invented, but rather came to be over years of similar efforts. Indeed, the Roman Emperor Nero Claudius Caesar is said to have sent slaves to the mountains to bring snow and ice to cool and freeze the fruit drinks he was so fond of. Centuries later, the Italian Marco Polo returned from his famous journey to the Far East with a recipe for making water ices resembling modern day sherbets.

4. _____ of myths about the history of ice cream. According to popular accounts, Marco Polo (1254 – 1324) saw ice creams being made during his trip to China, and on his return, introduced them to Italy. The myth continues with the Italian chefs of the young Catherine de'Medici taking this magical dish to France when she went there in 1533 to marry the Duke d'Orleans, with Charles I rewarding his own ice-cream maker with a lifetime pension on condition that he did not divulge his secret recipe to anyone, thereby keeping ice cream as a royal prerogative.

5. _____, there is no historical evidence to support any of these stories. They would appear to be purely the creation of imaginative nineteenth-century ice-cream makers and vendors. Indeed, we have found no mention of any of these stories before the nineteenth century. They go on to refute the claims about Marco Polo, Catherine de'Medici, and Charles I (in particular, while the IAICM reference credits DeMirco as the Charles I chef, apparently while other various sources credit 10 different men, there are no records of such a pension being paid to any of Charles I's cooks).

Exercise Two. Mark whether the statements below are true or false:

1. A caterer named Phillip Lenzi announced in a New York newspaper that he would be offering for sale ice cream in 1773.

2. The first improvement in the manufacture of ice cream (from the handmade way in a large bowl) was given to us by a New Jersey woman, Nancy Johnson.

3. She invented the handmade freezer.

4. Because Nancy Johnson had the foresight to have her invention patented, her name appears on the patent records.

5. A similar type of freezer was, however, patented on May 30, 1840.

6. Commercial production was begun in South America in Baltimore, Maryland, 1851.

7. Mr. Jacob Fussell is now known as the father of the American ice cream industry.

8. Dolly Madison, the wife of President James Madison, heard about the new dessert, made ice cream a feature of dinners at the White House.

9. Aunt Sallie Shadd achieved legendary status among Wilmington's free black population as the inventor of ice cream.

10. About 1926 the first commercially-successful continuous process freezer was invented.

11. The continuous freezer was developed by Clarence Vogt.

12. The first Canadian to start selling ice cream was Thomas Webb of Toronto, a confectioner, around 1855.

Back to the IAICM history....

In 1774, a caterer named Phillip Lenzi announced in a New York newspaper that he had just arrived from London and would be offering for sale various confections, including ice cream. Dolley Madison, wife of U.S. President James Madison, served ice cream at her husband's Inaugural Ball in 1813.

The first improvement in the manufacture of ice cream (from the handmade way in a large bowl) was given to us by a New Jersey woman, Nancy Johnson, who in 1846 invented the hand-cranked freezer. This device is still familiar to many. By turning the freezer handle, they agitated a container of ice cream mix in a bed of salt and ice until the mix was frozen. Because Nancy Johnson lacked the foresight to have her invention patented, her name does not appear on the patent records. A similar type of freezer was, however, patented on May 30, 1848, by a Mr. Young who at least had the courtesy to call it the "Johnson Patent Ice Cream Freezer".

Commercial production was begun in North America in Baltimore, Maryland, 1851, by Mr. Jacob Fussell, now known as the father of the American ice cream industry.

An unsubstantiated story regarding Dolley's discovery of ice cream goes like this: "Betty Jackson, a black woman from Chadds Ford, Pennsylvania, established a tea room on French Street in Wilmington, Delaware, where she sold cakes, fruit, and desserts to wealthy people for their parties. Her son, Jeremiah Shadd, was a butcher, well-known for his ability to cure meat. His wife, known as Aunt Sallie Shadd, achieved legendary status among Wilmington's free black population as the inventor of ice cream. The story was that the butcher Jeremiah purchased Sallie's freedom. Like other members of her family, she went into the catering business and created a new dessert sensation made from frozen cream, sugar, and fruit. Dolly Madison, the wife of President James Madison, heard about the new dessert, came to Wilmington to try it, and afterward made ice cream a feature of dinners at the White House."

About 1926 the first commercially-successful continuous process freezer was perfected. The continuous freezer, developed by Clarence Vogt, and later ones produced by other manufacturers, has allowed the ice cream industry to become a mass producer of its product.

The first Canadian to start selling ice cream was Thomas Webb of Toronto, a confectioner, around 1850. William Neilson produced his first commercial batch of ice cream on Gladstone Ave. in Toronto in 1893, and his company produced ice cream at that location for close to 100 years.

Exercise Three. Read the article below and write one word to fill the gap.

Ice cream Manufacture

The basic steps in the manufacturing of ice cream are generally as follows:

1. blending of the mix ingredients;
2. pasteurization;
3. homogenization;
4. aging the mix;
5. freezing;
6. packaging;
7. hardening.

Blending

First the ingredients **1.** _____ selected based on the desired formulation and the calculation of the recipe from the formulation and the ingredients chosen, then the ingredients are weighed and blended together **2.** _____ produce what is known **3.** _____ the "ice cream mix". Blending requires rapid agitation to incorporate powders, and often high speed blenders **4.** _____ used.

Pasteurization

The mix **5.** _____ then pasteurized. Pasteurization is the biological control point **6.** _____ the system, designed for the destruction of pathogenic bacteria. **7.** _____ addition to this very important function, pasteurization also reduces the number **8.** _____ spoilage organisms such as psychrotrophs, and helps to hydrate some of the components (proteins, stabilizers).

Exercise Four. Read the article below and choose the best word to fill each gap.

Pasteurization

Both batch pasteurizers and continuous (HTST) methods are **(*used* / *invented* / *made*).** Batch pasteurizers **(*make* / *lead* / *produce*)** to more whey protein denaturation which some people feel gives a better body to the ice cream. In a batch pasteurization system, blending of the proper ingredient amounts **(*has* / *be* / *is*)** done in large jacketed vats equipped with some means of heating, usually steam or hot water. The product is then heated in the vat to at least 69 °C (155 F) and held **(*for* / *in* / *during*)** 30 minutes to satisfy legal requirements for pasteurization, necessary for the destruction of pathogenic bacteria. Various time temperature combinations can be used. The heat treatment must be severe **(*quite* / *too* / *enough*)** to ensure destruction of pathogens and to reduce the bacterial count **(*up* / *to* / *for*)** a maximum of 100.000 per gram. Following pasteurization, the mix is homogenized **(*through* / *by* / *in*)** means of high pressures and then is passed across some type of heat exchanger (plate or double or triple tube) for the purpose of cooling the mix to refrigerated temperatures (4 °C). Batch tanks are usually **(*made* / *worked* / *operated*)** in tandem so that one is holding while the other is **(*been* / *has* / *being*)** prepared. Automatic timers and valves ensure the proper holding time has been **(*required* / *met* / *seen*).**

Continuous pasteurization is usually **(*discovered* / *performed* / *found*)** in a **h**igh **t**emperature **s**hort **t**ime **(HTST)** heat exchanger following blending of ingredients in a large, insulated feed tank. Some preheating, to 30 to 40 °C, is necessary for solubilization of the components. The HTST system is equipped **(*in* / *for* / *with*)** a heating section, a cooling section, and a regeneration section. Cooling sections of ice cream mix HTST presses are **(*usually* / *seldom* / *often*)** larger than milk HTST presses. Due to the preheating of the mix, regeneration is lost and mix entering the cooling section is still **(*enough* / *too* / *quite*)** warm.

Exercise Five. Choose the best phrase from the given below to fill each of the gaps:

reducing the size of; *at the pasteurizing temperature*; *a thinner*; *more rapidly whipped mix*; *Two stage homogenization*; *under all conditions*; *The higher the fat and total solids*; *at any given pressure*; *By helping to form*; *in ice cream manufacture*; *by producing a thinner*; *more rapidly whipped mix*.

Homogenization

The mix is also homogenized which forms the fat emulsion by breaking down or **1.** _____ of the fat globules found in milk or cream to less than 1 u. m. Two stage homogenization is usually preferred for ice cream mix. Clumping or clustering of the fat is reduced there **2.** _____ melt-down is also improved. Homogenization provides the following functions **3.** _____:

- reduces size of fat globules;
- increases surface area;
- forms membrane;

makes possible the use of butter, frozen cream, etc.

4. _____ the *fat structure*, it also has the following indirect effects:

- makes a smoother ice cream;
- gives a greater apparent richness and palatability;
- better air stability;

increases resistance to melting.

Homogenization of the mix should take place **5.** _____ The high temperature produces more efficient breaking up of the fat globules **6.** _____ and also reduces fat clumping and the tendency to thick, heavy bodied mixes. No one pressure can be recommended that will give satisfactory results **7.** _____ **8.** _____ in the mix, the lower the pressure should be. If a two stage homogenizer is used, a pressure of 2000 – 2500 psi on the first stage and 500 – 1000 psi on the second stage should be satisfactory under most conditions. **9.** _____ is usually preferred for ice cream mix. Clumping or clustering of the fat is reduced thereby producing **10.** _____ Melt-down is also improved.

Exercise Six. Read the article below, there is an extra word in some sentences, find the mistakes.

Ageing

1. The mix is then aged for about at least four hours and usually overnight.
2. This allows time for the fat to cool by down and crystallize, and for the proteins and polysaccharides to fully hydrate.
3. Aging provides for the following functions:

- improves whipping qualities of mix and body and texture of ice-cream. It does so by;
- providing time for fat crystallization, so the fat can partially coalesce;
- allowing time for full protein and a resulting slight viscosity increase;
- allowing time for membrane rearrangement and protein/emulsifier interaction, as emulsifiers displace proteins from the fat globule surface, which allows for a reduction in stabilization of the fat globules and enhanced partial coalescence.

4. Aging is performed in all insulated or refrigerated storage tanks, silos, etc.
5. Mix temperature should have be maintained as low as possible without freezing, at or below 5 °C.
6. An aging time of overnight is likely to have give best results under average plant conditions.
7. A "green" or unaged mix is usually quickly detected by at the freezer.

Exercise Seven. Read the article below and make up questions.

Freezing

Following mix processing, the mix is drawn into a flavor tank where any liquid flavors, fruit purees, or colors are added. The mix then enters the **dynamic freezing process** which both freezes a portion of the water and whips air into the frozen mix. The "barrel" freezer is a scraped-surface, tubular heat exchanger, which is jacketed with a boiling refrigerant such as ammonia or freon. Mix is pumped through this freezer and is drawn off the other end in a matter of 30 seconds, (or 10 to 15 minutes in the case of batch freezers) with about 50 % of its water frozen. There are rotating blades inside the barrel that keep the ice scraped off the surface of the freezer and also dashers inside the machine which help to whip the mix and incorporate air.

Ice cream contains a considerable quantity of air, up to half of its volume. This gives the product its characteristic lightness. Without air, ice cream would be similar to a frozen ice cube. The air content is termed its overrun, which can be calculated mathematically.

As the ice cream is drawn with about half of its water frozen, particulate matter such as fruits, nuts, candy, cookies, or whatever you like, is added to the semi-frozen slurry which has a consistency similar to **soft-serve ice cream.** In fact, almost the only thing which differentiates hard frozen ice cream from soft-serve, is the fact that soft serve is drawn into cones at this point in the process rather than into packages for subsequent hardening.

Exercise Eight. Read the article below and answer the questions.

1. When is the ice cream packaged and where is it placed?
2. What is the limit of the shelf life of the ice cream?
3. What can help one understand the freezing process?
4. What does hardening involve?
5. What freezing techniques are used in ice cream production?
6. What is the rate of heat transfer affected by?
7. What factors affect hardening?

Hardening

After the particulates have been added, the ice cream is packaged and is placed into a blast freezer at –30 to –40 °C where most of the remainder of the water is frozen. Below about –25 °C, ice cream is stable for indefinite periods without danger of ice crystal growth; however, above this temperature, ice crystal growth is possible and the rate of crystal growth is dependant upon the temperature of storage. This limits the shelf life of the ice cream.

A primer on the theoretical aspects of freezing will help you to fully understand the freezing and recrystallization process.

Hardening involves static (still, quiescent) freezing of the packaged products in blast freezers. Freezing rate must still be rapid, so freezing techniques involve low temperature (–40 °C) with either enhanced convection (freezing tunnels with forced air fans) or enhanced conduction (plate freezers).

The rate of heat transfer in a freezing process is affected by the temperature difference, the surface area exposed and the heat transfer coefficient. Thus, the factors affecting hardening are those affecting this rate of heat transfer:

- Temperature of blast freezer – the colder the temperature, the faster the hardening, the smoother the product.
- Rapid circulation of air-increases convective heat transfer.
- Temperature of ice cream when placed in the hardening freezer – the colder the ice cream at draw, the faster the hardening – must get through packaging operations fast.
- Size of container – exposure of maximum surface area to cold air, especially important to consider shrink wrapped bundles – they become a much larger mass to freeze. Bundling should be done after hardening.
- Composition of ice cream – related to freezing point depression and the temperature required to ensure a significantly high ice phase volume.
- Method of stacking containers or bundles to allow air circulation. Circulation should not be impeded – there should be no 'dead air' spaces (e.g., round vs. square packages).
- Care of evaporator – freedom from frost – acts as insulator.

- Package type, should not impede heat transfer – e.g., styrofoam liner or corrugated cardboard may protect against heat shock after hardening, but reduces heat transfer during freezing so not feasible.

Unit Nine

BEVERAGE PRODUCTION

Task One. Read and translate the text.

A beverage can be anything from a glass of ice-cold milk to a highly complicated blend of flavors and textures. In general, winter is the time for warming hot drinks and summertime for refreshing cold ones. Some beverages, such as coffee and tea, are drunk all year round; both can be enjoyed hot or cold, plain or enhanced with other flavors. Then there are fruit-ades and milk-based drinks of all kinds; and, the alcohol-based drinks, ranging from cocktails to party punches; and, of course, wines.

However simple the beverage you make, an attractive container will do a great deal to enhance it. Rather than serving hot drinks in regular cups, use mugs, steins and demitasse cups. As well as looking more attractive in these, the drinks do stay hot. Cold drinks look better and seem to taste better if served in special glassware, such as brandy snifters or champagne glasses.

Exercise One. Read the article below and write one word to fill the gap.

BUYING COFFEE

Most coffee sold in the United States **1.** _____ regular or American roast, which is light and fairly mild. Viennese or French roast is darker and stronger. Italian roast is darkest and is used **2.** _____ espresso.

If you grind your own coffee, try beans **3.** _____ supermarkets which often have quality beans priced lower than specialty-house beans or vacuum-packed coffee. Check that whole coffee beans are **4.** _____ uniform size and color with good coffee aroma and no trace of mustiness.

Select the grind that's right **5.** _____ your type of coffee maker.

A percolator **6.** _____ regular (coarse) grind; a drip pot generally uses drip (medium) grind; an automatic-electric drip coffee maker uses drip or the specially labeled grind; espresso pots also use specially labeled coffee grinds.

Exercise Two. Put the verbs in brackets into the correct form.

STORING COFFEE

Only fresh coffee **(give)** good flavor. Unopened vacuum-packed ground coffee **(stay)** fresh at room temperature for over a year. Once the can **(open),** the flavor begins to dissipate immediately, so plan to use it within about a week. Replace lid quickly after using. Keep partially used cans, covered, in the refrigerator. If the vacuum-packed can **(contain)** more than a week's supply, immediately after opening it, portion weekly amounts of coffee into airtight containers and freeze them until they **(need).**

Coffee beans begin to lose flavor and aroma as soon as they **(roast)** so plan to use them within about 3 weeks. If you don't brew a lot of coffee or can't shop often, buy beans as soon as possible after roasting and freeze in airtight containers. They then **(keep)** fresh at least 12 months; do not refreeze them.

Unopened instant coffee (**stay)** fresh over a year at room temperature. Once opened, use it within 2 or 3 weeks. Store opened jars at room temperature.

Exercise Three. Read the article below and choose the best word to fill each gap.

MAKING COFFEE

Coffee-oil residue can become rancid and give an off flavor to coffee so be sure coffee-making equipment is **(kept / taken / held)** scrupulously clean. (Use a packaged coffee-pot cleaner, **(according to / as to / accordingly)** directions, to remove coffee oils and stains when necessary.) Always start **(off / out / with)** fresh, cold water and fresh coffee. For the best flavor, make at least three-quarters capacity **(from / of / by)** the coffee maker. Buy a smaller pot if yours is too big for daily use. Don't skimp on coffee or re-use grounds.

Coffee tastes best when freshly brewed, so try to make only what you'll serve **(within / for / during)** an hour or so. Remove wet coffee grounds as soon as brewing is completed. If you prefer to keep it hot and handy all day long, use paper coffee filters **(with / on / at)** your percolator or drip pot. Flavor keeps better when there's no sediment. If you reheat coffee, always remember to do so over low heat. Never let it boil or it will turn bitter.

When using a new coffee maker, first use the proportions of coffee to water recommended **(in / at / for)** the directions. Subsequently, if you wish to change the strength of the coffee, use more or less ground coffee, If no directions are included, use 2 level tablespoons of ground coffee to each 6 ounces (3/4 cup) of cold water. (The rated capacity of most coffee makers is based **(for / on / in)** a 5-ounce cup of brewed coffee).

Exercise Four. Read the article and choose the best term from the given below to fill each of the gaps: Instant coffee, Drip, Percolator.

COFFEE MAKERS

There are three basic ways to make coffee. All produce a good brew, but each has a distinctive taste.

1. _____: Available in automatic-electric and range-top models ranging in size from about 2 to 100 cups. Be sure water level is below the bottom of the basket. With electric model, start with cold water; with range-top, start with almost boiling water.

2. _____: Drip coffee makers are available in automatic-electric and range-top models ranging in size from 2 to 12 cups. Ground coffee is placed in a filter cone or selection through which almost boiling water is poured. This method of making coffee produces an exceptionally residue-free brew.

3. _____: This is the least expensive and quickest way to make small amounts of coffee. For best results, add boiling water to instant coffee in a cup or serving pot, stir. Use 1 teaspoon instant coffee for each 3/4 cup boiling water.

Exercise Five. Look at the statements below and at the reviews of a few sorts of tea. Which review (A, B, C, D,) does each statement 1 – 7 refer to? You will need to use some of these letters more than once.

1. Preheat a teapot before making tea.
2. This tea is wine and flower-like in flavor.
3. Blends of tea depend on leaves-processing.
4. The black leaves of this tea are used in different blinds.
5. These leaves have the original color.
6. The color of this tea reminds of oolong tea one.
7. There are mainly three sorts of tea.

A. There are innumerable blends of tea ranging from strong-flavored and smoky to delicate and flowery. They fall into three main types, according to how the leaves have been processed: black, green and oolong. The terms "orange pekoe" and "pekoe" do not refer to a particular variety or flavor but to the size of the leaf.

Black tea: Most of the tea sold in the United States is of this type. It is made by fermenting (oxidizing) the leaves so they turn black, producing a rich-flavored, amber brew. Well-known blends include Assam, a full-bodied high-quality tea; Ceylon, a delicate, fragrant blend; Darjeeling, the finest black tea from India, flavorful and aromatic; Earl Grey, an aromatic blend from India and Ceylon; English Breakfast Tea, a fragrant, mellow blend; Keemun, a mild yet robust Chinese tea; and Lapsang Souchong, a pungent tea from Taiwan, with a unique, smoky flavor.

B. Green tea: The leaves are not oxidized so that they retain their original green color. The resulting brew is light and greenish-yellow, with a mild, distinctive flavor. Green teas include Basket-fired Tea, a Japanese tea with a light flavor; Gunpowder Tea, which produces a delicate, pale brew; and Hyson, another fine Chinese tea.

C. Oolong tea: The leaves are only partially fermented with the result that they retain a greenish-brown color. The brew is light, with a subtle bouquet. Popular blends include Canton Oolong; Formosa Oolong, faintly wine-like in flavor; and Jasmine Tea, which is delicately flavored with white jasmine blossoms.

D. Store loose tea and tea bags in air-tight containers at room temperature and use within 6 months. Use a teapot for brewing, and preheat it by rinsing out with hot water. Heat fresh, cold tap water to a rapid boil. Water that has been standing or reheated gives a flat taste. Also, only boiling water can extract the full flavor from the leaves. Allow 3/4 measuring cup water per serving. Use 1 teaspoon loose tea or 1 tea bag per serving and pour boiling water over tea. Brew 3 to 5 minutes. Stir to make sure flavor is uniform and serve.

Task Two. Read, translate and discuss the article *History of Wine*.

Archaeological evidence suggests that the earliest production of wine, made by fermenting grapes, took place in sites in Georgia and Iran, from as early as 6000 BC. These locations are all within the natural area of the European grapevine *Vitis vinifera*.

A 2003 report by archeologists indicates a possibility that grapes were used together with rice to produce mixed fermented beverages in China as early as 7000 BC. Pottery jars from the Neolithic site of Jiahu, Henan were found to contain traces of tartaric acid and other organic compounds commonly found in wine. However, other fruits indigenous to the region, such as hawthorn, could not be ruled out. If these beverages, which seem to be the precursors of rice wine, included grapes rather than other fruits, these grapes were of any of the several dozen indigenous wild species of grape in China, rather than from *Vitis vinfiera*, which were introduced into China some 6000 years later. The oldest known evidence of wine production in Europe is dated to 4500 BC and comes from archaeological sites in Greece. The same sites also contain the world's earliest evidence of crushed grapes. In ancient Egypt, wine became a part of recorded history, playing an important role in ceremonial life. Traces of wine have also been found in China, dating from the second and first millennia BC.

In medieval Europe, the Roman Catholic Church was a staunch supporter of wine since it was necessary for the celebration of Mass. In places such as Germany, beer was banned and considered pagan and barbaric, while wine consumption was viewed as civilized and a sign of conversion to Christianity.

In the Islamic world, wine was forbidden during the Islamic Golden Age. After Geber and other Muslim chemists pioneered the distillation of wine, however, it was legalized for cosmetic and medical uses. In fact, the 10th-century Persian philosopher and scientist Al Biruni described recipes where herbs, minerals and even gemstones are mixed with wine for medicinal purposes.

Wine became so revered and its effect so feared that elaborate theories were developed about its effect. Wine is a popular and important beverage that accompanies and enhances a wide range of European and Mediterranean-style cuisines, from the simple and traditional to the most sophisticated and complex. Wine is important in cuisine not just for its value as a beverage, but as a flavor agent, primarily in stocks and braising, since its acidity lends balance to rich savory or sweet dishes. Red, white and sparkling wines

are the most popular, and are known as *light wines* because they are only 10…14 % alcohol-content by volume. Apéritif and dessert wines contain 14…20 % alcohol, and are sometimes fortified to make them richer and sweeter.

Exercise One. Mark whether the statements below are true or false:

1. Wine is important in cuisine not just for its value as a beverage, but as a flavor agent.
2. Al Biruni didn't describe recipes where herbs, minerals and even gemstones are mixed with wine for medicinal purposes.
3. Muslim chemists pioneered the distillation of wine.
4. In the Islamic world, wine was used during the Islamic Golden Age.
5. In places such as Germany, beer was banned and considered pagan and barbaric.
6. In medieval Europe, the Roman Catholic Church was a staunch enemy of wine.
7. The oldest known evidence of wine production in Europe is dated to 4500 BC and comes from archaeological sites in Greece.
8. Other fruits indigenous to the region, such as hawthorn, could be ruled out.
9. Grapes were used together with rice to produce mixed fermented beverages in China.
10. The earliest production of wine, made by fermenting grapes, took place in sites in Greece.

Exercise Two. Put the verbs in brackets into the correct form

Wine (to be) an alcoholic beverage made from the fermentation of grape juice. The natural chemical balance of grapes is such that they can ferment without the addition of sugars, acids, enzymes or other nutrients. Wine **(to produce)** by fermenting crushed grapes using various types of yeast which consume the sugars **(to find)** in the grapes and convert them into alcohol. Various varieties of grapes and strains of yeasts **(to use)** depending on the types of wine produced.

Although other fruits such as apples and berries can also **(to ferment)**, the resultant "wines" normally **(to name)** after the fruit from which they **(to produce)** (for example, apple wine or elderberry wine) and are generically known as *fruit* or *country wine*. Others, such as barley wine and rice wine (e.g. sake), **(to make)** from starch-based materials and resemble beer and spirit more than wine, while ginger wine **(to fortify)** with brandy. In these cases, the use of the term "wine" is a reference to the higher alcohol content, rather than production process. The commercial use of the English word "wine" (and its equivalent in other languages) **(to protect)** by law in many jurisdictions.

Wine has a rich history dating back to around 6000 BC and is thought to have originated in areas now within the borders of Georgia and Iran. Wine probably **(to appear)** in Europe at about 4500 BC in what is now Bulgaria and Greece, and was very common in ancient Greece, Thrace and Rome. Wine has also played an important role in religion throughout history. The Greek god Dionysos and the Roman equivalent Bacchus represented wine, and the drink (**to use)** also in Christian and Jewish ceremonies such as the Eucharist and Kiddush.

The word "wine" derives from the Proto-Germanic **winam*, an early borrowing from the Latin *vinum*, "wine" or "(grape) vine", itself derived from the Proto-Indo-European stem *win-o- (cf. Ancient Greek *οἶνος – oînos*, Aeolic Greek *Ϝοίνος – woinos*). Similar words for wine or grapes **(to find)** in the Semitic languages (cf. Arabic نيو *wayn*) and in Georgian (*ğvino*); some consider the term to be a *wanderwort*, or "wandering word".

Exercise Three. Read, translate and sum up the information from the following article.

Europe classification

Regulations govern the classification and sale of wine in many regions of the world. European wines tend to be classified by region (e.g. Bordeaux and Chianti), while non-European wines are most often classified by grape (e.g. Pinot Noir and Merlot). More and more, however, market recognition of particular regions is leading to their increased prominence on non-European wine labels. Examples of non-European recognized locales include: Napa Valley in California, Barossa Valley in Australia, Willamette Valley in Oregon, and Marlborough in New Zealand.

Some blended wine names are marketing terms, and the use of these names is governed by trademark or copyright law rather than by specific wine laws. For example, Meritage (sounds like "heritage") is generally a Bordeaux-style blend of Cabernet Sauvignon and Merlot, and may also include Cabernet Franc, Petit Verdot, and Malbec. Commercial use of the term "Meritage" is allowed only via licensing agreements with an organization called the "Meritage Association".

France has an appellation system based on the concept of terroir, with classifications which range from Vin de Table ("table wine") at the bottom, through Vin de Pays and Vin Délimité de Qualité Supérieure (VDQS) up to Appellation d'Origine Contrôlée (AOC). Portugal has something similar and, in fact, pioneered this technique back in 1756 with a royal charter which created the "Demarcated Douro Region" and regulated wine production and trade. Germany did likewise in 2002, although their system has not yet achieved the authority of those of the other countries'. Spain and Italy have classifications which are based on a dual system of region of origin and quality of product.

Exercise Four. Choose the best phrase from the given below to fill each of the gaps:
should be tasted, before serving, breathing, In addition to aeration, their character and flavor intensity, in aroma, from aeration, Sediment, Decanting

Some wine labels suggest opening the bottle and letting the wine "breathe" for a couple hours **1.** _____, while others recommend drinking it immediately. **2.** _____ – the act of pouring a wine into a special container just for breathing–is a controversial subject in wine. **3.** _____, decanting with a filter allows one to remove bitter sediments that may have formed in the wine. **4.** _____ is more common in older bottles but younger wines usually benefit more **5.** _____ During aeration, the exposure of younger wines to air often

"relaxes" the flavors and makes them taste smoother and better integrated **6.** _____, texture, and flavor. Older wines generally *fade*, or lose **7.** _____, with extended aeration. Despite these general rules, **8.** _____ does not necessarily benefit all wines. Wine **9.** _____ as soon as it is opened to determine how long it should be aerated, if at all.

Exercise Five. Read the article below and write one word to fill the gap.

In Iran (Persia), *mei* (Persian wine) **1.** _____ been a central theme of poetry for more than a thousand years, although alcohol **2.** _____ strictly forbidden under Islamic law.

The use of wine in religious ceremonies is common **3.** _____ many cultures and regions. Libations often included wine, and the religious mysteries of Dionysus used wine **4.** _____ as a sacramental entheogen to induce a mind-altering state.

Wine is **5.** _____ integral part of Jewish laws and traditions. The *Kiddush* is a blessing recited over wine or grape juice to sanctify the Shabbat or a Jewish holiday. On Pesach (Passover) during the Seder, it is a Rabbinic obligation **6.** _____ men and women to drink four cups of wine. In the Tabernacle and in the Temple in Jerusalem, the libation of wine was part **7.** _____ the sacrificial service. Note that this does not mean that wine is a symbol of blood, a common misconception which contributes **8.** _____ the myth of the blood libel. A blessing **9.** _____ wine said before indulging in the drink is: "*Baruch atah Hashem elokeinu melech ha-olam, boray p'ree hagafen*" –"Praised be the Eternal, Ruler of the universe, who makes the fruit of the vine."

Task Three. Read, translate and discuss the main points of the text.

Wine can be divided into five basic classes: appetizer wines, white table wines, red table wines, sweet dessert wines and sparkling wines.

SERVING WINE

Serve appetizer wines well chilled, either straight (undiluted) or over ice. All white wines should be served chilled. Depending on the type, red wines are served either cool or chilled or at room temperature. Most dessert wines may be served cool or chilled. Sparkling wines, often served for special occasions, are always served chilled and go well with any food at any occasion. The best way to learn about wine is to experiment until you find the one you like best. Try a few of the wines in each of the five classes, and for first-time testing, buy wine in small bottles. Some wines complement certain foods more than others.

WINE WITH FOOD

Traditionally, white wines are served with white meats such as poultry, fish and seafood; red wines accompany red meats and dishes with red or brown sauces; rose and sparkling wines are served with any food. Sweet dessert wines are served with dessert, after dinner and as a between-meal refreshment.

However, let your own taste and personal preference be your guide. Just remember to serve light wines with light foods and heavier, full-bodied wines with fuller-flavored, richer foods. That way food and wine will complement, not over-power, each other.

COOKING WITH WINE

Easy to use, and inexpensive, wine will enhance your favorite recipes for soups, broiled fish and meat, roasts and stews. Special cooking wines are lightly salted, so that you cannot drink them. Make sure to use the type of cooking wine called for in the recipe, and adjust the seasoning if necessary. Experts recommend cooking with wine of a quality you would like to drink – use some in the recipe and serve more to enjoy as a beverage with the food. Here are a few suggestions about how to cook with wine.

To flavor soups, add a tablespoon of wine for each cup of liquid; try adding sherry to consommé, chicken or vegetable soups; Burgundy or claret go well in minestrone. Add a light Rhine wine to melted butter and pour over fish before baking or broiling, or poach seafood in cooking liquid laced with sherry. A dash of sauterne will improve the flavor of gravy for roast poultry, while a dash of Burgundy or Chianti adds depth to a rich gravy for duckling or goose. Red wines add that extra flavor to beef dishes, too. Stir in Chianti or Zinfandel to gravy for roast beef, or add Chianti or Burgundy to barbecue sauce for serving with broiled beefsteaks and hamburgers.

Exercise One. Choose the best beginning phrase from the given below to fill each of the gaps:

A. Hybridization;
B. The use of wine;
C. Wine can also be made from;
D. Wine was used;
E. Wine is usually made;
F. In Christianity;
G. New World wine.

1. _____, wine or grape juice is used in a sacred rite called the Eucharist, which originates in Gospel accounts of the Last Supper in which Jesus shared bread and wine with his disciples and commanded his followers to "do this in remembrance of me" (Gospel of Luke 22:19). Beliefs about the nature of the Eucharist vary among denominations; Roman Catholics, for example, hold that the bread and wine are changed into the real body and blood of Christ in a process called *transubstantiation*.

2. _____ in the Eucharist by all Protestant groups until an alternative arose in 1869. Methodist minister-turned-dentist Thomas Bramwell Welch applied new pasteurization techniques to stop the natural fermentation process of grape juice. Some Christians who were part of the growing temperance movement pressed for a switch from wine to grape juice, and the substitution spread quickly over much of the United States. (However, in such rites the beverage is usually still called "wine" in accordance with scriptural references.) There remains an ongoing debate between some American Protestant denominations as to whether wine can and should be used for the Eucharist or allowed as a regular beverage.

3. _____ is forbidden under Islamic law. Iran used to have a thriving wine industry that disappeared after the Islamic Revolution in 1979.

4. _____-wines from outside of the traditional wine growing regions of Europe – tend to be classified by grape rather than by terroir or region of origin, although there have been non-official attempts to classify them by quality.

5. _____ one or more varieties of the European species *Vitis vinifera*, such as Pinot Noir, Chardonnay, or Merlot. When one of these varieties is used as the predominant grape (usually defined by law as a minimum of 75 or 85 %), the result is a *varietal*, as opposed to a *blended*, wine. Blended wines are not considered inferior to varietal wines; in fact, some of the world's most valued and expensive wines, from regions like Bordeaux and the Rhone Valley, are blended from different grape varieties of the same vintage.

6. _____ other species of grape or from hybrids, created by the genetic crossing of two species. *Vitis labrusca* (of which the Concord grape is a cultivar), *Vitis aestivalis*, *Vitis rupestris*, *Vitis rotundifolia* and *Vitis riparia* are native North American grapes usually grown for consumption as fruit or for the production of grape juice, jam, or jelly, but sometimes made into wine.

7. _____ is not to be confused with the practice of grafting. Most of the world's vineyards are planted with European *V. vinifera* vines that have been grafted onto North American species rootstock. This is common practice because North American grape species are resistant to phylloxera, a root louse that eventually kills the vine. In the late 19th century, Europe's vineyards were devastated by the bug, leading to massive vine deaths and eventual replanting. Grafting is done in every wine-producing country of the world except for the Canary Islands, Chile and Argentina, which are the only ones that have not yet been exposed to the insect.

Exercise Two. Read the article below, there is an extra word in some sentences, find the mistakes.

In the context of wine production, *terroir* is a concept that encompasses the varieties of grapes used, elevation and shape of the vineyard, type and chemistry of soil, climate and seasonal conditions, and the local yeast cultures.

The range of possibilities here can result in a great differences between wines, influencing the fermentation, finishing, and aging processes as well.

Many wineries use growing and production methods that preserve or accentuate on the aroma and taste influences of their unique *terroir*.

However, flavor differences are not desirable for producers of mass-market table wine or other cheaper wines, where consistency is more important.

Such producers will try to minimize differences in sources of grapes by using of production techniques such as micro-oxygenation, tannin filtration, cross-flow filtration, thin film evaporation, and spinning cones.

Exercise Three. Read the article below and answer the questions.

1. What is a vintage wine made from?
2. Why is it common to save bottles for future consumption?
3. What is required to do if a wine should be vintage dated?
4. How are vintage wines bottled?
5. Why can vintages vary dramatically?
6. Why can vintages fetch higher prices?
7. Why can non-vintage wines be blended from more than one vintage?

Vintages

A "vintage wine" is one made from grapes that were all or mostly grown in a single specified year, and labeled as such. (Most countries allow a vintage wine to include a portion of wine that is not from the labeled vintage.) Variations in a wine's character from year to year can include subtle differences in color, palate, nose, body and development. Good quality red table wines in particular can improve in flavor with age if properly stored. Consequently, it is not uncommon for wine enthusiasts and traders to save bottles of an especially good vintage wine for future consumption.

In the United States, for a wine to be vintage dated and labeled with a country of origin or American Viticultural Area (AVA) (such as "Sonoma Valley"), it must contain at least 95 % of its volume from grapes harvested in that year. If a wine is not labeled with a country of origin or AVA the percentage requirement is lowered to 85 %.

Vintage wines are generally bottled in a single batch so that each bottle will have a similar taste. Climate can have a big impact on the character of a wine to the extent that different vintages from the same vineyard can vary dramatically in flavor and quality. Thus, vintage wines are produced to be individually characteristic of the vintage and to serve as the flagship wines of the producer. Superior vintages, from reputable producers and regions, will often fetch much higher prices than their average vintages. Some vintage wines, like Brunellos, are only made in better-than-average years.

Non-vintage wines can be blended from more than one vintage for consistency, a process which allows wine makers to keep a reliable market image and maintain sales even in bad years. One recent study suggests that for normal drinkers, vintage year may not be as significant to perceived wine quality as currently thought, although wine connoisseurs continue to place great importance on it.

Exercise Four. Choose the best word from the given below to fill each of the gaps.

Judging color is the first **(*stage* / *measure* / *step*)** in tasting a wine. Wine tasting is the sensory **(*examination* / *probe* / *test*)** and evaluation of wine. Wines may be **(*grouped* / *classified* / *categorized*)** by their effect on the drinker's palate. They are made up of chemical **(*compounds* / *elements* / *complexes*)** which are similar or identical to those in fruits, vegetables, and spices. The sweetness of wine is **(determined / given / described)** by the amount of residual sugar in the wine after fermentation, relative to the acidity present in the wine. Dry wine, for example, has only a small **(*sum* / *amount* / *number*)** of residual sugar. Inexperienced wine drinkers often tend to mistake the taste of ripe fruit for sweetness when, in fact, the wine in **(*point* / *issue* / *question*)** is very dry.

Individual **(*tastes* / *palates* / *flavors*)** may also be detected, due to the complex mix of organic molecules such as esters and terpenes that grape juice and wine can contain. Tasters often can **(*show* / *distinguish* / *indicate*)** between flavors **(*peculiar* / *characteristic* / *special*)** of a specific grape (e.g., Chianti and sour cherry) and flavors that result from other **(*facts* / *factors* / *signs*)** in wine making, either intentional or not. The most typical intentional flavor elements in wine are those that are imparted by aging in oak casks; chocolate, vanilla, or coffee almost always **(*go* / *come* / *appear*)** from the oak and not the grape itself.

Banana flavors (isoamyl acetate) are the **(*thing* / *product* / *effect*)** of yeast metabolism, as are spoilage aromas such as sweaty, barnyard, band-aid (4-ethylphenol and 4-ethylguaiacol), and rotten egg (hydrogen sulfide). Some varietals can also have a mineral **(*smell* / *flavor* / *taste*)**, because some salts are soluble in water (like limestone), and are absorbed by the wine.

Wine aroma comes from **(*simple* / *volatile* / *easy*)** compounds in the wine that are released into the air. Vaporization of these compounds can be **(*sped up* / *increased* / *shown*)** by twirling the wine glass or serving the wine at room temperature. For red wines that are already highly aromatic, like Chinon and Beaujolais, many people prefer them chilled.

Task Four. Read, translate, discuss the article below *The health effects of wine* (*and alcohol in general*) and make up questions.

The health effects of wine (and alcohol in general) are the subject of considerable ongoing study. In the United States, a boom in red wine consumption was initiated in the 1990s by the TV show *60 Minutes*, and additional news reports on the *French paradox*. The French paradox refers to the comparatively lower incidence of coronary heart disease in France despite high levels of saturated fat in the traditional French diet. Epidemiologists suspect that this difference is due to the high consumption of wines by the French, but the scientific evidence for this theory is currently limited.

Population studies have observed a J curve association between wine consumption and the risk of heart disease. This means that abstainers and heavy drinkers have an elevated risk, while moderate drinkers have a lower risk. Studies have also found that moderate consumption of other alcoholic beverages may be cardioprotective, although the association is considerably stronger for wine. Also, the studies have found increased health benefits for red wine over white wine, included cancer protection. Researchers suspect that this may be because red wine contains more polyphenols than white wine. A chemical in red wine called resveratrol has been shown to have both cardioprotective and chemoprotective effects in animal studies. Low doses of resveratrol in the diet of middle-aged mice has a widespread influence on the genetic levers of aging and may confer special protection on the heart. Specifically, low doses of resveratrol mimic the effects of what is known as caloric restriction – diets with 20 – 30 percent fewer calories than a typical diet. Resveratrol is produced naturally by grape skins in response to fungal infection, including exposure to yeast during fermentation. As white wine has minimal contact with grape skins during this process, it generally contains lower levels of the chemical. Other beneficial compounds in wine include other polyphenols, antioxidants, and flavonoids. Red wines from south of France and from Sardinia in Italy have been found to have the highest levels of *procyanidins*, which are compounds in grape seeds suspected to be responsible for red wine's heart benefits. Red wines from these areas have between two and four times as much procyanidins as other red wines. Procyanidins suppress the synthesis of a peptide called endothelin-1 that constricts blood vessels. A 2007 study found that both red and white wines are effective anti-bacterial agents against strains of *Streptococcus*. Interestingly, wine has traditionally been used to treat wounds in some parts of the world.

While evidence from both laboratory studies as well as epidemiological (observational) studies suggest a cardioprotective effect, no controlled studies have yet been completed that study the effect of alcoholic drinks on the risk of developing heart disease or stroke. Moreover, excessive consumption of alcohol can cause some diseases including cirrhosis of the liver and alcoholism. Also, the American Heart Association cautions people "not to start drinking _____ if they do not already drink alcohol. Consult your doctor on the benefits and risks of consuming alcohol in moderation."

Based on the UK unit system for measuring alcoholic content, the average bottle of wine contains 9.4 units. Sulphites are present in all wines and are formed as a natural product of the fermentation process. Additionally, many wine producers add sulfur dioxide in order to help preserve wine. The level of added sulfites varies, and some wines have been marketed with low sulfite content. Sulphites in wine are not a problem for most people, although some, particularly those with asthma, can have adverse reactions. Sulfur dioxide is also added to many other foods as well, such as dried apricots and juice.

Wine's effect on the brain has also been studied. Although some researchers have concluded that wine made from the Cabernet Sauvignon grape reduces the risk of Alzheimer's Disease, others have found that among diagnosed alcoholics, wine damages the hippocampus to a greater degree than other alcoholic beverages.

Exercise One. Learn the vocabulary on Profession.

- **Cooper:** Someone who makes wooden barrels, casks, and other similar wooden objects.
- **Garagiste:** One who makes wine in a garage (or basement, or home, etc.) – in other words, **an amateur wine maker**. Also used in a derogatory way when speaking of small scale operations of recent inception, usually without pedigree (and typically located in Bordeaux).
- **Négociant:** A wine merchant who assembles the produce of smaller growers and winemakers and sells them under their own name. Sometimes, this term is just a synonym for wine merchant.
- **Oenologist:** Wine scientist or wine chemist; a student of oenology. A winemaker may be trained as oenologist, but often hires a consultant instead.
- **Sommelier:** A person in a restaurant who specializes in wine. He or she is usually in charge of assembling the wine list, educating the staff about wine, and assisting customers with their wine selections.
- **Vintner:** A wine merchant or producer.
- **Viticulturist:** A person who specializes in the science of the grapevines themselves. Can also be someone who manages a vineyard, which includes making decisions about pruning, irrigation, and pest control.
- **Winemaker:** A person who makes wine. May or may not be formally trained.

Task Five. Beer Production. Read the article on four main ingredients in a real Beer.

Exercise One. Choose the best phrase from the given below to fill each of the gaps: to *prevent undesirable products*; *simply by crushing*; *top of the beer during fermentation*; *a harvested grain started*; *to control the yeast culture*; *the spontaneous fermentation of their grapes*; *the conversion of starches*; *through adding spices*; *provide bitterness and aroma*; *The herbs and spices*; *to control the yeast culture*; *Part of the modern brewing*; *helped to create the pale ale*; *The main salts of interest*; *the way the yeast behave*; *will play a great part*; *ageing their wines*.

WATER – The quantity and variety of dissolved salts in the water used **1.** _____ in the character of the final beer. The salts play a part in the extraction of fermentable sugars from the grain as well as affecting **2.** _____ during fermentation. The total salts in Pilsen's water amounts to around 30 parts per million whereas in Burton on Trent the content is 1220 parts per million. **3.** _____ are as follows; Calcium – increases the extract (efficiency extracting sugars during mashing). It can also help to make the beer clearer. Sulphates – enhance the bitterness of the hops. It was Calcium Sulphate in the local water in Burton on Trent that **4.** _____ style of beer. Chlorides – to enhance sweetness. These are relatively high in the waters of Dublin and London. This is where Porters and Stouts originated. Part **5.** _____ process involves modifying the content of these key ions to produce water that is best suited to the style of beer being produced.

MALT – Grapes can be made to release their sugars **6.** _____ In more Northern latitudes where grapes and sweet fruits do not readily grow ancient people turned to another source. It was probably discovered by accident that as **7.** _____ to germinate, its sugar content seemed to increase. This was due to **8.** _____ in the grain sugars as the seed began to germinate. If this process is stopped by drying **9.** _____ in this process, the grain will contain some sugars plus a quantity of enzymes to aid the extraction of fermentable sugars. The process of mashing makes use of these enzymes to do just this job.

HOPS – Winemakers used to add aroma to their wines **10.** _____ and fruit. The favorite for brewers is to add the flower of the hop vine. When wine makers moved to **11.** _____ in oak casks, they discovered that the wood performed a similar job but most modern beers are too light in flavor to cope with this process. **12.** _____ once added to wine also acted as a preservative. The hop cones added to beer also perform very well in this respect. The hops add alpha and beta acids that **13.** _____ to the final product. Hops are chosen for their content in these products as required by the beer being produced. They are also added at different stages in the process depending on whether they are being used to provide bitterness or aroma. Our beers use hops to provide both bitterness and aroma.

YEAST – The first winemakers did not realize **14.** _____ was caused by the wild yeasts hat collected on the skins of the grapes. Some styles of beers still make use of wild yeasts but as the yeast has such a contribution to make to the character of the final beer, most modern brewers prefer **15.** _____ These are yeasts that form a foam on the **16.** _____ The foam is skimmed at a certain stage in the fermentation and used to start the next beer fermenting. They are pitched in at around 15 deg C and the fermentation temperature rises as the yeast culture grows. The temperature can rise to 25 °C or more but must be controlled to **17.** _____ being produced that can affect the final flavor. The sugar content of the liquid is monitored throughout the fermentation and the process is stopped when the desired alcohol strength is reached.

Exercise Two. Put the verbs in brackets into the correct form.

The malt **(crack)**, i.e. rolled between precisely set rollers, to just split the grains but not produce flour. This stage is critical as we just need grains that **(split)** to release the sugars and enzymes. Grains that are crushed to flour prevent the mash from being effective and can block filters later in the process. This cracked grain **(mix)** with water at a precisely Tolled temperature of around 67 °C. This is a temperature that **(stimulate)** the enzymes in the malt to convert starches to sugars that **(release)** into the liquid now called a wart.

A process known as sparing **(use)** to try to maximize the extraction by adding more water until the volume of liquid is correct and the recalculating the wart through the grain. Once the sugar extraction is completed 90…120 minutes, the wart **(pump)** through to a large boiler known as a 'copper'. The wart now **(bring)** to the boil at which point the first batch of hops is added. Hops added at this stage are for bitterness. Any aroma imparted from the hops added at this stage **(boil)** off. The wart is boiled for around 90 minutes before the aroma hops are added and the heat removed. After a short period of time, the wart rapidly **(cool)** and transferred to a fermentation vessel at around 17 deg C. The yeast is added as soon as conditions are right and fermentation generally starts in a few hours.

Exercise Three. Make up questions using Present Simple Active and Passive.

It is important that the temperature is controlled within tight limits as this affects the fermentation products and hence characteristics of the final beer. After a few days, the sugar content and alcohol content reach a target value and the fermentation is stopped by cooling the beer below the yeast activation temperature. The yeast is removed and the beer is then pumped to conditioning tanks. It remains in these tanks for a few days to mature before being transferred to casks or bottles. Bottling involves an additional process to encourage further conditioning in the bottle. The bottled beer is not filtered or pasteurized so that the beer continues to develop once bottled as long as the environment is suitable. If the bottles are stored upright at 14 – 17 deg C, the yeast continues to ferment slightly and adds some condition to the beer. This yeast will also fall to the bottom of the bottle so the beer should be decanted in one go to prevent the yeast returning to suspension.

It is control of this process from start to finish that ensures a high quality product. Realizing this, we at 'Le Brewery make great efforts to carefully control this process so that every bottle tastes as good as the last.

We look forward to your visit and feel sure you will enjoy our hand crafted traditional beers.

Exercise Four. Choose the best beginning phrase from the given below to fill each of the gaps:

1. Shipping:
2. Labeling:
3. Ingredients:
4. Product Inspection:

5. Bottling:
6. Polishing Barley:
7. Preparation:
8. Fermentation:
9. Storage:
10. Ceramic Filtration:

How Beer is made

From the selection of ingredients to wholesale shipment, Sapporo achieves premium taste by selecting only superior ingredients, and employing unequaled production methods. Our finished product goes through vigorous inspection before it ever reaches our consumers.

A. _____: Beer contains five basic ingredients: primary ingredients – quality malt, hop, and yeast; and secondary ingredients – rice and corn grits and cornstarch; along with refined water. As for barley, the barley most suitable for beer production is called, "Two-row Barley."

B. _____: We first steep barley with water and allow it to germinate for 7 to 8 days. We then dry the green malt to stop the germination. Next, roots are removed, and this malt is then taken into a storage chamber, called, "Silo," for two months, so that it can be matured.

C. _____: Warm water is added to crushed malt and secondary ingredients (not used for 100 % malt beer) and the mixture is stirred to be mash. Then the mash is filtrated through the layer of malt husks to get clear wart. Then hops are added to the wart, and boiled.

D. _____: Yeast is added to the wart, and fermentation is done at about 41…50 F (5…10 °C). At this time, the sugar in the wart decomposed into alcohol and carbon dioxide. After fermenting for about a week, it becomes "Green Beer."

E. _____: We now transfer the green beer into storage tanks where it is stored at below freezing for nearly two month. During that time, carbon dioxide is dissolved into the green beer, and the beer is gradually matured. It is during this period that the beer develops its smooth taste.

F. _____: Next, we remove the yeast from the matured beer through a filter. Once the beer has been filtered, the formerly green beer turns into a wonderful amber hue. And then, a final filtration is done by Sapporo's high technology ceramic filter to remove yeast completely.

G. _____: We fill the fresh beer into clean and sterilized bottles, and crown each bottle with a high-speed bottle crowner. Of course, before the bottles are filled, each bottle is meticulously inspected to ensure that no scratches or damage had occurred during the cleaning and sterilization processes. The entire bottling procedure is performed in a sterile area.

H. _____: After bottling is completed, each individual is inspected to guarantee proper content and capping … . This final inspection is so severe.

I. _____: Only those products which pass final inspection are labeled. Labeled products are boxed automatically by machines, and sent to a warehouse for shipment. Inside the warehouse, temperature and humidity are carefully controlled at most favorable condition for beer.

J. _____: Even our shipping trucks are subject to rigorous quality control inspection, guaranteeing safe passage of our beer. Sapporo Beer comes to you in various packed forms.

Exercise Five. Put the verbs in brackets into the correct form.

The barley used to make malt whisky takes about seven months to grow in the field. In August the barley **(harvest)** and then **(leave)** to rest for a couple of months. The next step is 'malting', an ancient chemistry full of tradition. It **(give)** a rich, warm flavor to the whisky and **(cause)** the grain, to produce starches, which **(convert)** to sugars at a later stage of the process. The malted barley **(rest)** for about three weeks then ground into flour and placed into huge vessels where it **(mix)** with hot water to make a 'wort'. The wort **(cool),** then run into another vessel. Here, yeast **(add),** and the starch is turned into sugars, producing a clear liquid called 'the wash'. It is distillation that **(turn)** this wash into whisky. In distilling, the liquid **(heat)** until the spirit turns to vapour, then condensed back into liquid. By law, Scotch whisky **must be aged** in oak barrels for at least three years. (*Adapted from Dewar's Scotch Whisky website*).

Exercise Six. Read, translate and describe the process of making juice.

As the fruit starts to move along a concentrate plant's assembly line, it is first culled. In what some citrus people remember as "the old fresh-fruit days," before the Second World War, about forty percent of all oranges grown in Florida were eliminated at packinghouses and dumped in fields. Florida milk tasted like orangeade. Now, with the exception of the split and rotten fruit, all of Florida's orange crop is used. Moving up a conveyor belt, oranges are scrubbed with detergent before they roll on into juicing machines. There are several kinds of juicing machines, and they are something to see. One is called the Brown Seven Hundred. Seven hundred oranges a minute go into it and are split and reamed on the same kind of rosettes that are in the centers of ordinary kitchen reamers. The rinds that come pelting out the bottom are integral halves, just like the rinds of oranges squeezed in a kitchen. Another machine is the Food Machioery Corporation's FMC In-line Extractor. It has a shining row of aluminum jaws, upper and lower, with shining aluminum teeth. When an orange tumbles in, the upper jaw comes crunching down on it while at the same time the orange is penetrated from below by a perforated steel tube. As the jaws crush the outside, the juice goes through the perforations in the tube and down into the plumbing of the concentrate plant. All in a second, the juice has been removed and the rind has been crushed and shredded beyond recognition.

Unit Ten

HEALTHY EATING

Task One. Read, Translate and sum up the main facts from the article below.

It is commonly assumed that eating a healthy diet is rather expensive. This might mean that eating healthily could prove difficult for people who need to live on a budget, such as low income families or students. The rising food prices, but also the rising costs of other items such as fuel, can aggravate the situation in many households. The costs of some food items are up to 20 per cent higher than a year ago. And this trend seems to continue.

However, eating a healthy diet doesn't have to be expensive. There are many ways to reduce the cost of food. Here you can find some top tips that can help you eat a healthy diet even with limited resources.

What is a healthy diet?

A healthy diet…

is based on starchy foods such as bread, pasta or rice – choose whole meal variants whenever possible – includes plenty of fruits and vegetables – try to include one or two portions of vegetables or fruit with each meal, so that you reach at least 5-a-day, includes moderate amounts of protein sources such as fish, lean meat, pulses, eggs, includes moderate amounts of dairy products – choose the low fat alternatives where possible, includes small amounts of fats – the quality of fat is very important, choose fats that are low in saturated and high in unsaturated fatty acids (e.g. margarines, plant oils such as olive oil, sesame seed oil, sunflower oil etc.), should contain only small amounts of foods with a high content of fat, sugar and/or salt.

Exercise One. Choose the best beginning phrase from the given below to fill each of the gaps:

A. Don't spend a fortune;
B. Don't be tempted;
C. Plan what you need;
D. Shop for seasonal;
E. Have a stock of basic;
F. Cook dishes;
G. Compare food prices.

Smart food shopping tips for a healthy diet

Here are some tips how to eat a healthy diet without exceeding your weekly budget.

1. _____ for the whole week, make a list and stick to it. This will stop you making impulse buys of things you don't need. Also, planning what you're going to eat during the next couple of days will limit the amounts of food wasted because they've gone off.

2. _____ ingredients at home. This will help stop you from spending money on take-aways or food delivery services. Foods such as pasta or canned and frozen vegetables, fish or pulses last a long time and are perfect for keeping in stock.

3. _____ by special offers such as 3-for-2. Special offers can only help to save money if the item is on your list. If it is not on your list you probably don't need it.

4. _____ Shop around and compare prices to find out which shops offer the best value for different products. Try nt to rely on "corner shops" too often as these may be more expensive. Fruit and vegetables are often cheaper at markets than in supermarkets, as farmers can sell their products directly.

5. _____ in batches and freeze them. This tip is particularly useful for single households or students. It can often be expensive buying small packets of ingredients, and if you are only cooking for one or two people there is a chance that left over ingredients may go to waste.

6. _____ fruit and vegetables. Fruit and vegetables that are not in season in the UK are often transported over long distances and so can be rather expensive. Try to buy local fruits and vegetables that are in season – this is cheaper and also better for our environment. In winter, frozen, dried and canned fruit and vegetables are a good alternative – and they also count towards our recommended 5-a-day. Just try to avoid vegetables that are canned in salted water and fruit canned in syrup.

7. _____ on so-called "super foods". It is important to eat a whole variety of fruit and vegetables; but no single fruit or vegetable is superior to the rest. Foods labelled 'super foods' are often expensive, and it is not necessary to eat lots of these to eat a healthy diet.

Exercise Two. Read the article below and answer the questions:

1. How does the BNF promote the nutritional wellbeing?
2. What institutions does it work with?
3. What are its activities designed to do?
4. What does the Government's Healthy Living Blueprint for Schools include?
5. Why is a whole school approach crucial to supporting good practice?
6. What will The Blueprint enable schools to do?
7. What is essential to children according to the Education Director of the BNF?

8. What does this initiative bring together?

BNF Supports the Healthy Living Blueprint for Schools

The British Nutrition Foundation is an independent scientific charity that promotes the nutritional wellbeing of society through impartial interpretation and dissemination of scientifically based nutritional knowledge and advice. It works in partnership with academic and research institutes, the food industry and government. Its activities are designed to influence all in the food chain, the professions, government and the media.

The British Nutrition Foundation (BNF) welcomes the Government's Healthy Living Blueprint for Schools. The BNF is committed to supporting schools and teachers through its on-going food and nutrition Education Programme, Food – a fact of life, which includes the publication Establishing a Whole School Food Policy, which was produced jointly with the Department for Education and Skills and the Design and Technology Association in 2003. The document was the first of its kind and included information on how to establish and implement a whole school food policy and an audit tool to monitor and evaluate the policy once it was in place.

The BNF believe that for children to be healthy in school and for the awareness of issues surrounding food to be raised, establishing and implementing a policy using a whole school approach is crucial to supporting good practice. The Blueprint will enable schools to undertake the first steps in this process and support those which have already achieved healthy school status.

Stephanie Valentine, Education Director of the BNF said 'It is essential that children receive consistent messages about healthy eating, both through the formal curriculum and through the food and drink provided at school. It is encouraging that this useful initiative brings together diet, activity and health. I hope that schools, and all those associated with education, will feel supported by this comprehensive approach'.

Exercise Three. Put the verbs in brackets into the correct form the National Diet and Nutrition Survey: adults

This survey is part of the National Diet and Nutrition Survey (*NDNS*) programme which **(aim)** to gather information about the dietary habits and nutritional status of the British population. The surveys **(take)** place across four age ranges: children aged 1 S to 4 S years, young people aged 4 to 18 years, adults aged 19 to 64 years and adults aged over 65 years. The survey for adults aged 19 – 64, **(use)** to develop nutrition policy at local and national levels and contribute to the evidence base for Government advice on healthy eating which **(affect)** this age group. The survey **(examine)** the relationship between diet and health and also includes information on physical activity and oral health in relation to dietary intake and nutritional status.

The Survey (carry) out by the Office for National Statistics (ONS) and the Medical Research Council Human Nutrition Research between July 2000 and June 2001. The fieldwork **(consist)** of four waves of data collection, to take account of seasonal variation, and **(conduct)** on a random sample of the population from 152 areas covering Scotland, England and Wales. One adult per household **(select)** at random and invited to take part. The initial stages of the survey **(involve)** a face-to-face interview to collect general information on the individual, their household, general eating habits and health. They then **(ask)** to keep a record of everything they ate and drank at home and out of the home over a seven day period. Additional survey components **(request)** from participants, including a seven-day record of physical activity; a seven day record of bowel movements; an eating behaviour questionnaire; blood pressure and anthropometric measurements; a blood sample; an oral health assessment and a 24-hour urine collection.

Exercise Four. Read, translate and analyse the texts.

Types and quantities of food consumed

The information collected on the types and quantities of food that were consumed by the respondents was taken from the seven-day weighed intake dietary records. This section provides consumption figures, based on the mean amounts consumed during the seven-day recording period, differentiating between sex and age, for 26 food categories.

Some of the differences between men and women included that men were more likely to have consumed meat and meat products; men consumed 2.7 portions and women consumed 2.9 portions of fruit and vegetables per day and 21 % of men and 15 % of women consumed no fruit over the seven-day period. Differences that occurred between age groups included that the youngest group of adults were more likely to consume savoury snacks and soft drinks and the oldest age group were more likely to have consumed fish and fish dishes.

The survey also took account of household benefits, and it was found that adults in benefit households were less likely to consume a number of foods including fruit and alcoholic drinks. They also consumed fewer portions of fruit and vegetables. Men in benefit households consumed 2.1 portions and women 1.9 portions, compared to those in non-benefit households that ate 2.8 and 3.1 portions respectively.

In 2007 the FSA carried out a survey called The Low Income Diet and Nutrition Survey (*LIDNS*) to investigate eating habits, nourishment and nutrition-related health of people on low income. For more up to date information on nutritional status and dietary habits in low income and benefit households, this report can be consulted.

Energy and nutrient intakes

Nutrient and energy intakes were also calculated from the data collected from the seven-day weighed intake records. They are differentiated by age group, sex and for energy and selected nutrients the percentage of the total intake derived from different food types is shown.

The mean total daily energy intakes for all age groups and for each sex were below recommendations, with an average of 2313 kcal for men and 1632 kcal for women. However, the mean percentage of food energy derived from saturated fatty acids was above the recommendations for each sex and age group, 13.4 % on average for all men and 13.2 % on average for all women (it is

recommended that individuals' saturated fatty acid intake should not exceed 11 %). The mean percentage of food energy derived from non-milk extrinsic sugars also exceeded recommendations in each sex and age group except for the oldest group of women. 60 % of men and 44 % of women exceeded the recommendations for alcohol consumption (3–4 units for men and 2–3 units for women) on at least one day of the recorded period. There was evidence of low intakes of vitamin A, riboflavin, magnesium and potassium in men and women, particularly in the youngest age groups. Over 40 % of the two youngest groups of women had low intakes of iron. Mean intakes of salt exceeded the 6 g per day recommendation in all sex and age groups, (men 11.0 g and women 8.1 g).

Adults living in benefit households had lower average intakes of energy and some nutrients, particularly vitamins and minerals in comparison to adults in non-benefit households. A higher proportion of women in benefit households had lower intakes of vitamin A, riboflavin, folate and all minerals in comparison to non-benefit households. (See the LIDNS survey for more recent information).

Nutritional status, blood pressure and physical activity

Nutritional status is described in this report, by physical measurements (anthropometric) and from results of the blood sample analyses. Blood pressure measurements were also taken and respondent took a seven-day record of physical activity.

25 % of men and 20 % of women were obese, and a further 42 % and 32 % respectively were overweight according to BMI measurements. 1 % of men and 3 % of women were classified as underweight.

22 % of men and 13 % of women were recorded to have high blood pressure, the proportions of which increased with age.

Only 36 % of men and 26 % of women met the DH recommendations for physical activity, which is 'five-a-week,' which equates to 30 minutes or more of activities of at least moderate intensity on five or more days.

Among the results of the blood sample analyses, the results included: 48 % of men and women, overall, had blood levels of total cholesterol above the optimal level; 14 % of men and 15 % of women had low vitamin D status, rising to 24 % of men and 28 % of women in the youngest age group and 8 % of women and 3 % of men were anaemic.

Comparison with the 1986/87 Adults Survey

The information collected from the NDNS for adults aged 19 – 64 was compared to the data from the Dietary and Nutritional Survey of British Adults carried out in 1986/87. This was the most recent survey, of a similar nature, that had been carried out prior to the NDNS.

Respondents in the present survey were more likely to have consumed breakfast cereals, savoury snacks, soft drinks (low calorie) and alcoholic drinks, in comparison to the 1986/87 Survey whose respondents were more likely to have consumed biscuits, buns, cakes, meat and meat products and fish and fish products.

Men in the present survey had lower average energy intakes than men in the 1986/87 Survey, however, both men and women derived more of their energy from protein and carbohydrate and less from fat and fatty acids than those in the 1986/87 Survey. Men and women in the NDNS had higher intakes of folate, vitamin C, calcium, potassium than those in the 1986/97 Survey, who recorded higher intakes of vitamin A, copper and zinc.

A higher proportion of both men and women were classified as overweight or obese in the present survey; 66 % and 53 % respectively, in comparison to 45 % of men and 36 % of women in the 1986/87 Survey.

To improve the timeliness and flexibility of the NDNS programme, a rolling format has now been introduced, beginning in 2008. A sample of 1000 people per year (aged from 1S years) is now assessed allowing the analysis of the data from a group of 1500 adults and children after 2 years. This enables more frequent reporting from the survey and provides researchers with the opportunity to better analyse trends in dietary intake.

Exercise Five. Read the article below and write one word to fill the gap.

Response to new nutritional standards for school lunches and other school food – launched 19th May 2006

The Secretary of State for Education and Skills announced the launch of new minimum standards for the provision of food in schools **1.** _____ Friday 19th May 2006. BNF have produced a summary of the new standards, which can **2.** _____ found in the attachment below.

The British Nutrition Foundation (BNF) believes that good nutrition in childhood is crucial **3.** _____ good health during childhood, and that it sets the scene for health in later life. A whole school approach **4.** _____ food and health is fundamental in establishing good dietary habits and an understanding of the links **5.** _____ good nutrition and future health.

Food and drink provision in schools must support the messages that pupils receive through the formal curriculum and the current focus **6.** _____ improving school food offers an important opportunity to ensure that healthy eating messages taught in the classroom are reflected in the foods available from school food outlets. Nevertheless, **7.** _____ some stage children will have to take responsibility **8.** _____ making healthy food choices for themselves, and so need to be equipped with the skills necessary to make these choices.

BNF welcomes efforts to improve the nutritional value of foods consumed in schools, but we are also very aware **9.** _____ the challenges that schools will face in implementing these recommendations, particularly within the time frame laid out. We fully support the recommendation **10.** _____ all schools to have achieved, or be working towards achieving, healthy school status by 2009, which is likely to be dependent **11.** _____ a food and nutrition policy being in place.

Exercise Six. Read, translate the article and decide whether the statements are true or false.

1. Our children's diets don't influence their school performance.

2. Brain development is supported by the correct food.
3. Overnight fast makes children irritable.
4. The brain can store a lot of energy at a time.
5. Eating breakfast improves academic abilities.
6. Breakfast rich in fiber quickly releases energy.
7. Breakfast choices should be taken with milk.
8. Academic performance and behavior depend on fatty acids.
9. Minerals are not linked with IQ levels.
10. The overall diet balance depends on fluids.

What the research really says on foods related to brain power

As the children head back to school, what better time to make sure our children's diets are full of all the right foods to help them to be bright and alert in class. The balance of foods that we feed our children, and the timing of their meals, can have an impact on how they perform at school.

For such a small organ, the brain needs an awful lot of energy; in fact the brain uses about 20…30 % of our total energy needs. The correct nourishment in childhood is crucial to support brain development and meet these energy needs. The brain can only store a bit of energy at a time so it is no surprise that eating meals regularly throughout the day has been reported to improve brain function – regular meals allow a constant supply of energy for the brain.

Breakfast is a very important start to the day. Our overnight fast means that blood sugar levels are low in the morning and this can cause children to feel irritable and tired, making it difficult to concentrate. Many studies have shown that regular breakfast consumption results in children performing better at school, compared to those children who don't eat breakfast. Dr Joanne Lunn, Senior Nutrition Scientist at the British Nutrition Foundation explains "Research has shown that eating breakfast may improve children's problem solving abilities, their memory, concentration levels, visual perception and creative thinking". Breakfast choices which release energy slowly tend to be better. Joanne suggests some good options "Porridge is a really good choice at breakfast because it is full of fibre – add fruit such as raisins or banana to sweeten it and get a serving of fruit at the same time. Muesli is also great because it is a wholegrain food and is typically high in fibre, and provides some calcium, magnesium, potassium, zinc and iron as well as a number of B vitamins. Other breakfast cereals can also provide a range of important vitamins and minerals and many are a great source of fibre too".

All these breakfast options are usually taken with milk, and this provides additional calcium, protein, vitamins and minerals. Calcium is essential for bone growth and development during childhood and adolescence.

The cells which make up our brain are rich in fats, particularly omega-3 fatty acids. These are found in oily fish such as salmon, mackerel, pilchards and fresh tuna. Eating omega-3-rich foods is important in early childhood, because these fatty acids are essential for brain development. There has been some interest in the effects of omega-3 fatty acids and fish oil supplements on academic performance and behaviour in children. But there are only a few published studies on this so far, so we really need more research before we can confirm whether there is an improvement in school performance and behaviour in children.

Minerals such as iron, zinc and selenium, in addition to the vitamins folate and vitamin B12, have also been linked to healthy brain development and IQ levels. For example adequate iron levels are required for good cognitive and social-emotional development, particularly in infants. Good sources of iron include meat, beans, nuts and dried fruits. Iron is also found in fortified foods such as many breakfast cereals. Meat, milk and fish are also sources of vitamin B12.

Lisa Miles, Senior Nutrition Scientist adds "And don't forget fluids – the water we get from food and drink is very important for the whole body to function well, and we need to be well hydrated to be able to concentrate properly. The amount of fluid we need varies according to body size, the temperature and our activity levels, but as a guide try to drink 1S to 2 litres of fluids a day".

So the overall balance of the diet is important for children to make the most of their learning opportunities at school – they need plenty of starchy foods for energy, some long-chain omega-3 fatty acids from oily fish, a variety of foods.

T a s k T w o . Read, translate and discuss the main points of the article.

A recent editorial in the British Medical Journal (BMJ), written by researchers from the University of Oxford, has called for food labels to list *trans* fats as well as cholesterol and saturated fat to help reduce coronary heart disease.

This information sheet has been put together in response to this editorial.

What are *trans* fats (*trans* fatty acids)?

Trans fats (or trans fatty acids) are unsaturated fatty acids with at least one double bond in the *trans* configuration. Unsaturated fatty acids have some of their carbon atoms joined by double bonds, and these can exist in two different geometric forms. In the case of trans fatty acids, the two hydrogen atoms are on opposite sides of the double bond.

Which foods contain *trans* fatty acids?

Trans fatty acids occur naturally in small amounts in foods produced from ruminant animals, *e.g.* milk, beef and lamb. However, most of the *trans* fatty acids in the diet are produced during the process of partial hydrogenation (hardening) of vegetable oils into semi-solid fats. They are therefore found in hard margarines, partially hydrogenated oils, and in some bakery products, fried foods and other processed foods that are made using these (see below).

What are the health effects of consuming *trans* fatty acids?

Trans fatty acids have an adverse effect on blood lipids and have been shown to increase the risk of heart disease. Trans fatty acids increase LDL-cholesterol (the 'bad cholesterol') and decrease HDL-cholesterol (the 'good cholesterol') and, in this way, increase the risk of cardiovascular disease if consumed in high amounts. They may also have adverse effects on cardiovascular disease risk that are independent of an effect on blood lipids (Mozaffarian *et al.* 2006).

In a recent review of prospective studies investigating the effects of *trans* fatty acids on cardiovascular disease risk, a 2 % increase in energy intake from trans fatty acids was associated with a 23 % increase in the incidence of coronary heart disease. The authors also reported that the adverse effects of *trans* fatty acids were observed even at very low intakes (3 % of total daily energy intake, or about 2…7 g per day). (Mozaffarian *et al.* 2006).

However, in this recent review it is only *trans* fatty acids produced during the hardening of vegetable oils that are found to be harmful to health. The public health implications of consuming *trans* fatty acids from ruminant products are considered to be relatively limited.

What is the current intake in the UK?

Over the past decade, population intakes of *trans* fatty acids have fallen and are now, on average, well below the recommended 2 % of total energy set by the Department of Health in 1991, at 1.2 % of energy (Henderson *et al.* 2003). This is not to say that intakes of *trans* fatty acids are not still a problem, and dietary advice states that those individuals who are in the top end of the distribution of intake should still make efforts to reduce their intakes.

Labelling of *trans* fatty acids

Currently, *trans* fatty acids in foods are labelled in the USA, but not in the UK and Europe. The UK Food Standards Agency (FSA) is in favour of the revision of the European directive that governs the content and format of nutrition labels in the UK (and the rest of Europe), so that *trans* fatty acids are labelled. This should enable consumers to make healthier food choices with regard to heart health (Clarke & Lewington 2006).

Exercise One. Read the article below and choose the best word to fill each gap.

Recent changes in food manufacturing

Recognising the **(adverse / harmful / ill)** health effects of *trans* fatty acids, many food manufacturers and retailers have been systematically removing them from their products in recent years. For example, they have been absent from major brands of fat spreads for some time, which are now **(built / manufactured / done)** using a different technique. Also, many companies now have **(guidelines / rules / regulations)** in place that are resulting in reformulation and reduction or elimination of *trans* fatty acids in products where they have in the past been **(found / given / shown)** such as snack products, fried products and baked goods.

For example, we understand that the frying and coating oils used for manufacturing the vast majority of packeted savory snacks in the UK do not **(contain / give / consist)** partially hydrogenated oils. Similarly, changes are being made to the way bakery products are **(manufactured / created / done).** For example, a leading European manufacturer of major brands of biscuits, cakes and snacks in the UK, has recently announced that these are now made **(without / by / of)** partially hydrogenated vegetable oils, a transition that began in 2004. Alongside these changes, content of saturates has also been reduced. A major technical challenge in achieving reformulation is to **(avoid / prevent / do)** simply exchanging *trans* fatty acids for saturated fatty acids, which also have adverse health effects.

Exercise Two. Read the article and choose the best beginning from the given below to fill each of the gaps.

A. However, this does not mean;
B. Foods that are labeled;
C. However, it is important to note;
D. A simple way to reduce;
E. The table in the attachment.

Limiting intake of *trans* fatty acids

1. _____ as containing partially-hydrogenated oils or fats are a source of *trans* fatty acids (note that sometimes 'partially-hydrogenated' fats are just labelled as 'hydrogenated' fats). These foods include hard margarines, some fried products and some manufactured bakery products *e.g.* biscuits, pastries and cakes (containing partially-hydrogenated oils).

2. _____ *trans* intake is to follow general healthy eating advice – cut down on fried foods, high fat snacks and high fat baked goods. When buying fat-containing foods, look for ones labelled with a high content of monounsaturates and/or polyunsaturates.

3. _____ below shows the foods that contributed to *trans* fatty acid intake in the UK in 2000/2001, when the fieldwork for the most recent National Diet and Nutrition Survey (NDNS) was undertaken.

4. _____ that these statistics may well have changed in the light of reformulation of foods that has taken place over the past 6 years in the UK, as referred to earlier, and total *trans* intake may have continued to decline. Furthermore, the average intake of *trans* fatty acids is lower in the UK than in the USA (where legislation has now been introduced) and is well below the recommendation set by the Department.

5. _____ there is room for complacency as the intake in some sectors of the population (with high intakes of fried foods and some types of snacks and baked goods) is known to be higher than recommended and should be reduced.

Exercise Three. Read the article below and answer the questions:

1. Why have the omega-3-fatty acids been associated with heart protection?
2. Why does the Government advise eating fish twice a week?
3. Why are Average intakes of omega-3-fatty acids very low?
4. What paper did the BMJ publish?

5. What was the authors' conclusion?

BMJ Study on Risks and Benefits of Omega-3-Fats

Background

The omega 3 fatty acids found in fish oils have been associated with protection against heart disease. This is because they are thought to lower blood pressure and heart rate; reduce the tendency of the blood to clot, incidence of irregular heart rates (arrythmias) and inflammation; and improve insulin sensitivity and endothelial function. Because of this, the Government advise that we include oily fish in the diet, and that we eat 2 portions of fish each week, at least one of which should be oily. They have imposed a limit for young women and girls of 2 portions of oily fish each week because the environmental contaminants found in fish might be harmful to a developing baby if the woman becomes pregnant. Men, boys and women past child-bearing age can safely eat up to 4 portions per week.

Average intakes of omega-3 fatty acids in this country are very low. This is because we are currently eating, on average, only a third of a portion of oily fish each week.

A paper published in the British Medical Journal (BMJ) (Hooper *et al.* 2006) reviewed 48 randomized controlled trials and 41 cohort studies investigating the effect of omega-3 intake for at least 6 months in adults (both healthy and those with some form of cardiovascular disease risk factor) on cardiovascular disease outcomes.

Pooled estimate showed no strong evidence of a reduced risk of:

* Total mortality (Relative Risk 0.87, 95 % Confidence Interval 0.73 – 1.03).
* Cardiovascular disease events (RR 1.09, 95 % CI 0.87 – 1.04).
* Cancer (RR 1.07, 95 % CI 0.88 – 1.30).

The authors concluded that 'long chain and shorter chain omega-3 fats do not have a clear effect on total mortality, combined cardiovascular disease events or cancer'.

Exercise Four. Read the article below and write one word to fill the gap.

Comments on the Study

The BMJ study published today conducted a meta-analysis **1.** _____89 trials that have investigated omega 3 intakes and cardiovascular disease and cancer. A meta-analysis **2.** _____ a type of statistical study that combines the findings from many different trials and calculates an overall level of effect. The results from the BMJ study suggest that there is no benefit **3.** _____ consuming omega-3-fats (both from oily fish and from supplements) in terms of preventing cardiovascular disease. This is contrary **4.** _____ other published studies.

However, the findings of the BMJ meta-analysis appear to have been influenced **5.** _____ the inclusion of one large trial including over 3000 men with angina. This study reported an unexpected 29 % increase **6.** _____ cardiovascular disease events in the men taking the omega-3 supplements (Burr *et al.* 2003). The authors acknowledge this and suggest a number **7.** _____ explanations to this unexpected finding, including the type of volunteers recruited (i.e. men with angina) and the way **8.** _____ which the study was conducted. By including this trial in the analysis, the size and significance of the overall effect of omega-3-fatty acids **9.** _____ heart health may have been affected.

There has been a lot of interest **10.** _____ the study as, on the face of it, it appears to contradict Government advice **11.** _____ a healthy diet. However, as the majority of studies report a beneficial effect of oily fish in healthy individuals, there is no need **12.** _____ the majority of the population to exclude either oily fish, or fish oil supplements from their diets or alter the Government recommendation **13.** _____ this time. There may now be questions regarding the inclusion of high doses of fish oils in the diets of heart patients and a thorough review of the literature is required **14.** _____ making dietary recommendations to this population group.

Exercise Five. Read the article below, there is an extra word in some sentences, find the mistakes.

* The FSA Board has been agreed to advise UK Ministers that there should be voluntary action by manufacturers in the UK to remove the following colours from food and drink products by 2009:

Sunset	yellow	(E110)
Quinoline	yellow	(E104)
Carmoisine		(E122)
Allura	red	(E129)
Tartrazine		(E102)
Ponceau 4R (E124)		

* The Board decision does not mean to that there is an immediate ban on the use of the six colours in food and drink products.
* A significant part of the UK food industry is just already moving away from the use of artificial food colours in response to consumer demand.
* In the meantime, parents of children showing signs of hyperactivity are advised for that cutting certain artificial colours from their children's diets might have some beneficial effects.
* All additives are used in foods and drinks must be clearly labelled in the ingredients list, which helps parents to see which foods and drinks contain additives and which do not.

For parents choosing to avoid giving their children foods and drinks containing an artificial additives, these days there is a wide range of foods and drinks available that are free from artificial colourings and flavourings.

Exercise Six. Read the article and define which paragraph (1, 2, 3, 4) each statement (A, B, C, D) refers to.

A. Colors rather than the preservative account for children's hyperactivity.
B. Artificial colors influence children's health and manners.
C. The UK food industry is ready to remove colors.
D. There are no scientific factors in the study.

1. Last September, a study carried out by the University of Southampton provided evidence that certain mixtures of artificial colors are associated with an increase in hyperactive behavior in 3-year old and 8-9-year old children. There are some limitations of the study, but the findings do build on the evidence from previous studies and suggest that there does seem to be a link between certain artificial colors and hyperactive behavior in susceptible children. NB: There are many factors associated with hyperactive behavior in children, including genetic factors, being born prematurely, environment and upbringing.

2. The preservative sodium benzoate (or benzoic acid) was also considered in the Southampton study. Use of sodium benzoate is mainly restricted to soft drinks and, unlike the artificial colors investigated, does play an important role in ensuring that food and drinks are safe to consume. The study was not designed in a way that any link could be made between the presence of sodium benzoate and hyperactivity in children so the FSA Board has decided that advice to Ministers and consumers should focus on the colors investigated, rather than this preservative.

3. Although the Southampton study is the best study available on which to base decisions about the presence of artificial colorings in food, it is not perfect. For example: the main findings are based on parental self-reports; it does not demonstrate that the colors cause hyperactivity; and provides no hint as to the mechanisms. Because of this, other factors rather than the strength of the science, including consumer pressure, will presumably have influenced the FSA Board's advice to Ministers that the six colors used in the study be phased out of food and drinks by 2009.

4. While many food additives confer a specific benefit, such as preventing microbial damage and the rapid deterioration of food, food colors are not necessary to keep food safe and therefore offer no specific benefit to the consumer; their presence in foods is about conferring a consumer choice benefit rather than a safety benefit. In response to consumer demand, the UK food industry has already made steps to remove most of these artificial colors from food and drinks.

Exercise Seven. Read the article and choose the best phrase from the given below to fill each of the gaps:
healthy school initiatives; *a good healthy diet*; *download classroom resources*; *to be launched*; *accurate*, *consistent and up-to-date information*; *a comprehensive and progressive approach*; *interactive projects and information sheets*.

FOOD IS A FACT OF LIFE AND CHILDREN SHOULD KNOW ALL ABOUT IT!

There's no such thing as bad food – only a bad diet and to make sure that children get **1.** _____ we must start them young.

This is the aim of a brand new website, Food – a fact of life, which provides **2.** _____ to teaching healthy eating to primary schoolchildren.

It contains **3.** _____ encouraging them to adopt a healthy diet through a whole school approach.

The website, supported by the British Potato Council, Home Grown Cereals Authority, Horticulture Development Council, Meat and Livestock Commission and Milk Development Council, is **4.** _____ at the Design and Technology Show at the NEC in Birmingham on Thursday 17 November 2005.

The content is **5.** _____ to the teaching curriculum for 5 – 11 year olds. The site provides **6.** _____ for children to help them discover more about the food they eat and teachers will be able to **7.** _____ including PowerPoint presentations, posters and activity cards.

The website supports practical work with food, with lots of opportunities for cooking, as well as using ICT in the classroom to learn about healthy eating. It also supports **8.** _____ throughout the UK.

Exercise Eight. Read the article and choose the best beginning from the given below to fill each of the gaps.

A. Chocolate;
B. Chestnuts;
C. Christmas pudding;
D. Red wine;
E. Walnuts and Brazil nuts;
F. Dates;
G. Satsumas;
H. Melon;
I. Gravy;
J. Smoked salmon;
K. Chicken liver pate;
L. Nut roast;
M. Figs;
N. Roast potatoes;
O. Brussels sprouts;
P. Turkey.

1. _____ is a good source of protein and without the skin it is low in fat. Turkey also provides B vitamins which are needed for energy production.

2. _____ are a good source of vitamin C and folate and other bioactive substances, which together may help protect against chronic diseases like heart disease and cancer. Brussels sprouts are also a source of fibre needed to keep the gut healthy.

3. _____ are a good source of carbohydrate and are virtually fat free before you roast potatoes! Choose an oil like olive oil or vegetable oil instead of a solid fat like lard, as oils are lower in saturates. A high intake of saturates can increase blood cholesterol levels, especially the LDL cholesterol fraction often known as 'bad' cholesterol.

4. _____ can have a high salt content; too much salt in the diet may increase blood pressure in susceptible individuals. If you add gravy, try not to automatically add table salt to your meal as well.

5. _____ is fairly low in fat (until you add cream or brandy butter) and high in carbohydrate. Christmas pudding also provides some fibre, B vitamins, potassium, iron and calcium. Boost your calcium intake by eating with custard (choose a low fat variety).

6. _____ contains bioactive substances such as polyphenols which may help protect against disease through their potential to act as antioxidants in the body. However, as with all alcohol, try not to drink to excess. Excess red wine intake can lead to weight gain, higher blood pressure and may damage the liver.

7. _____ is high in fat, particularly saturates, so eat in moderation. However, Chicken liver pate as an excellent source of iron, zinc, vitamin B12 and folate. It can also be extremely high in vitamin A and should not be eaten by pregnant women.

8. _____ n-3 (omega-3) fatty acids which are important for heart health are found in smoked salmon.

9. _____ is very low in calories and provides some potassium and some vitamin C. Some types of melon such as Canteloupe and Watermelon also provide carotenoids.

10. _____ are quite high in fat but the fat is mostly in the form of monounsaturates which may have beneficial effects on several risk factors for heart disease (e.g. blood cholesterol levels especially when they replace saturates in the diet). Nut roasts are also a good source of potassium, iron, zinc, B vitamins and vitamin E.

11. _____ are low in fat and high in fibre. Figs are also a good source of potassium, and provide some calcium, magnesium and iron.

12. _____ are also low in fat, high in fibre and are an extremely good source of potassium. Dates also provide some iron. Optimise the absorption of iron from dates (and figs) by eating a satsuma, which provides vitamin C, at the same time.

13. _____ is a kind of a Japanese tangerine. Satsumas provide vitamin C, folate and beta-carotene.

14. _____ are low in fat (unlike other nuts) and chestnuts are a good source of potassium.

15. _____ provide potassium, calcium, magnesium, iron, zinc and vitamin E. Brazil nuts and walnuts are also the best sources of selenium.

16. _____: Although chocolate is relatively high in fat and calories, it can provide some bioactive substances such as polyphenols (similar to those found in red wine). Chocolate also provides some iron and milk chocolate provides some calcium.

A p p e n d i x 1

ARTICLES FOR INDIVIDUAL WORK

A R T I C L E 1. A pinch too much.

Oct. 31st 2008
From Economist.com

Salt is set to be the next trans-fat

WITH so much emphasis on health care during the current presidential campaign, whoever wins next Tuesday's election will need to make some speedy decisions about the runaway medical costs occasioned by America's unhealthy eating habits.

Salt will likely be first in the crosshairs. Pressure has been building for the sodium found mainly in table salt – currently an unrestricted substance "generally reckoned to be safe" – to be regulated as an "additive" subject to legal limits.

Physicians have long linked salt to high blood pressure – a key factor in heart disease and stroke. A 20-year study investigating the role sodium plays in people developing high blood pressure was finally released to the public in 2002. It concluded that a high-sodium diet is a definite risk factor for congestive heart failure in overweight people.

The food industry argues the results are far from conclusive. Meanwhile, salt manufacturers have seized on studies that suggest the real culprit is not sodium but obesity.

And if sodium does contribute to high blood pressure in any way, they say, it only affects people who are susceptible to it in the first place; it's not automatically a problem for everyone.

That's true. Indeed, studies done at Indiana University suggest only a quarter of Americans with normal blood pressure and little over half those with hypertension (persistently high blood pressure) are salt-sensitive – and therefore potential candidates for cardiovascular disease, stroke or even stomach cancer.

But the trouble with such an argument is that there's no sure way of knowing whether you are sensitive to salt, and might subsequently develop high blood pressure as a result of a high-sodium diet. Better to be safe than sorry, says the American Medical Association (AMA).

Doctors compare two numbers when measuring the pressure of a person's blood as it courses through the arteries, veins and smaller blood vessels. One is the peak (systolic) pressure in the arteries at the beginning of a cardiac cycle when the heart's ventricles are contracting. The other is the minimum (diastolic) pressure at the end of the heat beat when the ventricles are filled with blood. By tradition, the pressure is measured in millimetres of mercury.

A typical healthy adult has a blood pressure of 115 mm systolic and 75 mm diastolic (referred to as 115/75). Anyone with a blood pressure that's consistently higher than 140/90 has hypertension. Anything in between is classified as pre-hypertension.

Today, 65 m Americans suffer from hypertension, and 59 m more have pre-hypertension. In other words, over 40 % of the population is at risk. Halving the amount of salt in the diet, says the AMA, would save 150,000 lives annually in the United States alone. That's five times more than the number of people killed on the road each year.

But unlike trans-fat, removing salt from the diet altogether would be most unwise. Sodium is one of the body's four essential electrolytes (along with potassium, calcium and magnesium). It helps maintain the right balance of fluids in the body, and allows the brain to transmit messages and the muscles to contract and relax.

But if your kidneys can't regulate the amount of sodium in the body properly, it builds up in the blood. Because sodium attracts and stores water, the volume of blood then increases. That puts extra pressure on the heart and the arteries. And if the omens are against you, the result is cardiovascular disease.

No matter how you look at the data, there's no question Americans consume way too much sodium. With a few exceptions, most people need no more than 0.5 grams a day – and seriously shouldn't take more than 2.3 grams (the amount of sodium in a teaspoon of salt). If you're black, middle-aged or older, or have high blood pressure, chronic kidney disease or diabetes, you should restrict your daily intake to 1.5 grams at most.

Yet, with a pinch here and a dash there – plus dollops of the stuff in processed food and restaurant fare – most of us unwittingly ingest between 3 and 4 grams of sodium every day, with some determined folk racking up 20 grams or more.

The trouble is that salt makes food tasty. Because we need it to survive, we seem to be genetically programmed to like it. Taste tests show people from all cultures, even those that have low-salt diets, opt for saltier items when given the choice.

No wonder salt is used to flavour or preserve so many of our favourite dishes – from potato chips and snacks to fish, meat, dairy products, canned vegetables, pickles and bread. A single bagel or a slice of pizza will supply the body with all the sodium it needs for a day. A frozen TV dinner or a meal from a fast-food joint will dose you with ten times the necessary amount.

Losing the taste for salt is difficult, but not impossible. In Britain, for instance, where the average person used to consume 4 grams of sodium daily, the government has pressured food manufacturers into lowering the salt content in some 85 categories of processed foods. Already progress is being made in reducing the population's daily intake to no more than 1.6 grams.

The Finns have been at it longer, and chalked up even greater success. Over the past 30 years, they've lowered the amount of salt in their diet by 30 %. In the process, Finland has seen a 10 mm drop in blood pressure nationwide, and a 75 % reduction in cardiovascular disease in people under 65 years of age, plus a six-year increase in life expectancy.

As in Britain, success has come from clever media campaigns aimed at fostering better eating habits, plus labeling laws that force food manufacturers to mark their products "high in sodium" if they exceed certain levels.

Could something similar happen in America? Certainly, and it probably wouldn't take 30 years. Stopping people smoking in public was a far bigger challenge. The measures changed national habits within a decade – though it took legislation to make it happen, initially as city ordinances and later as state-wide initiatives.

Interestingly, New York City – which was among the first to ban smoking in restaurants and bars, and the first to pass laws targeting unhealthy eating habits – isn't waiting for a new administration in Washington, DC to place salt on some national hit list.

By all accounts, New York is preparing to add permissible sodium levels to its recent ban on artificial trans-fats and its requirement for calorie counts to be listed on the menus in restaurant chains. Absent some national initiative, San Francisco, Los Angeles and Seattle won't be far behind.

One way or another, the betting is that by this time next year salt will be the new trans-fat. And manufacturers will be vying with one another to provide the lowest figure in the land.

T a s k O n e. Answer the following questions.

1. What speedy decisions will the government need to make after the current presidential campaign?
2. What is a key factor in heart disease and stroke?
3. What do studies done at Indiana University suggest?
4. What do doctors compare two numbers when measuring the pressure of a person's blood?
5. What does sodium help maintain?
6. Why does sodium build up in the blood?
7. Why do we seem to be genetically programmed to like salt?
8. What has the government pressured food manufacturers into doing in Britain?
9. What is New York preparing to do?

T a s k T w o. Write a brief summary of the article.

A R T I C L E 2. Treatment on a plate.

Oct. 16th 2008
From *The Economist* print edition

A dietary approach to treating addiction seems worth investigating

PEOPLE are programmed for addiction. Their brains are designed so that actions vital for propagating their genes – such as eating and having sex – are highly rewarding. Those reward pathways can, however, be subverted by external chemicals (in other words, drugs) and by certain sorts of behaviour such as gambling.

In recent years, neuroscientists have begun to understand how these reward pathways work and, in particular, the role played by message-carrying molecules called neurotransmitters. These molecules, notably serotonin, dopamine and gamma-aminobutyric acid (GABA), hop between nerve cells, carrying signals as they go. Some drugs mimic their actions. Others enhance them. Either way, the body tends, as a result, to give up making them. At that point the person needs the drug as a substitute for the missing transmitter. In other words, he is an addict.

Unfortunately, this improved understanding of the biochemistry of addiction has yet to be translated into improvements in treatment. The latest figures from Britain's National Treatment Agency suggest that only 11 % of those who start treatment complete it and are drug-free after 12 weeks.

A new approach that acknowledges the underlying biochemistry might improve this situation. And on October 11th and 12th delegates to a conference in London, organised by Food for the Brain, an educational foundation, heard accounts of such an approach. Its tools are not drugs but dietary changes. The theory is that providing food rich in the precursors of lost neurotransmitters will boost the levels of those chemicals, and thus reduce craving. At the moment, only preliminary trials have been carried out. But they look promising and if larger trials confirm them, a useful, new front in the war on addiction might open up.

Mind what you eat

Anxiety and sleeplessness are common withdrawal symptoms. They happen because many addictive drugs reduce the supply of a chemical called glutamine, a precursor to GABA. One of GABA's roles is to promote relaxation. (The molecular receptors for GABA are the target of tranquillisers such as Valium.) But glutamine levels can be restored, and production of GABA boosted, by the consumption of an amino acid called N-acetylcysteine (NAC) that is found in nuts and seeds.

This is not just theory. A controlled study published last year in the *American Journal of Psychiatry* by Steven LaRowe, of the Medical University of South Carolina, and his colleagues, found that giving NAC to cocaine addicts reduced their desire to use the drug sufficiently for it to be recommended as a treatment. A different study found that NAC reduced the desire to gamble in more than 80 % of those addicted to this pastime, compared with 28 % of those who were given a placebo.

Serotonin is another neurotransmitter that is usually deficient in an addicted brain. This probably accounts for the depressive side of withdrawal symptoms (serotonin receptors in the brain are the target of antidepressant drugs such as Prozac). Serotonin is made from an amino acid called tryptophan, which is found in foods such as meat, brown rice, nuts, fish and milk. Philip Cowen, a psychiatrist at Oxford University, has found that reducing the amount of tryptophan in someone's diet increases depressive symptoms and also that increasing it can induce a more optimistic outlook.

Another molecule that shows promise in treating addiction is DHA, a fatty acid belonging to the nutritionally fashionable class called omega-3.

In this case it is believed to act not by affecting neurotransmitter levels but by changing the physical characteristics of nerve cells' outer membranes, and thus the way they conduct nerve impulses.

A lack of DHA has been associated with all sorts of psychological problems – learning difficulties, excessive hostility and even suicide. It has also been associated with the relapse into addiction.

Here, though, the waters are muddy. Correlation is not causation, and no decent trials have yet been done to show whether DHA supplements do in fact reduce addiction. Indeed, the whole area is, as it were, under-trialled. As David Smith, another Oxford-based researcher and the chairman of the conference, pointed out, drug companies are not interested in carrying out such trials because the results, even if favourable, are unlikely to be patentable.

Governments do not seem interested at the moment, either; the welfare of addicts, rhetoric aside, is rarely a priority. Similar studies of the effect of diet on the behaviour of prisoners are, though, provoking interest. John Stein, yet another Oxford man, is currently conducting such a study in three British prisons. If a change of diet really can help addicts, it would be a shame not to find out. It might even save the public purse some money.

Task One. Make up questions covering the subject matter of the article.
Task Two. Write a review on the article.

ARTICLE 3. Eating their words.

Oct. 23rd 2008
From *The Economist* print edition

On food safety, the Chinese press applies an odd precautionary principle

IT IS, declares China's foreign ministry, a "big step forward" in its handling of foreign journalists in the country. On October 17th a temporary relaxation of rules governing their activities, introduced for the Beijing Olympics in August, was made permanent. The Chinese press, however, has no such good news.

Until the Olympic reporting rules came into force in January last year, foreign journalists based in China needed government approval for any reporting trip outside their city of residence. Officials often insisted on tagging along. Many journalists would travel without permission, but local police often stopped them, seized their notebooks and expelled them from their areas.

The new freedoms have their limits. Permits are still needed to report in Tibet. And even since January 2007 the Foreign Correspondents' Club of China has logged 336 cases of official interference in foreign journalists' work. But their travails are trivial compared with those endured by Chinese journalists, who, unlike them, have to cope with a barrage of directives issued by the Communist Party's Propaganda Department.

This helps explain why the Chinese media were slow to reveal the dangers of contaminated milk powder sold in China (and to a far lesser extent, exported) in the months leading up to the Olympics. The powder made tens of thousands of children ill and killed at least four. Chinese journalists knew about the problem, if not the full extent of it, weeks before it became public in September. But officials and dairy executives, apparently worried about spoiling the mood at the games (not to mention their reputations), did not want news to spread.

Journalists had to be mindful of long-standing, but mostly secret, orders from the Propaganda Department about reporting food-safety issues. *The Economist* has seen a directive issued by a provincial propaganda bureau. Circulated in January 2005, it bans the

media from naming any suspect food product until a "clear verdict" has been reached by the authorities. There are to be no exposés of safety problems concerning famous Chinese food brands or food products for export without official approval. For imported food, approval must come from Beijing. If it causes poisoning, only Xinhua, the official news agency, may break the news and even its reports must be approved by the Propaganda Department and the foreign ministry.

Fu Jianfeng, an editor at *Southern Weekend* newspaper in Guangdong province, wrote on his blog that one of his reporters heard about the milk story in July. But the newspaper could not investigate, he said, because of demands for "harmony" before the games. The blog entry has since been deleted.

Task One. Make up questions covering the subject matter of the article.
Task Two. Write a review on the article.

ARTICLE 4. Fairly safe.

Jul. 31st 2008
From *The Economist* print edition

What athletes may or may not do ought to be decided on grounds of safety, not fairness

ANOTHER Olympics, another doping debate. And this time it is a fervent one, as recent advances in medical science have had the side-effect of providing athletes with new ways of enhancing performance, and thus of putting an even greater strain on people's ethical sensibilities.

This is especially true of gene therapy. Replacing defective genes holds out great promise for people suffering from diseases such as muscular dystrophy and cancer. But administered to sprightly sportsmen, the treatment may allow them to heave greater weights, swim faster and jump farther. And that would be cheating, wouldn't it?

Two notions are advanced against doping in sport: safety and fairness. The first makes sense, the second less so – particularly when it comes to gene therapy. For instance, some people have innate genetic mutations which give them exactly the same sort of edge. Eero Mantyranta, a Finn, was a double Olympic champion in cross-country skiing. His body has a mutation that causes it to produce far more of a hormone called EPO than a normal person would. This hormone stimulates the production of red blood cells.

A synthetic version of it is the (banned) drug of choice for endurance athletes.

Mr Mantyranta was allowed to compete because his advantage was held to be a "natural" gift. Yet the question of what is natural is no less vexed than that of what is fair. What is natural about electric muscle stimulation? Or nibbling on nutrients that have been cooked up by chemists? Or sprinting in special shoes made of springy carbon fibre? Statistically speaking, today's athletes are unlikely to be any more naturally gifted than their forebears, but records continue to fall. Nature is clearly getting a boost from somewhere.

Given that so much unnatural tampering takes place, the onus is surely on those who want to ban doping (genetic or otherwise) to prove that it is unusually unfair. Some point out, for instance, that it would help big, rich countries that have better access to the technology. But that already happens: just compare the training facilities available to the minuscule Solomon Islands squad alongside those of mighty Team America. In druggy sports it may narrow the gap. One condition of greater freedom would be to enforce transparency: athletes should disclose all the pills they take, just as they register the other forms of equipment they use, so that others can catch up.

The gene genie is already out of the bottle

From this perspective, the sole concern when it comes to enhancing athletic performance should be: is it safe for the athletes? Safety is easier to measure than fairness: doctors and scientists adjudicate on such matters all the time. If gene doping proves dangerous, it can be banned. But even then, care should be exercised before a judgment is reached.

Many athletes seem perfectly willing to bear the risks of long-term effects on their health as a result of their vocations. Aged Muhammad Ali's trembling hands, for example, are a direct result of a condition tellingly named *dementia pugilistica*. Sport has always been about sacrifice and commitment. People do not admire Mr Mantyranta because he had the luck of the genetic draw. They admire him for what he achieved with his luck. Why should others be denied the chance to remedy that deficiency?

Task One. Answer the following questions.

1. What is true of gene therapy?
2. What are the two notions of doping debates?
3. Why are today's athletes unlikely to be any more naturally gifted than their forebears?
4. Why must doping be banned?
5. **What proves that The gene genie is already out of the bottle?**

Task Two. Write a brief summary of the article.

ARTICLE 5. Genetically Modified Olympians?

Jul. 31st 2008
From *The Economist* print edition

On the eve of the Beijing Olympics, we examine the prospect of athletes using gene therapy to enhance their performance–and of catching them if they try

FOR as long as people have vied for sporting glory, they have also sought shortcuts to the champion's rostrum. Often, those shortcuts have relied on the assistance of doctors. After all, most doping involves little more than applying existing therapies to healthy bodies. These days, however, the competition is so intense that existing therapies are not enough. Now, athletes in search of the physiological enhancement they need to take them a stride ahead of their opponents are scanning medicine's future, as well as its present. In particular, they are interested in a field known as gene therapy.

Gene therapy works by inserting extra copies of particular genes into the body. These extra copies, known as "transgenes", may cover for a broken gene or regulate gene activity. Though gene therapy has yet to yield a reliable medical treatment, more than 1,300 clinical trials are now under way. As that number suggests, the field is reckoned to be full of promise.

As far as sport is concerned, the top transgene on the list, according to Jim Rupert, an anti-doping expert at the University of British Columbia, is the gene for erythropoietin. EPO, as it is known for short, is a hormone that regulates the production of red blood cells. It is already available as a drug (it was one of the first products of biotechnology companies in the late 1980s), and it has been used widely in endurance sports such as long-distance cycling. But if an athlete's body could be stimulated to make more of it that would – from the athlete's point of view – be better than taking it in drug form.

No dopes

The reason is that EPO, like most performance-enhancing drugs, is banned. However, bans work only when they are enforced, and that requires a test which can distinguish synthetic EPO from the natural hormone made by an athlete's body. At the moment, this is possible. The EPO from a biotechnology company's vats has a slightly different chemical structure from the natural sort. But the evidence suggests that EPO produced as a result of gene therapy will be far harder to distinguish.

In fact, EPO doping may already have happened. In 2006, during the trial of Thomas Springstein, a German coach accused of doping his underage charges, it transpired that Repoxygen, an experimental gene-therapy product containing the gene for EPO, was already making the rounds on the black market. Repoxygen causes a controlled release of EPO, but only when the body senses a lack of oxygen. Or at least it does so in mice.

Whether black-market Repoxygen has won any races is unknown. But several other genetic therapies being tested in mice also look as if they may interest the sort of men and women who feel their athletic performance needs a little boost.

Like EPO, vascular endothelial growth factor spurs red-blood-cell formation and thus helps to supply tissues with oxygen. The gene that encodes this protein is the subject of several medical studies, and is thus a prime candidate for sporting use.

IGF-1 is also a growth factor – though it promotes brawniness in muscle rather than the production of blood cells. Inject the gene that encodes it into a particular muscle and you can affect that muscle and no other. Such specificity might be of interest to people like tennis players and javelin throwers. Meanwhile, a gene called *MSTN* encodes a protein called myostatin, which limits rather than enhances muscle development. In this case, therefore, the doping is designed to switch the gene off. The result is what have been nicknamed "Schwarzenegger" mice.

Once brawny muscles have been acquired, whether licitly or illicitly, other genes might then be used to tune their activity. Tweaking *PPAR-delta*, for instance, alters the way muscles obtain their energy. The individual fibres that comprise a muscle can run in one of two modes. In slow-twitch mode they burn fat, and are less prone to fatigue. In fast-twitch mode they burn sugar. That makes them prone to fatigue, but is useful for delivering short bursts of power. Both modes are valuable to athletes, but in different types of event. The ability to make muscle fibres specialise in one mode or the other would thus be of great benefit to unscrupulous coaches. *PPAR-delta* controls the switch.

Finally, animal studies on the genes for natural pain-killers called endorphins suggest that these could be used to limit the perception of pain –another desirable trait for athletes. That might consign the adage "no pain, no gain" to the history books.

There is thus a lot of potential. And although – the Springstein incident aside – there is no evidence that any of these techniques have made their way into real athletes, the authorities are taking no chances.

The World Anti-Doping Agency (WADA), sensed several years ago which way the wind was blowing. In 2003 it issued a proclamation banning "the non-therapeutic use of genes, genetic elements and/or cells that have the capacity to enhance athletic performance". It followed this by putting its money where its mouth was. Since much of gene doping's allure derives from its alleged undetectability, WADA committed $7,8 m – a quarter of its research budget for 2004-07 – to 21 projects intended to develop ways of detecting it. Now another $6,5 m is up for grabs.

Broadly, there are two ways of spending this money usefully. The direct approach focuses on improving ways of detecting differences between truly natural and "therapeutically enhanced" proteins or, failing that, on detecting the "vector" used to inject the transgenes into the places where they will operate. Such vectors are often particular sorts of virus.

The indirect approach seeks second-hand signs of the transgene or its vector. Viruses, for example, may produce a characteristic immune response that can be detected. Meanwhile the transgenes themselves may alter the body's proteome (the set of proteins active in it at any given time) or its metabolome (a list of all the by-products of the chemical reactions that go on in each cell). Changes to either of these "-omes" can, in principle, be detected in blood or urine. What is needed are points of comparison. This requires working out the typical "biosignatures" of elite sportsmen as a group, or indeed of each individual, as a baseline.

Testing times

Whether gene doping will make its debut in Beijing remains to be seen – or perhaps not, if it is as hard to detect as its protagonists hope. Theodore Friedmann of the University of California, San Diego, who heads WADA's Gene Doping Panel, reckons it probably won't happen this time. He does not think there is, yet, a form of gene therapy that could easily be used to enhance performance. As for Dr Rupert, he says, "I would be surprised. But I have been surprised before." It would be ironic if the first successful application of gene therapy were to people who are among the fittest on the planet. But it is possible.

Task One. Make up questions covering the subject matter of the article.
Task Two. Write a review on the article.

A R T I C L E 6. It's in your genes – maybe.

Jul. 18th 2008
From Economist.com

Peering into your medical future is risky

IT HAS already delivered ever cheaper and more powerful computers. Now Moore's Law – the prediction four decades ago by Gordon Moore, one of the founders of Intel, that computer chips would roughly double in performance every 18 months or so – is promising to turbo-charge our health care as well.

The "genome chip" – a matchbox-sized micro-array, fabricated on a slither of silicon or quartz, that can detect 1m or more specific genetic variations in an individual's DNA at a time – is following an even steeper price-performance curve than Mr Moore ever imagined.

In 2003, when the first human genome was decoded, the overall cost was about $3 billion. By 2005, the cost for a similar job had fallen to $15 m or so, thanks to speedier gene chips built by the likes of Affymetrix and Illumina, a pair of bio-tech start-ups. Another firm, Knome of Cambridge, Massachusetts, is now offering to sequence an individual's complete genome for only $350,000.

And it doesn't stop there. George Church, a geneticist at Harvard University and a pioneer of gene-sequencing technology, expects personal genomes to be available for as little as $20,000 within a few years. America's National Institutes of Health (the NIH) has set a goal for sequencing complete human genomes for $1.000 by 2014. The way things are going, the $1,000 genome will be available long before then.

To make that happen, the X Prize Foundation in the United States–the same outfit that put up a $10 m reward for the first commercial spacecraft to fly to the edge of space twice within two weeks – is offering $10 m to the first private team to decode 100 human genomes within ten days for less than $10,000 apiece. That's the biggest medical prize ever.

The key to the whole endeavour is the rapid progress made over the past couple of years in genotyping equipment. At the heart of the technology is a micro-array consisting of thousands of microscopic spots of different sections of DNA deposited on a glass or silicon surface. When fed a sample of someone's DNA, these spots detect single-letter changes known as "single nucleotide polymorphisms" (SNPs, pronounced "snips").

SNPs are single-letter mutations within the DNA that determine how one person is different from another. As such, they are signposts along the genome that provide clues to what version of a gene a person may have, and whether it's been linked to some particular disease.

Using SNP technology, researchers have been finding new disease markers weekly. We now know the SNPs for cancer of the breast, prostate and lung as well as for obesity, diabetes, rheumatoid arthritis, Alzheimer's, multiple sclerosis, cardiovascular disease, deep-vein thrombosis, schizophrenia and countless more.

With the technology racing along so fast, entrepreneurs have jumped aboard the bandwagon to offer members of the public tantalising glimpses of what their genes may have in store for them. 23andMe of Mountain View, California, and deCode Genetics of Iceland started last November. Navigenics of Redwood Shores, California, got going in April.

The services on offer check your DNA (from a sample of saliva) to determine your risks of contracting various diseases and conditions later in life. The tests don't come cheap. Navigenics, which offers extensive follow-up and counselling services, charges $2,500 for a scan, plus a $250 annual fee for scientific updates. The other two charge around $1,000 per screening.

These are not, of course, complete sequences of the customer's genome – you have to go to Knome or places like Dr Church's Personal Genome Project at Harvard for that. What they do instead is scan your DNA for markers associated with specific diseases. 23andMe tracks 58 diseases and conditions, deCode offers 26, and Navigenics 18.

What you get back from the scan is a report showing the risk you run, relative to the average, of contracting the various conditions tracked. The companies involved go to great pains to explain that this is not a diagnosis, just information about your particular make-up.

That's largely because firms like 23andMe and Navigenics have to walk a fine line between providing medical information about patient's potential health and actually performing diagnosis. In America, the Food and Drug Administration strictly regulates diagnostic testing for disease, but has been slow to extend its oversight to the public implications of genomics.

With the federal authorities slow to react, state governments have begun to crack down. Health officials in New York issued cease-and-desist notices to a dozen or so testing companies last April. Last week, California followed suit.

The authorities worry that gullible members of the public may react too hastily to their genomic information. They see the unproven reliability of such tests as at best a waste of money, and at worst a danger to public health.

The fact is, no one knows for sure how many of the genetic tests being pushed for various conditions are actually useful. Some may be misleading or worse. The potential for false positives, needless surgery and untold anxiety is enormous.

And what about those who score below average for critical conditions like cardiovascular disease or diabetes – and then abandon healthy ways of life because they think they are immune? The potential for false negatives is no less acute.

The biggest problem is that the gene-sequencing technology is galloping ahead of the medicine for treating many of the conditions implicated – to say nothing about the ability of the medical profession to understand how best to handle such information.

The problem is we've acquired a sort of blind faith in genetic testing over the past quarter century. Since 1983, when Huntington's disease was found to be correlated with a particular chromosome, health researchers have identified no fewer than 1,400 diseases associated with single genes. These so-called "monogenic" tests have been remarkably accurate in predicting the likelihood of a person getting the disease in question.

But finding reliable monogenic links to disease is the easy part. Unfortunately, the "one-disease-one-gene" approach to genetic testing applies to only 5 % of diseases. The other 95 % are each related to a subtle interplay of many different genes and other factors.

For instance, diabetes and heart disease – two of the biggest killers today – are caused by complex interactions of multiple genes, along with environmental factors such as smoking, exercise and diet. Trying to do such "multigenic" testing with any semblance of reliability – and then balancing the complex effects caused by external factors – is, to say the least, a truly daunting task.

Expecting personal-genome services like 23andMe and Navigenics to be licensed is not unreasonable. Whether individuals should need a referral from their family doctor to have their DNA scanned would seem unnecessary.

Whichever way, health authorities need to tread carefully. Genomic scanning is an infant industry that promises great things. Some believe it could even lengthen the human lifespan, by a decade or more–and make old age more active and enjoyable.

It is also the key to personalised medicine. If we are to have medicines tailored to our own versions of specific diseases, rather than the one-size-fits-all type of potions and pills with which we're treated today, then each of us will need a genome scan in our medical files.

Right now, your correspondent wouldn't waste his money on one. Common sense, coupled with knowledge of his family's medical history, remains his personal guide. But the inexorability of Moore's Law means that genomic scanning will be a fact of life – and a profoundly useful one – within a decade or less.

T a s k O n e. Make up questions covering the subject matter of the article.
T a s k T w o. Write a review on the article.

A R T I C L E 7. Better living through chemurgy.

Jun. 26th 2008 / NEW YORK
From *The Economist* print edition

Efforts to replace oil-based chemicals with renewable alternatives are taking off

Illustration by David

FORTY years ago Dustin Hoffman's character in "The Graduate" was given a famous piece of career advice: "Just one word … plastics." It was appropriate at the time, given that the 1960s were a golden age of petrochemical innovation. Oil was cheap and seemed limitless. Since then, scientists have kept on coming up with wondrous new products made from petroleum that helped to ensure, in the words of one corporate slogan, better living through chemistry. Even so, someone offering advice to today's promising graduates might invoke a different, uglier word: chemurgy.

This term, coined in the 1930s, refers to a branch of applied chemistry that turns agricultural feedstocks into industrial and consumer products.

It had several successes early in the 20th century. Cellulose was used to make everything from paint brushes to the film on which motion pictures were captured. George Washington Carver, an American scientist, developed hundreds of ways to convert peanuts, sweet potatoes and other crops into glue, soaps, paints, dyes and other industrial products. In the 1930s Henry Ford started using parts made from agricultural materials, and even built an all-soy car. But the outbreak of the second world war and the shift to wartime production halted his experiment. After the war, low oil prices and breakthroughs in petrochemical technologies ensured the dominance of petroleum-based plastics and chemicals.

But now chemurgy is back with a vengeance, in the shape of modern industrial biotechnology. Advances in bioengineering, environmental worries, high oil prices and new ways to improve the performance of oil-based products using biotechnology have led to a revival of interest in using agricultural feedstocks to make plastics, paints, textile fibres and other industrial products that now come from oil.

This form of biotechnology has not attracted as much attention as biotech drugs, genetically modified organisms or biofuels, but it has been quietly growing for years. BASF, a German chemical giant, estimates that bio-based products account for some €300 m ($470 m) of sales in such things as "chiral intermediates" (which give the kick to its pesticides). The sale of industrial enzymes by Novozymes, a Danish firm, brings in over €950 m a year, about a third of it from enzymes for improving laundry detergents. Jens Riese of McKinsey, a consultancy, reckons industrial biotech's global sales will soar to $100 billion by 2011 – by which time sales of biofuels will have reached only $72 billion.

Will this boom really prove to be more sustainable than the first, ill-fated blossoming of chemurgy? One potential problem is that oil-based polymers are very good at what they do. Early bioplastics melted too easily, or proved unable to keep soft drinks fizzy when they were made into bottles. Pat Gruber, a green-chemistry guru who helped start NatureWorks (a pioneering biopolymers firm) says customers are sometimes too risk-averse to retrain staff or modify equipment to accept a new biopolymer – even if it is cheaper or better.

It seems likely that oil-based products will be around for a long time in some applications. But the big advances in oil-based polymers happened decades ago, whereas the number of patents granted for industrial biotechnology now exceeds 20,000 per year. Such is the pace of innovation, says Tjerk de Ruiter, chief executive of Genencor, a industrial-biotech firm that is now a division of Denmark's Danisco, that processes that once took five years now take just one. And Steen Riisgaard, the boss of Novozymes, insists that new technologies can indeed push old ones out of the way, provided they are clearly superior (and not just greener). Brewers raced to adopt Novozymes' novel enzymes, for example, in order to cash in on the Atkins Diet craze with "low carb" beers.

A second potential obstacle is that incumbent companies will quash the fledgling new technologies. But concern about oil's reliability as a feedstock means that even oil-dependent incumbents are interested in alternatives. Oil companies such as Royal Dutch Shell and BP see novel bioproducts not as threats but as useful tools for blending into, and possibly extending, remaining oil reserves. And chemicals giants such as Dow and DuPont are also big fans of novel industrial biotechnologies. Chad Holliday, DuPont's boss, is

sure that Sorona, his firm's new biofibre, will be a multi-billion dollar product and "the next nylon". DuPont expects its sales of industrial biotechnology products to grow by 16…18 % a year, to reach $1 billion by 2012.

Perhaps the biggest worry is that today's industrial-biotech boom is an artefact of the soaring price of oil. If the oil price plunged and stayed low, the boom would surely turn to bust. Short of outright collapse, however, even a sharp price drop need not burst the biotech bubble. Mr Riese has scrutinised the economics of sugar and oil – the chief rival feedstocks – and concludes that the "bio-route" will be cheaper even at an oil price of $50…60 a barrel. Brent Erickson of BIO, an industry lobby, argues that "this was happening long before the oil-price spike – $100 oil is just gravy." Industry bosses agree, noting that the flurry of projects now approaching commercial use were deemed viable and initiated a few years ago, when the oil price was closer to $40 a barrel.

For proof that industrial biotech is ready for the big time, look to Brazil. The country already has a large and efficient industry producing ethanol fuel from sugar cane. Now rival consortia are rushing to build plants to turn sugar cane into bioethylene. This is striking. Unlike many other industrial biotech efforts which target niche markets, this is an assault on the $114 billion market for ethylene, the most widely produced organic compound of all.

Erin O'Driscoll of Dow, a chemical giant now investing in Brazilian bioethylene, says the firm is confident the technology is ready for commercialisation. The chief reason for such optimism is that industrial biotechnology is better and cheaper than it was back in the heyday of chemurgy. Dow has even come up with a material made from soyabean oil that it plans to sell to carmakers to replace oil-based foam. Ford and his friend Carver would be proud.

T a s k O n e. Answer the following questions.

1. What is meant by better living through chemistry?
2. What does the term chemurgy stand for?
3. What has led to a revival of interest in using agricultural feedstocks?
4. What improves laundry detergents?
5. What was the problem of early bioplastics?
6. What is the pace of innovations in new technology?
7. What is the biggest worry of today's industrial-biotech boom?
8. What is Brazil famous for now?
9. Where may soyabean oil be used?

T a s k T w o. Write a brief summary of the article.

A R T I C L E 8. From across the divide.

Jun. 12th 2008
From *The Economist* print edition

Europe's biotech firms need to think big if they are to prosper, says Lisa Drakeman of Genmab

IS EUROPE'S biotechnology industry finally ready for the big time? For decades the continent's scientific elite watched as boffins in America fled academia to start biotech firms. European governments poured billions of euros into "technology corridors", "pôles de compétitivité", and other top-down schemes to create biotech clusters. But most of the venture capital still went to American firms, and Europe failed to produce a rival to America's Amgen or Genentech. Defenders of Europe's efforts to promote innovation in biotechnology noisily object to this view. To show that Europe's efforts may at last be paying off, they point to a recent uptick in investment – and to Genmab, a Danish firm led by Lisa Drakeman. And what does she think? Hers is an unusual perspective, for as well as being boss of one of Europe's biggest biotech firms, Ms Drakeman is American.

Ms Drakeman calls herself an "accidental CEO" because she came to her job via an unusual route. After a doctorate at Princeton in the history of religion, she went to work at Medarex, an American biotech firm that her husband was just getting off the ground in the 1980s. It went public in 1991, and Ms Drakeman moved into business-development in 1993. She spotted an opening, based on the work of a Dutch scientist who was advising Medarex, and proposed to set up a company. But American venture capitalists were unwilling to back the idea. Instead a Danish investor, BankInvest, came forward – and proposed that Ms Drakeman herself should lead it. So Genmab was set up in Copenhagen, though its research facilities are in the Netherlands.

The company went public in 2000, and is listed in Copenhagen. Today it has a market value of some $2.5 billion, making it one of the world's top 20 biotech firms. What makes this valuation even more striking is that Genmab has spent some $300 m – 400 m of investors' money, but still has no products for sale – and therefore no reliable stream of revenues. Ms Drakeman says its value is a sign that investors believe in the drugs it has in clinical trials – such as ofatumumab, a cancer and arthritis drug in late-stage clinical trials, which she reckons could eventually have annual sales of $5 billion. In late 2006 GlaxoSmithKline, a British drugs giant, agreed to a record-breaking licensing deal for the drug, paying $357 m for a 10 % stake in Genmab and offering "milestone payments" worth up to $1,6 billion provided the drug meets expectations as it inches towards the market.

All this comes as broader investment trends also seem to favour Europe's biotech firms. Ernst & Young, a consultancy, estimates that the total value of mergers and acquisitions in Europe's biotech industry leapt from €2 billion ($2.5 billion) in 2006 to nearly €15 billion last year. Listed firms have also been doing better, "suggesting that after years of lacklustre growth the European sector is sustaining robust financial performance."

Unfortunately, Ms Drakeman's experience says as much about the failings of European biotech as it does about its potential. Indeed, Genmab's success arises from her willingness to thumb her nose at European chauvinism and to position Genmab as an embryonic global powerhouse, with aspirations in all big markets. "Genmab is not a European biotech firm, we are a global firm," she

says. A common criticism is that European technology start-ups fail to think big in contrast with the outsized egos in Silicon Valley. Georges Haour of IMD, a Swiss business-school, calls this Europe's "Peter Pan complex" – promising firms do not become world-beaters because they do not grow up.

Ms Drakeman encountered European parochialism when raising investment capital for the company abroad (today some 40 % of her shareholders are American institutional investors). Some of her Danish investors were very upset when she brought these other investors on board. "'Why do you need so much money now,' they asked, insisting that they would have been ready to provide us with more money eventually, when they decided that we needed it," she says. She decries this lack of ambition and argues that her firm's brimming portfolio of drugs, never mind its stunningly lucrative deal with GSK, would not have been possible if she had stayed put in Copenhagen.

Indeed, she confides that much of the GSK deal was actually done not in Britain or Denmark, but in Philadelphia (home of Jean-Pierre Garnier, boss of GSK until last month) and Princeton, where Ms Drakeman is now based. Having lived in Denmark for several years, while her husband continued to live in America, Ms Drakeman moved back to Princeton in order to see more of her family, to be closer to American investors and to escape Denmark's punitive tax regime. She points out that America's research clusters in California and Cambridge, Massachusetts are attracting talent from many European firms, challenging the notion that European biotech is somehow about to break free of the constraints that have long held it back.

Keeping the faith

That points to some snags in the Genmab story. Its R&D is still anchored in the Netherlands, where its star researcher is based. What if he leaves, or refuses to move to a new American research headquarters? More troublingly, what if one of Genmab's potential blockbusters fails late in the game – as did Pfizer's torcetrapib, a cholesterol drug that cost the firm $1 billion? A drugs giant is big enough to survive such a huge blow, as Pfizer has shown, but such a fiasco would surely wipe out a start-up like Genmab. Yet Ms Drakeman insists that investing in biotech is not as random as all that. A good boss can guide a firm, she reckons, by identifying what the market needs, securing the edge in intellectual property and maintaining the confidence of investors – especially if there are not yet any revenues.

It seems that Ms Drakeman's doctorate came in handy after all: having studied the history of religion, she knows all about how to persuade people of the need to have faith.

Task One. Make up questions covering the subject matter of the article.
Task Two. Write a review on the article.

ARTICLE 9.

Read the article and choose the best beginning from the given below to fill each of the gaps:

A. Gene therapy;
B. Despite the slow progress;
C. Another promising strategy;
D. Hence, research is focused;
E. FOR around 40 years scientists;
F. There has been great progress;
G. Could that be about to change?
H. Katherine High, of the Howard Hughes Medical Institute;
I. More importantly, though;
J. Work on gene therapy;
K. In the early days, says Dr Seymour;
L. The most notable successes;
M. Many of gene therapy's other;
N. Viruses can also;
O. Most work in gene therapy.

Seeing is believing

May 1st 2008
From *The Economist* print edition

The prospects for using genes as a therapy may be improving

1. _____ have understood how genes work. They have known the structure of genes, how they replicate, how they are controlled and expressed and, crucially, how to manipulate them. Such knowledge has been the basis of a genetic revolution that offers the power to rewrite the material from which all living organisms are made.

2. _____ in realising some of this promise, in the form of genetically modified organisms. But ways to correct the genetic mistakes that cause many human diseases have been slower to arrive. Gene therapy has been plagued with problems – naivety, false promises, over-optimism and fatalities. Although thousands of patients have received gene therapy for a variety of conditions, only a few have shown any clinical benefit.

3. _____? There was news this week of a successful attempt to correct a faulty gene that leads to blindness. An international team of scientists, led by a group at the University of Pennsylvania, used a genetically engineered virus to introduce the correct version of a gene called *RPE65* into six people suffering from a retinal disease known as Leber's congenital amaurosis. In four patients vision improved. Earlier work with the same technique on dogs suffering from a naturally occurring form of blindness has also been successful.

4. _____ in Maryland, and one of the directors of the study, reported in *The New England Journal of Medicine*, reckons the treatment could be used more widely. It offers hope for correcting any of the ten genetic defects that can cause Leber's, as well as some forms of retinitis pigmentosa, a group of genetic eye conditions.

5. _____, it adds to the rather small number of human successes with gene therapy. The first human gene-therapy trial was in 1990, on a rare and severe immunodeficiency disease known as SCID. Although questions remain about whether the first examples were as successful as claimed, the treatment has since been used successfully on over two dozen patients around the world.

The clinical approach

6. _____ for other conditions is proceeding. For diseases such as cystic fibrosis or muscular dystrophy, which involve one or a few inherited genetic changes, clinical trials are attempting to introduce the correct versions of faulty genes into patients. For acquired diseases, such as cancer, gene-therapy trials are introducing genes that are intended to kill cancerous cells. Len Seymour, a researcher at Oxford University, likens this approach to using DNA as a drug.

7. _____, people wrongly thought that it would be easy to introduce genetic material into diseased cells. He likens attempts by researchers to introduce genes to "throwing a carburettor on to the passenger seat of a car and expecting the car to go".

8. _____, so far, have been with diseases where it is relatively easy to introduce genes. In SCID, for example, bone-marrow precursor cells can be removed, treated and then injected back into place. In the case of Leber's congenital amaurosis, viruses carrying the correct gene can be injected directly into the retina where they will infect retinal cells. Direct injection is also being used in gene-therapy trials on patients with Parkinson's and on those with muscular dystrophy.

9. _____ problems have been with the vector that carries the gene, usually a virus. Sometimes these viruses have provoked strong immune reactions – which is what caused the death of Jesse Gelsinger, an 18-year-old American who had a damaged gene that prevented his liver from making an enzyme to break down ammonia. In 1999 he was the first person to be publicly identified as having died in a clinical trial for gene therapy.

10. _____ cause genetic mutations when they integrate themselves into human DNA. Of the 27 people treated for SCID worldwide, four have developed leukaemia and one has died, says Dr Seymour, though this needs to be balanced against the fact that most children with SCID are completely lacking a normal immune system and die in early childhood.

11. _____ on improving the viral vectors. One way of doing this is to create viruses that lose their ability to activate local genes when they are integrated into their host's genome. Another route, used in the recent Pennsylvania trial, is to use viruses that integrate themselves only into the cell, rather than the cell's DNA. And at Oxford Dr Seymour is working on "stealth viruses", which are coated in a polymer that hides the virus from the immune system. This allows the modified virus to circulate for longer in a patient's blood stream and thus have a better chance of getting to tumours disseminated around the body. Across the world a number of groups are trying to develop synthetic polymers to deliver genes, entirely removing the need to use viruses.

12. _____ is centred on cancer. One approach, used by Shenzhen SiBiono GeneTech, a Chinese company, is to replace broken tumour-suppressor genes with the correct version. In 2003 the company's treatment for head and neck cancer, which accounts for about 10 % of the 2.5 m new cancer patients in China every year, gained the first commercial approval of a gene-therapy treatment. Yet many outside China have been dismissive of the quality of the data used to support this therapy, although Dr Seymour says that when used with chemotherapy in some situations, it can be good.

13. _____, one that is on the fringes of what strictly you would call gene therapy, is "virotherapy". This uses viruses selectively to attack only cancerous cells. There are about a dozen trials in this area. In 2006 researchers from the Hebrew University in Israel isolated a variant of the virus that causes Newcastle disease, a highly contagious disease in birds that can kill. This variant was able to target selectively cancer cells in humans. Trials on a form of aggressive primary brain tumour have shown one complete regression out of 14 treated patients.

14. _____, Dr High says she is optimistic about the future of gene therapy. She argues that treatments only really got going 15 years ago (when the SCID trials began). This, she adds, should be put into context: the development of bone-marrow transplantation or monoclonal-antibody treatments both took several decades. Drugs that are "biologics", such as vaccines, monoclonal antibodies and gene therapy, are derived from biological processes and are inherently more complicated than the chemicals that have traditionally been the mainstay of the pharmacological arsenal.

15. _____ could be the most complex biologic of all, reckons Dr High. The work carried out so far gives scientists a reasonably complete list of things that can go wrong. Dr High warns that researchers are still at the bottom of a tall ladder, though she expects quicker progress in the future. "We have our foot on the rung, and it's not giving way."

ARTICLE 10.

Task One. Make up questions covering the subject matter of the article.
Task Two. Write a review on the article.

Of froth and fundamentals

Oct. 9th 2008
From *The Economist* print edition

The real lesson from volatile commodity prices

CLIMB a steep flight of stairs down a small side street in Fatehpuri, part of the bustling commercial hub of Old Delhi, and you will come to a set of rooms overlooking an imposing internal courtyard. In one of them, half a dozen men lounge on mats beneath a poster of Lakshmi, the Hindu goddess of wealth. Next to them is a clutch of telephone sets, each on a long wire cord. Outside hangs a blackboard with prices scrawled in chalk. This is the trading floor of the Rajdhani Oils and Oilseeds Exchange, where futures contracts for soyabean oil, mustard seed and jaggery (sugar) are bought and sold.

It seems a long way from the New York Mercantile Exchange, but the political heat on both places has been much the same of late. Over the past couple of years India's government has banned futures trading on commodities that include rice, wheat and lentils to rein in prices and stop what it sees as dangerous speculation. And in recent months America's Congress has been mulling a series of measures to discourage similar speculation in oil markets. On September 18th the House of Representatives passed a bill that would limit how much speculative traders, such as hedge funds or pension funds, could invest in commodities, and closed the "Enron loophole", which allows energy traders to escape government regulation when buying and selling over the counter or on electronic platforms. Japan's government has tightened controls on futures trading and China has restricted foreign trading in its commodities markets.

Speculators have long been a popular target for politicians frustrated by volatile commodity prices. In 1947, when wartime controls ended and food prices soared, Harry Truman raised margin requirements (the share of the value of a futures contract that a trader must post upfront with an exchange) to 33 %, vowing that food prices should not be a "football to be kicked about by gamblers". In 1958 America's Congress banned futures trading in onions for much the same reason.

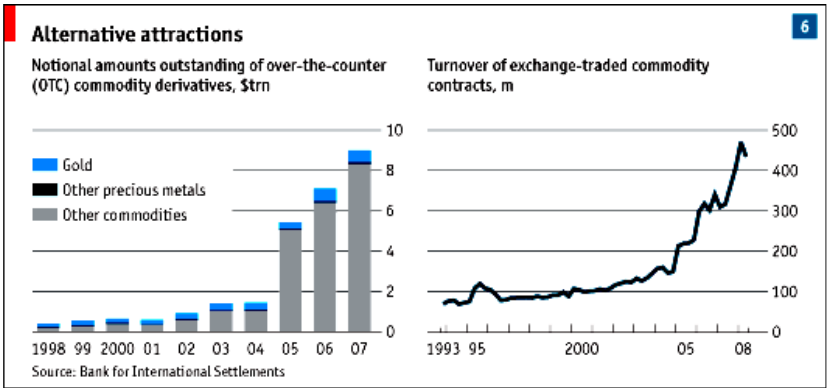
But this time politicians are not the only ones who blame financiers for distorting prices. George Soros, a veteran investor, declared earlier this year that commodities were a "bubble". Michael Masters, a hedge-fund manager, caused a storm when he told a congressional committee in June that the price of oil (then $130 a barrel) might be halved were it not for financial speculation. Even Shyam Aggarwal, the chief executive of the Rajdhani exchange, says futures trading in food products should be banned, at least temporarily.

Broadly, these men all make the same argument: that the flood of money from pension funds, hedge funds and the like that has poured into commodity futures in recent years is distorting spot markets for physical commodities. Rather than helping producers and consumers to hedge their risks and set commodity prices more transparently and efficiently, futures markets have become dominated by hedge funds, sovereign-wealth funds and so on seeking to diversify their portfolios. The speculative tail is wagging the spot dog.

If that argument were true, the consequences would be profound. Commodity prices have a more immediate impact on people's lives than do stock or bond prices, particularly in poorer countries, where many households spend much of their budgets on food. If speculators are distorting commodity prices rather than improving price discovery, there may be good reason to shift the balance between government and market.

Speculating about speculators

At first sight the finger does seem to point to the speculators. Commodities have become a popular alternative asset class for investors. According to Barclays Capital, institutional investors had around $270 billion in commodity-linked investments at the end of June, up from only $10 billion six years ago. The number of futures contracts on commodities exchanges has quadrupled since 2001. The notional value of over-the-counter commodity derivatives has risen 15-fold, to $9 trillion (see chart 6).



The timing of this increase coincides neatly with the long commodities boom. Prices since 2002 have soared by any yardstick. The climb has been most pronounced in dollars, the currency in which most globally traded commodities are priced, because the dollar itself has weakened. But over the past six years commodity prices have also risen in euros or indeed any other currency.

Speculation might also explain the extraordinary volatility of prices since the financial turmoil struck last August. As large swathes of debt instruments suddenly became illiquid and risky, investors – so the argument goes – sought safety in commodities. As America's Federal Reserve slashed interest rates, so money managers, fearful of inflation, fled to hard assets, particularly oil. That surge of cash created a new bubble which has recently burst.

On closer inspection, however, the speculation theory stands up less well. First, there is no consistent pattern between the scale of investors' purchases of a commodity and the behaviour of spot prices. For example, as investment funds piled into hog futures the price fell sharply – even as prices of other commodities rose. Second, many of the commodities in which prices have soared over the past few years, from iron ore to molybdenum, are not traded on exchanges and thus offer less opportunity for investors. Third, much of the surge of cash that has gone into commodities futures is due to rising prices. As the price of a commodity goes up, so does the value of a commodity-linked fund, even without any new money.

Lastly, stocks of most commodities have been low compared with their historical averages. This is important, because rising stocks are the channel through which speculation in futures markets affects the spot price. When speculators push up the futures prices of oil, for instance, they create an incentive for someone to buy oil in the spot market, sell a futures contract on it and store the oil

until delivery is due. This hoarding should show up in higher stocks of unsold oil, but official oil stocks are well below their average of the past five years. The same is true for many other commodities.

The absence of hoarding is not conclusive proof of speculators' innocence. As Roger Bootle of Capital Economics has pointed out, arbitrageurs must simply want to hold bigger stocks; they do not have to succeed. In markets where supply is constrained, their attempts to hoard could push up spot prices without any increase in physical stocks, at least temporarily. Moreover, in some commodities, particularly those that are mined or pumped, producers can reduce supply simply by holding back production. Oil producers, for instance, can simply pump less. But there is scant evidence that this has happened. As prices soared in the first half of this year, oil experts reckoned that most producers were pumping at full capacity. Saudi Arabia is the only large producer with spare capacity; if anything, it pushed up production this year.

All told, the case that speculators drove the commodity boom is weak. To be sure, futures markets can overshoot, and investors may have added temporary fuel, particularly in the first half of 2008. But the long rise in commodity prices – and their recent decline – can be explained much more easily by economic fundamentals.

Too much, too little, too late

Over the past 50 years commodity prices have, on average, fallen relative to other goods and services as their supply has more than kept up with demand. As population growth and greater affluence increased the world's demand for calories, for instance, agricultural productivity grew, which in turn increased supply. But this broad downward trend included plenty of volatility and several big shocks, notably in the 1970s when commodity prices of all sorts soared for several years.

One reason for those price swings was that neither the supply of nor the demand for commodities can change quickly. People have to eat, even if a bad harvest temporarily reduces the world's grain stocks. It takes years to develop an oil field. In economists' jargon, the price elasticity of both demand and supply is low in the short term. So any surprises on either side quickly translate into big price changes.

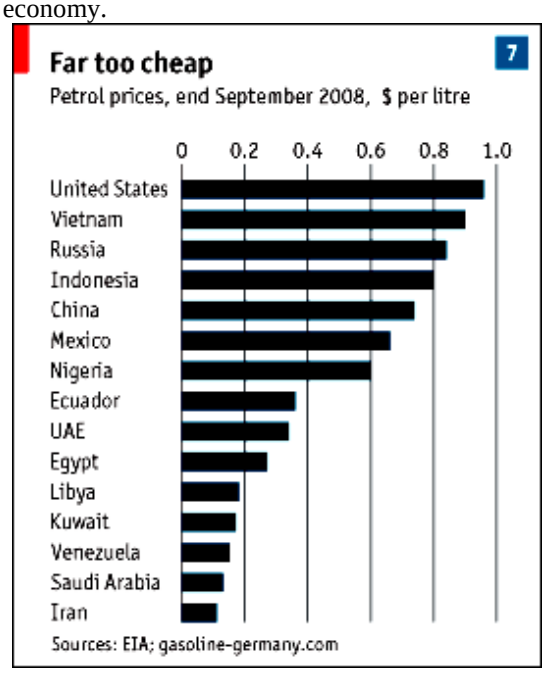
The 1970s commodity shocks were mostly set off by unexpected shortfalls in supply. Culprits included the Arab oil embargo of 1973, catastrophic harvests in 1972 and 1974 and the Iranian revolution in 1979. This decade's boom, by contrast, was due largely to unexpectedly strong demand.

The world economy grew faster for longer than anyone foresaw. In its forecasts of April 2003, for instance, the IMF expected average global growth below 4 % a year over the following three years. In fact, the world economy grew at an annual average of 4.5 % between 2003 and 2007. This boom was driven by emerging economies, which grew at an average pace of 7.3 % a year. In 2003 the IMF expected China's economy, for example, to grow by 7.5 % a year, but in fact it has grown at an average annual rate of 10.6 % a year since then. Not only did emerging economies grow unexpectedly fast, but at this stage of development their use of commodities becomes more intense as they get richer. The result was a dramatic rise in demand, particularly for energy and industrial commodities.

Take oil. In the four years from 1998 to 2002 world oil demand grew at an average rate of 1.1 % a year. Between 2003 and 2007 the pace almost doubled, to an average of 2.1 %, and almost all the increase came from the emerging world (oil demand in the OECD countries has been falling since 2006). In 2007 China alone accounted for one-third of the increase in global oil demand. In products such as most metals it made up an even bigger share.

Where governments have gone wrong

Rising prosperity, however, is not the whole story behind stronger demand. Government-induced distortions have also blunted price signals. In many emerging economies governments control the prices of important fuels, such as diesel, and keep them below world-market levels. Oil-exporting countries are the worst offenders. Whereas the American price is close to a dollar per litre, for instance, Saudi Arabia sells petrol at 13 cents and Venezuela at 16 cents (see chart 7). Tellingly, the Middle Eastern oil exporters have seen a big increase in oil consumption. In 2007 they accounted for a quarter of the rise in global oil demand even though they represent a far smaller share of the world economy.



As oil prices rose, some countries decided to start unwinding these distortions. Oil-importing countries such as Malaysia, Taiwan, Indonesia, China and India have pushed up fuel prices in recent months. China has raised prices twice, in November 2007 and again in June this year. Its petrol prices are now not far off America's (though other energy prices in China are still artificially low). But many other countries kept prices fixed and increased the size of their subsidies. This has hurt their government finances and, more importantly, has made price volatility worse by obstructing the route from higher prices to weaker demand.

The distortions that governments introduce are even more evident in foodstuffs, and this time the culprits are rich countries, particularly America and Europe. Ostensibly to reduce carbon emissions, governments in both places have introduced policies to encourage biofuels (corn-based ethanol in America and biodiesel in Europe). Thanks to these subsidies and regulations, demand for maize and vegetable oils (on which biodiesel is based) has exploded and these crops have displaced others, such as wheat.

Analysts from the OECD to the World Bank argue that biofuel demand is the biggest single reason why food prices have soared in the past couple of years, accounting for as much as 70 % of the rise in maize prices and 40 % of the rise in soyabean prices. Higher energy prices have also made a difference as fertiliser and other input costs have risen.

Rather than recognise their own role in creating the food-price spike, many Western politicians (notably President George Bush) have pointed to rising affluence in emerging economies. Richer Indian and Chinese consumers are indeed eating more meat than they did – though a lot less than people do in the West – but that shift has not been sudden enough to explain the price surges since 2006. It is biofuels that have made the difference.

Demand shocks and misguided government policies go a long way towards explaining the behaviour of commodity prices in recent years. But supply surprises have also played a role, particularly in oil, where the supply response to higher prices has been sluggish even by its standards.

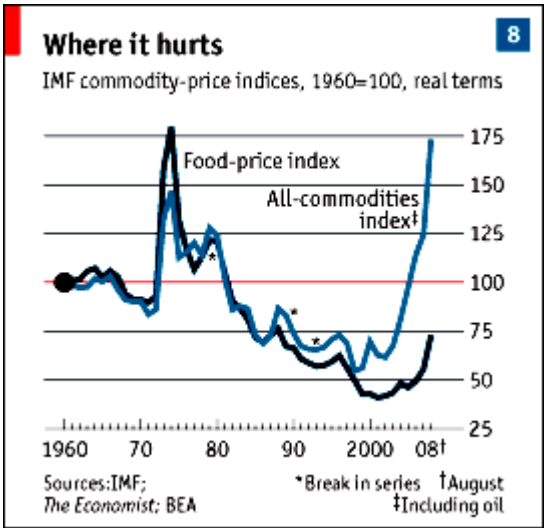
After years of low oil prices in the 1990s the OPEC group of producers began the recent boom with plenty of spare capacity. That spare capacity has all but disappeared, largely because production outside OPEC has been disappointing. Again, government policy played a part. The vast majority of the world's oil reserves are in the hands of government-owned oil companies. Too often these firms use their revenues for political purposes rather than invest it to raise output.

In agriculture emerging governments restricted supply, aggravating the problems caused by demand in the rich world. Panicked by rising food prices in 2007, more than 30 governments, from Ukraine to China, introduced export restrictions for farm produce. This cut the supply of food on world markets, sending prices even higher. Rice was worst hit because only 4 % of its global crop is traded across borders, compared with 13 % for maize and 19 % for wheat. On news of bans in China, Vietnam, Cambodia, India and Egypt (which between them grew 40 % of world rice exports in 2007), the price tripled within a few weeks.

In this panicked environment, futures prices for all food commodities shot up. At times investment funds may have exacerbated fears about scarcity. But for food, as for fuel, the main reason for the price rises of recent years has been unexpected demand growth, often compounded by government distortions.

Contrary to what the critics of speculation suppose, the main task of futures markets has been to signal these fundamentals to firms and households, speeding up their adjustment to the changing balance of supply and demand for physical commodities. In the absence of such signals, it would have taken even bigger and more extended swings in the prices of physical commodities to bring supply and demand into balance.

The same mix of fundamentals and government action, but in reverse, helps explain the easing of prices in recent months. The drop in commodity prices in dollar terms partly reflected a strengthening of the greenback. Oil prices in euros, for instance, have fallen by 25 % less from their peak than oil prices in dollars. A series of sensible moves by governments, such as the decision by some big exporters to lift export controls, helped ease the panic in food markets. The prospect of bumper cereal crops has boosted confidence about short-term supply. *The Economist*'s food-price index at end-September was down 23 % from its peak. Yet nobody is denouncing speculators for driving prices down.



The oil market is also adjusting. A new Saudi field has come on stream, improving the prospect of a supply boost. On the demand side, consumers have started to respond. Faced with petrol at $4 a gallon, American drivers changed their habits faster than expected, switching to smaller cars, driving less and using public transport more.

Most important, the world economy has suddenly slowed, and its prospects have darkened dramatically. Thanks, in part, to the shock of higher oil prices, output growth in Japan and Europe ground to a halt at the beginning of the summer. By August even the big emerging economies were showing signs of slowing from their breakneck pace. As the scale of the global slowdown became clearer, so commodity prices weakened.

If persistent and unexpected demand fuelled much of the commodities boom, so surging prices may, at least in part, have been a symptom of a global economy that was overheating. That is now changing fast. But it suggests that the world's politicians, rather than point the finger at speculators, might look first at their own policies – and then at the mistakes of their central bankers.

Appendix 2

GRAMMAR REVISION

Exercise One. Rearrange the words in each group from the list to make questions. Then match them to the answers below to make a complete dialogue.

you business hero are on you did do that what before are for how you staying long
like what's it been how have long there you working arrive did when you you what do do
to is first this Lyon your visit staying you where are involve travelling job does much your

1. A: Are you here on business?
B: Yes, I'm here on a sales trip.
2. A: _____
B: I work for a small biotech company.
3. A: _____
B: About four years, I suppose.
4. A:
B: I was in pharmaceuticals.
5. A: _____
B: Yes, quite a lot. I travel all over Europe, but especially in France.
10. A: _____
B: No, I've been here once before.
7. A: _____
B: A couple of days ago.
8. A: _____
B: Until Friday, then I go back to the UK.
9. A: _____
B: At the Holiday Inn.
10. A: _____
B: It's very comfortable actually, and the restaurant is

Exercise Two. Complete the dialogue with question words and question phrases from the list below:

how often; how far; how long; how many; how much; what (×2); which (×2); whose.
Example: *what kind of*.
Sam: So, tell me about your new job. (1) *what kind of* work is it?
Joe: It's in sales, like my last job, but it's a bigger company.
Sam: Really? (2) _____ people work there?
Joe: I suppose there's about 60 people in our office.
Sam: Oh, yeah. And (3) _____ holiday can you take a year?
Joe: Twenty-four days a year plus public holidays.
Sam: Oh, that's much better than your last job. And (4) _____ is it from your home?
Joe: Well, it's really not that far and I don't have to catch the train to work every morning, which is great.
Sam: Oh, lucky you. So, (5) _____ does it take you to get to work in the morning now?
Joe: About 20 minutes by car.
Sam: Wow. It sounds perfect. (6) _____ time do you start work in the mornings?
Joe: About nine. But sometimes I have to go on sales trips at the weekends as well.
Sam: Oh? (7) _____ idea was that?
Joe: I don't know, it's just something you have to do.
Sam: And (8) _____ do you have to do it?
Joe: About once a month I think. They're going to give me a company car.
Sam: Really! (9) _____ model are they going to give you?
Joe: A Golf, I think – and I can choose the colour.
Sam: Oh, and (10) _____ colours are there?
Joe: Well, I can choose between black and dark blue.
Sam: Only two! So, (11) _____ one do you prefer?
Joe: Well, dark blue sounds better than black.
Sam: Hmm, yeah. Well, congratulations, I'm sure you'll do really well.

Exercise Three. Make a question with a question tag.

Example: Ask a colleague if he sent the fax. You expect the answer to be 'no'. *You didn't send the fax, did you*?

1. Ask a colleague if he sent the fax. You expect the answer to be 'yes'.
You _____?

2. Ask a stranger at the airport if his name is Mr Peters. You're not sure his name is Mr Peters.
Your name _____?

3. You recognise someone. You are sure his name is Mr Peters.
Your name _____?

4. You guess that Biotec have cancelled their order.
Biotec _____?

5. You are very surprised that Biotec have cancelled their order.
Biotec _____?

A.

John: Hi, Martha, we're due to meet next week (1) _____ aren't we.? Well, I've _____ just remembered that I'm on holiday then. Can you make another time?
Martha: Yes, when are you free?
John: Um, let's meet a fortnight on Tuesday, (2) _____?
Martha: Let me look in my diary. Yes, that's fine – a fortnight on Tuesday

B.

Dan: Luis will be arriving at the office at two, (3) _____?
Frank: No, at three.
Dan: Oh, right. Well, he's been here before, so he should know how to find the office, (4) _____?
Frank: But that was before we moved buildings, (5) _____?
Dan: Oh, yeah. I'll email him with directions to get here, then.

C.

Stan: These designs need to go to Norton Smith's office in Guildford today They've got a fax machine there, (6) _____?
Nicole: Yes, but it's not working. I'll send the document to them by first class post.
Stan: It'd be quicker if you sent it by courier, (7) _____?
Nicole: Oh, yes. I'll sort that out now.

D.

Bridget: This quote for the parts is much cheaper than the other one we had, (8) _____?
Serge: Yes, much. It's very strange. They haven't forgotten to include delivery costs, (9) _____?
Bridget: No, everything is included in the price.
Serge: Really? It all looks too good to be true, (10) _____?
Bridget: Um, yes, well, let's give them a try anyway.

Exercise Four. Underline the correct words.

1. Sorry, I was out of the office *this morning* / *in this morning*.
2. I'll give you a call *next week* / *at next week*.
3. Bye. I'll see you *the day after tomorrow* / *the next day*.
4. We have a security guard to look after the premises *at the night* / *at night.*
5. It's very important to arrive at meetings *on time* / *in time* in this country.
6. If you arrive *on time* / *in time* we can talk a little before the meeting starts.
7. The joint venture has been operating successfully *for* / *during* three years.
8. We had one or two problems *for* / *during* the summer, but things are OK now.
9. I started working here *since two years* / *two years ago*.
10. The market crashed. Luckily I had sold my shares a few months *ago* / *before*.
11. *During* / *While* the meeting I made a lot of notes.
12. *During* / *While* she was talking I made a lot of notes.
13. It happened *during* / *while* dot-corn shares were booming in 2000.
14. It happened *during* / *while* the dot-corn boom of 2000.
15. We have to finish this project *by* / *until* the end of the month.
16. I have to work late. I'll be here *until* / *by* eight this evening.
17. We reviewed the training plans, and *after* / *then* talked about the cost.
18. We had lunch, and *afterwards* / *after* I showed them round the factory.
19. *Afterwards* / *After* lunch I showed them round the factory.
20. I can't talk now. I'll call you *later* / *afterwards* today.

Exercise Five. Underline the correct word/s in this dialogue.

Jack: Oh, hi, Pamela. Could you give me some advice?
Pamela: Yeah, sure.
Jack: It's about my laptop. I use it a lot when I'm out of the office, (1) *so.* / *like* I wanted to talk to you about saving my files _____ I, er, don't want to lose everything if there's a problem.
Pamela: Hmm. Do you back-up your files (2) *for* / *to* make sure your work is safe?
Jack: Oh yes. I have a small storage device that plugs into the USB port – it's (3) *as* / *like* a portable hard disk. And so if anyone stole my laptop it wouldn't be such a disaster (4) *because* / *for* I would still have all my files.
Pamela: Well, that's OK then.
Jack: The problem is I often keep this device in the same place as my laptop (5) *for* / *so that* it's easy for me to find. And that's what worries me.
Pamela: Oh?
Jack: Well, yes. It's easy for me to find, (6) *so* / *so that* it's easy for the thief too.
Pamela: Ah, hah. It sounds (7) *as* / *as if* you're getting a little bit paranoid, Jack.
Jack: So, is there some kind of solution (8) *for* / *to* people (9) *as* / *like* me _____ who are worried?
Pamela: Do you use your laptop (10) *to* / *for* access the Internet?
Jack: Of course.
Pamela: Well, (11) *not to worry* / *so as not to worry* about losing your files how about using on-line storage?
Jack: Um, what's that?
Pamela: It works (12) *as* / *as if 2i* hard disk, (13) *as* / *like* your portable device, but it's an Internet site.
Jack: Oh.
Pamela: You can upload files to the site whenever you want (14) *so that* / *like* they are there to download on another occasion. It could be with another computer. I use it all the time (15) 50 *that* / *to* keep copies of my most important files.
Jack: Ah, I see. That sounds (16) *as* / *like* a really good idea. Well, thanks a lot. I'll do that.

Exercise Six. Underline the correct words.

1. I wish I *hadn't drunk* / *didn't drink* so many whiskies last night.
2. There's so little space in here. I wish I *have* / *had* a bigger office.
3. I don't feel well. I wish I *could stay* / *will stay* in bed this morning.
4. I hope you *enjoyed* / *enjoy* yourselves at the theatre tonight.
5. I've been waiting thirty minutes for the bus. I wish I *took* / *had taken* a taxi.
6. I must get in touch with Sue. If only I *know* / *knew* her number!
7. I'm not a good typist. I wish I *could type* / *would type* better.
8. I wish Jim *didn't interrupt* / *doesn't interrupt* so often in meetings.
9. I have to finish this report by tomorrow. If only I *would have* / *had* more time.
10. Enjoy your holiday. I hope you *have* / *could have* a good time.
11. That presentation was a disaster! I wish I *could do* / *would do* it all again!
12. I'm disappointed with this camera. I wish I *didn't buy* / *hadn't bought* it.

Exercise Seven. Patrick and Jurgen are discussing a negotiation that went wrong. Complete the dialogue with words from the list below.

if'; as long as; in case; unless (×2); 'I ' d (×2); can; would have; 'd have; wouldn't have:

Patrick: Jurgen, (1) _____ '.t _____ you've got a moment, (2) _____I have a word with you?
Jurgen: Sure. (3) _____ it doesn't take too long, I've got a meeting in five minutes. Is it about that contract that we lost?
Patrick: Yes. What went wrong? Do you think we (4) _____ got the deal if we (5) _____ offered a better price? Maybe we (6) _____ lost the business.
Jurgen: No, I don't think the problem was the price.
Patrick: No? Well, was it a problem with the delivery time? If we (7) _____ given a shorter delivery time, (8) _____ we _____ been more successful?
Jurgen: No, the delivery time was OK.
Patrick: Hmm, this is strange. We really should find out what went wrong (9) _____ a situation like this happens in the future. You know, (10) _____ we learn from our mistakes, we (11) _____ lose more orders. Now, Jurgen, tell me what do you think could really have happened?
Jurgen: Well, nothing, (12) _____ they didn't like our sales rep.
Patrick: Oh?
Jurgen: Do you know who it was?
Patrick: Er, it was me.

Exercise Eight. Read these sentences and decide if the events are likely or imaginary. Complete the sentences by putting the verbs in brackets into the present simple + *will* or the past simple + *would.* Use contracted forms where possible.

1. It's not far. If you _____ (follow) this road, you _____ (come) to the station.
2. If I _____ (be) on the Board of this company, _____ argue) against the merger.
3. _____ If you _____ (have) any questions, I _____ (deal) with them at the end of my presentation.
4. _____ If the council _____ (ban) all cars from the city centre, there _____ (not be) so much pollution.
5. A: I have no idea what the other side are going to propose in the negotiation tomorrow.

B: Neither do I. If I _____ (know), I _____ (tell) you.

6. A: My train leaves in forty minutes.
B: It only takes ten minutes to the station by taxi. If you _____ (leave) now, you (catch) it.

7. A: Is that the time? I really should be going.
B: If you _____ (wait) a moment, I _____ (give) you a lift.

8. A: Would you like to go to English evening classes with me?
B: I'm sorry, but I can't. I'm really busy. If I _____ (have) more time, I _____ (love) to.

Exercise Nine. Paula, a marketing manager of a car manufacturing company, is talking to her colleague Luis, a production manager. Complete their conversation with the words from the list below.

will (×2); won't (×2); would (×2); wouldn't; unless (×2); be; is; is going to be; don't; didn't.

Paula: Luis. Aren't you worried about the proposed strike?
Luis: Well, sure _____ .
Paula: You see, if the factory workers go on strike, we (1) _____ 'll _____ lose a lot of production. If we lose production, we (2) _____ be able to supply all our customers.
Luis: Yes, I know, but _____ .
Paula: And if we (3) _____ supply our customers, they'll probably buy other makes of car. If that happens, our market share (4) _____ go down. It's not looking good.
Luis: Well, that's right, but _____ .
Paula: And what's more, in my experience, when workers go on strike there (5) _____ a bad atmosphere for months afterwards.
Luis: Yes.
Paula: So, (6) _____ you can come to an agreement with the workers soon, there (7) _____ a lot of trouble ahead. If you want my advice, (8) _____ very careful.
Luis: Look, don't worry.
Paula: Don't worry?
Luis: Yes. Look, the workers know that the success of the company depends on this new model. (9) _____ they're stupid, they (10) _____ go on strike.
Paula: Oh?
Luis: Now, just imagine – if it sold really well, we (11) _____ increase our market share and our profits. If that happened, we (12) _____ need to make so many job cuts. And if we (13) _____ have to cut jobs, the trade unions (14) _____ be much happier.
Paula: Well, I suppose you've got a point.

Exercise Ten. Complete this interview between a journalist and the CEO of Biotec, a biotechnology company. Use either *a* / *an*, *the* or a dash (–) to show no article.

Journalist: Can you begin by telling me (1) _____ a _____ little about (2) the recent changes at (3) _____ Biotec?
Ceo: Well, as you know, last year we made (4) _____ decision to move our operations to (5) _____ Cambridge, because it's very important for (6) biotechnology companies to recruit (7) _____ scientists from (8) best universities. Er, we're in (9) _____ very competitive jobs market here in Cambridge, and we motivate our employees by offering them (10) _____ attractive salaries and (11) _____ excellent working conditions. We'vebuilt up (12) excellent team, and we're doing some very important research in (13) field of (14) gene therapy.
Journalist: Many people say that (15) biotechnology promises more than it delivers. Is that true at Biotec?
Ceo: That may be true in general, but (16) _____ biotechnology that we do is already producing (17) _____ results. Last year we made (18) small profit for (19) _____ first time, and (20) _____ revenue is increasing rapidly. Also, we've recently made (21) _____ distribution deal with (22) _____ large pharmaceutical company. They have the marketing skills that we lack, and (23) _____ partnership is working well for both sides. Our aim next year is to enter (24) _____ American market, and we're confident of (25) _____ success.

Exercise Eleven. Complete the telephone call with phrasal verbs from the list below that mean the same as the words in brackets.

call back; cut off; get back; to get through; breaking up; go ahead; go over; hold on; look into; rang up; sort out; speak up.
Example: *put through*.

Receptionist: Good morning, Media Solutions, how can I help you?
Derek: Can you (1) *put* me *through* (connect) to Christine Moreau, please?
Receptionist: Of course, hold the line _____ I'm sorry, caller, I can't (2) _____ (make contact) at the moment, the line's busy. Shall I ask her to (3) _____ you _____ (telephone again)?
Derek: It's OK, I'll leave a message.
Receptionist: OK, (4) _____ (wait) just a second while I look for a pen. _____ Right, (5) _____ (continue).
Derek: My name is Derek Richardson, from Weston Security. Ms Moreau (6) me _____ (telephoned) yesterday She wanted me to (7) (investigate) the cost of installing an alarm system for your premises. I said I'd (8) _____ (telephone again) her today.
Receptionist: I'm sorry, Mr Richardson, the line is very bad, can you (9) (talk louder) please? Hello? Hello? I'm sorry, you're (10) _____ (having problems with the signal). Hello?
Derek: Sorry about that. I'm on a train using my mobile and we were (11) (disconnected) in a tunnel. Er, yes, as I was saying, I've managed to (12) _____ something _____ (organise). Can you tell her that I'll send her a quotation along with all the other details in the post?

Receptionist: Oh, right, er, can I just (13) (check) that again? Your name is Derek Richardson, from Weston Security, and you're going to send some details about an alarm system in the post.

Derek. That's right. Er, thank you for your help.

Goodbye.

Exercise Twelve. Underline the correct words.

1. Sorry, I was out of the office *this morning* / *in this morning.*
2. I'll give you a call *next week* / *at next week.*
3. Bye. I'll see you *the day after tomorrow* / *the next day.*
4. We have a security guard to look after the premises *at the night* / *at night.*
5. 5 It's very important to arrive at meetings *on time* / *in time* in this country.
6. If you arrive *on time/in time* we can talk a little before the meeting starts.
7. The joint venture has been operating successfully *for* / *during* three years.
8. We had one or two problems *for* / *during* the summer, but things are OK now.
9. I started working here *since two years* / *two years ago.*
10. The market crashed. Luckily I had sold my shares a few months *ago* / *before.*
11. *During* / *While* the meeting I made a lot of notes.
12. *During* / *While* she was talking I made a lot of notes.
13. It happened *during* / *while* dot-corn shares were booming in 2000.
14. It happened *during* / *while* the dot-corn boom of 2000.
15. 15 We have to finish this project *by* / *until* the end of the month.16 have to work late. I'll be here *until* / *by* eight this evening.
16. We reviewed the training plans, and *after* / *then* talked about the cost.
17. We had lunch, and *afterwards* / *after* I showed them round the factory.
18. *Afterwards* / *After* lunch I showed them round the factory.
19. I can't talk now. I'll call you *later* / *afterwards* today.

Exercise Thirteen. Complete this speech made by the leader of a Korean trade delegation at the end of a trip to Wales with the words and phrases from the list below.

in conclusion; in addition; therefore; instead of; as a rule; however; in fact.
Example: *first of all.*

Could I just say a few words thank you. Well, *first of all* I'd like to thank everyone here at GNK for organising today's visit. We have enjoyed meeting all the staff, seeing your new products and looking round your factory. (2) _____, I would like to thank the local Chamber of Commerce who made the whole trip possible. As you know. we see the European market as very important for our company. (3) _____ it is central to our future plans. (4) _____, I'm sure that we can look forward to even closer cooperation between our two companies in the future. (5) _____ I think it's better to keep the ceremonies short on occasions like this, (6) _____, I would just like to take this opportunity to leave you with something to remember our visit, and so I have great picture in presenting this book with photographs of Korea to your director, Chris Armstrong. (7) _____! hope that we may soon have the pleasure of welcoming some of you to our country in the future. Perhaps the next time we meet it will be in Seoul (8) _____ Cardiff! Once again, thank you all very much.

Exercise Fourteen. Underline the correct words in this article.

A Race Against Time

Governments across Europe are already (1) *starting* / *being started to worry.* Why? Because low birth rates combined with longer life expectancy (2) *mean* / *are meant* that the Continent will soon have fewer people working and fewer people paying taxes.

As a result, a whole range of measures must (3) *take* / *be taken* to deal with the problems that this change in demographics (4) *will bring* / *will be brought.*

At the recent Annual World Economic Forum in Davos, Switzerland, a session called 'Reforming Pension Systems' (5) *took place* / *was taken place.*

The speaker, director of the population division of the United Nations, (6) *highlighted* / *was highlighted* that this is a global problem, not just a European one.

However the facts cannot (7) *ignore* / *be ignored:* the situation in Europe is particularly serious. Look at the findings of a recent European Commission study: Italy's population *expects* / *is expected* to drop from 58 million to 48 million by 2050, Spain's *will fall* / *will be fallen* from 40 million to 35 million, and Germany's from 82 million to 76 million. Sweden is one of the few countries where the population will probably (10) *increase* / *be increased.*

And as the populations get smaller, they are also getting older. From 2007 onwards an enormous part of Europe's population (11) *will start* / *will be started* to retire. Solutions will have (12) *to find* / *to be found* to deal with the problems that this will (13) *create* / *be created.* Certainly governments must (14) *encourage* / *be encouraged* private pension plans, and old-fashioned tax and social security models must (15) *look at* / *be looked at* in a completely new way.

Exercise Fifteen. Underline the correct words in this presentation about robotics.

(1) *First of all* / *After all*, I'd like to thank Keiko Ihida for her kind words of introduction, and for inviting me here to speak to you this morning. The title of my talk is 'The Age of the Robot', and I'll be talking today about robotics, and (2) *anyway* / *in particular* their commercial exploitation.

(3) *Especially* / *Clearly* there's huge interest in the subject, as can be seen by the number of people in the audience today, and this is not surprising as we predict that over the next decade robotics is going to be one of the world's fastest growing industries. (4) *To give an example* / *However*, we predict that health-care robots in Japan alone will be a $1 billion market by 2010. They'll be present in hospitals and nursing homes, reminding patients to take medicines, delivering food trays, cleaning, supporting patients who have problems walking, and doing almost everything else (5) except *for* / *instead of* peeling the grapes! (6) As *far as the general public is concerned* / *Concerning the general public*, Sony Corporation thinks that the best place to launch the robot revolution is home entertainment, because singing and dancing robots don't do anything essential and it's OK if they make a mistake sometimes. (7) *Especially* / *Furthermore*, home entertainment is likely to be the biggest market (8) *eventually* / *at test*, with some households having two or three robots, just like they have PCs today. (9) *As a matter of fact* / *Moving on* all the leading players (10) *such as* / *for example* Matsushita, NEC and Omron are investing tens of millions of dollars in the development of personal robots. (11) *I mean* / *As a result* progress has been rapid, and scientists now understand the technology necessary for complex actions like walking on two feet without falling over.

(12) On *the other hand* / *At the end*, it's clear that the development of 'robo sapiens' with something that approximates human intelligence will take longer, (13) *especially* / *or rather* a lot longer.

(14) *Nevertheless* / *In general* it's clear that in terms of competition between countries Japan leads in robotics at the moment, (15) *although* / *apart from* the Americans are trying hard to catch up. And Japan does urgently need a whole new area of products to sell to the world as profit margins in other areas of consumer electronics gets smaller.

So, (16) *in fact* / *to sum up*, I've tried to show you how I believe we're entering a new age, the age of the robot and it's an age that's full of business opportunities.

Exercise Sixteen. Complete the dialogue with one of these words: *for*, *since*, *during*, *while*, *ago*, *before*, *after*, *afterwards*.

Interviewer: Well, perhaps you could begin by telling us a little bit about your career history? And (1) _____ afterwards _____ we'll move on to your current job.

Alessandro: Yes, of course. Well, I graduated from Bocconi University in Milan five years (2) was at Bocconi (3) about six years, and (4) that period I worked briefly as an analyst in my uncle's consultancy firm.

Interviewer: Uh, huh. And did you manage to find a job easily (5) _____ you left university?

Alessandro: Well, eventually I was offered a job in an Italian bank, but (6) _____ that I had been looking for work (7) _____ quite a long time. It wasn't easy finding jobs in Italy at that time, you know, but luckily the situation has got much better (8) _____ then.

Interviewer: Yes, like here. So how long did you work at the bank?

Alessandro: Well, I worked there (9) _____ about two years.

Interviewer: Two years _____ and why did you leave?

Alessandro: I enjoyed my time there a lot. And (10) _____ I was there I learnt a lot of techniques for financial analysis, and important skills like teamwork, you know. But I wanted the chance to do something more challenging in an international environment _____ .

Interviewer: Uh, huh.

Alessandro: _____ It had been my dream to work in an international company (11) _____ leaving school.

Interviewer: Well, you've applied to the right place. So what did you do then?

Alessandro: Well, I decided to take a risk and move to London. That was about two years (12) _____ .

Interviewer: Did you have a job to go to in London?

Alessandro: No. (13) _____ I left Italy I sent my CV to a lot of different agencies, but I thought that it would be easier to find a job (14) _____ I was actually living in London. Hah. I only realized (15) _____ how much competition there was!

Interviewer: Well, yes.

Alessandro: Anyway, eventually, (16) _____ some months, I found a job at a bank in the City. That's where I'm working now.

A p p e n d i x 3
QUIZZES FOR FUN

Food

1. Which of the following is not a citrus fruit?
A) lemon **C)** orange
B) apple **D)** grapefruit

2. If you cook something in oil, you _____ it.
A) boil **C)** fry
B) steam **D)** grill

3. What do we call a small amount of food you eat if you are hungry between meals?
A) a **snack** **C)** a TV dinner
B) a take –away **D)** convenience food

4. What is the name of the job of a professional in the restaurant kitchen?
A) cook **C)** shef
B) chef **D)** chief

5. I'm starving! I could eat a_____ .
A) cow **C)** house
B) pig **D)** horse

6. In British English we buy food to "take away", but in the USA they buy it to _____ .
A) to go **C)** to lift
B) to carry **D)** to eat out

7. Which of the following is not correct?
A) fast food **C)** food to go
B) junk food **D)** rubbish food

8. Which of the following is sweet (not savory)?
A) pizza **C)** a doughnut
B) a taco **D)** sushi

9. I know they are not very healthy, but I love sausages in a _____ .
A) hot cat **C)** hot dog
B) hot mouse **D)** hot horse

10. Another word for chips is _____ fries.
A) German **C)** English
B) Italian **D)** French

11. Which of the following is the odd-one-out?
A) ketchup **C)** soy sauce
B) mustard **D)** chopsticks

Food and Flavors

1. Which of the following would a vegetarian eat?
A) pork **C)** lamb
B) beef **D)** cabbage

2. Waiter in a restaurant: "How would you like your stake, sir?" Customer: "_____".
A) rare **C)** well-done
B) medium **D)** all of the above answers

3. I love eating cakes, biscuits and chocolate – the problem is they are so _____ .

A) fatty **C)** fattening
B) fat **D)** all of the above answers

4. Mmmm…that was absolutely _____!
A) tasty **C)** good
B) delicious **D)** all of the above answers

5. Ben has _____; he loves cakes, chocolate, ice-cream – anything which is sweet.
A) a sweet mouth **C)** a sweet tooth
B) sweet lips **D)** a sweet tongue

6. Some people don't like curry fro India or Thailand; they say it's too _____ .
A) hot and spicy **C)** sweet and sour
B) spicy and hot **D)** sour and sweet

Food Preparation and cooking

1. Which word is the odd one out?
A) chop **C)** slice
B) fry **D)** dice

2. Which word completes this sentence? "I love the food he makes; he's a really great _____".
A) cook **C)** maker
B) cooker **D)** cooking

3. Which of these food preparation utensils do you not usually associate with potatoes?
A) a masher **C)** a knife
B) a peeler **D)** a whisk

4. Complete the following sentence with the most appropriate verb: "I'm going to _____ cakes for his birthday".
A) roast **C)** cook
B) bake **D)** fry

5. Complete the following sentence with the most appropriate verb: "You should _____ steaks under a high heat until they are well-done."
A) fry **C)** heat
B) sear **D)** grill

6. Complete the following sentence with the most appropriate quantity: "Add a couple _____ of salt, but not too much".
A) tablespoons **C)** cups
B) pinches **D)** handfuls

Cooking Idioms

1. The police _____ him for hours about the murder.
A) chopped **C)** diced
B) washed **D)** grilled

2. The situation _____ over and soon people started shouting and fighting.
A) steamed **C)** roasted
B) boiled **D)** sliced

3. He sat in the corner, with anger about the treatment he received from him.
A) washing **C)** simmering
B) boiling **D)** peeling

4. I just let him _____ for a few hours before I told him the news.
A) dry **C)** stew
B) smoke **D)** bake

5. Hey, _____ down and relax. Getting angry about it won't help!
A) cook **C)** steam
B) simmer **D)** cut

6. I don't want to listen to any more of your half-_____ ideas. Come back when your ideas aren't impractical and stupid.
A) baked **C)** rinsed
B) peeled **D)** mashed