МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ
ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ОБРАЗОВАНИЮ

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инженерно-технических специальностей

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ПРАКТИКУМ ПО РАЗВИТИЮ РЕЧЕВЫХ УМЕНИЙ СТУДЕНТОВ НА ЗАНЯТИЯХ ПО ИНОСТРАННОМУ ЯЗЫКУ

МЕТОДИЧЕСКИЕ УКАЗАНИЯ
ПО АНГЛИЙСКОМУ ЯЗЫКУ

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К-12 **Практикум по развитию речевых умений студентов на занятиях по иностранному языку [Текст]: методические указания по английскому языку / О.В. Кабанова, Н.С. Сахарова. - Оренбург : ГОУ ОГУ, 2006 - 81с.**

Данные методические указания представляют собой подборку текстов, упражнений, диалогов по темам “Foodstuffs”, “Meals and Cooking”, “Food Preservation” для студентов 2 курса факультета пищевых производств. Предлагаемые в методических указаниях упражнения способствуют развитию диалогической и монологической речи, а также развивают умения перевода и восприятия иноязычной речи на слух. Предназначено для использования на практических занятиях по английскому языку.

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Содержание

Введение

Данные методические указания по английскому языку предназначены для студентов 2 курса факультета пищевых производств.

Целью методических указаний в соответствии с Программой по иностранным языкам является подготовка студентов к использованию иностранного языка в их будущей профессиональной деятельности, т.е. обучение как письменной, так и устной форме общения. Кроме того, полученные знания могут служить базой для дальнейшего самообразования.

В области обучения устной речи методические указания готовят обучаемых к осуществлению подготовленного монологического высказывания в виде сообщения или доклада. Данные методические указания готовят студентов к участию в диалоге, что предполагает необходимость развития умения выражать собственное мнение, одобрение или неодобрение чужих высказываний, осуществлять запрос информации и т.д.

Помимо этого, студенты готовятся к письменному общению на английском языке. В этом плане предусмотрено формирование умений, необходимых для написания сочинений на заданную тему, перевода текстов по специальности.

Тематический отбор материала позволяет ознакомить студентов с терминологией по данной теме. Методические указания состоят из 18 разделов, включающих основные тексты для изучающего чтения, упражнения для развития навыков устной и письменной речи.

1 Foodstuffs

1.1 Lesson 1 Vegetables

1.1.1 Find the meaning of the following words

Roughage, constipation, lentil, rutabaga, succulence, sweet potatoes, chard, mustard, thallophyta, spermatophyta, collard, chervil, skirret, scolymus, beet, pumpkin, dasheen, brophyta, thrive, asparagus, endive, sprout, radish, chive, egg-plant, gherkin, shallot, garlic, pteridophyta, rhubarb, parsley, salsify, scorzonera, pepper, muskmelon, yam, manioc

1.1.2 Read the following word combinations. Mind their meaning

1 to be sufficient - for быть достаточным
2 for the maintenance of health - для сохранения здоровья
3 perennial crops - многолетние растения
4 pot-herbs - съедобная зелень (шпинат, щавель и т. п.)
5 salad crops - овощная зелень, салатные овощи
6 cole crops - капустные овощи
7 bulb - crops луковые овощи
8 peas and beans - гороховые и бобовые
9 solanaceous fruits - томаты
10 the cucurbits - тыквенные

1.1.3 Read and translate the text

Vegetables

Vegetables play a very important role in the human diet, supplying some of the things in which food materials are deficient. They are important in neutralizing the acid substances produced in the course of digestion of meats; cheese and other foods; they are of value as roughage which promotes digestion and helps to prevent constipation; they are important sources of the mineral elements needed by the body; being especially rich in calcium and iron, they are valuable sources of vitamins. Although vegetables, in general, are not considered of great importance in furnishing proteins, carbohydrates and fats, some of them, such as dried seeds of beans, peas, and lentils, are rich in proteins. Others, such as potatoes, sweet potatoes, parsnips, carrots, and rytabagas, are important sources of carbohydrates.

At least 10 mineral elements are needed for the proper growth and development of the body. Extensive investigations have shown that calcium, phosphorus, and iron, except in rare instances, are the only mineral elements that are not present in quantities sufficient for the needs of the body.

A certain quantity of bulky food is necessary for good health, vegetables are the main source of roughage. Most vegetables, particularly the leafy ones, as celery, cabbage, spinach, and lettuce are characterized by high water content and relatively high percentage of cellulose or fiber. Because of their succulence and relativelly large bulk, the leafy vegetables and most of the root crops probably aid in the digestion of the more comcentrated foods.

The name *vitamin* has been given to a group of food substances other than fats, proteins, carbohydrates, and salts that occur in small quantities in natural food materials. They are essential for growth, for reproduction, and for the maintenance of health.

Green and yellow vegetables contribute about 33 per cent of the vitamin A supplied by major food groups. They supply also about 25 per cent of the ascorbic acid, while citrus fruits and tomatoes furnish about 34 per cent. The vegetables ranking highest in vitamin A are carrots, turnip greens, spinach, sweet potatoes, beet greens, mustard greens, winter squash, chard, and broccoli.

There are four general methods of classification of vegetables: (1) a botanical classification; (2) a classification based on hardiness; (3) a classification based on parts used as food; (4) a classification based on essential methods of culture. A fifth method combining parts of the four mentioned may be used to advantage in grouping for discussion.

1.1.4 Answer the following questions

Why are vegetables important in the human diet?
What vegetables are rich in proteins?
What vegetables are important sources of carbohydrates?
What are good sources of the important mineral elements?
What vegetables contribute about 33 per cent of the vitamin A?
What methods of classification of vegetables do you know?

1.1.5 Give the corresponding Russian equivalents of

Rutabaga, onion, carrot, celery, cabbage, parsnip, turnip, chard, lettuce, parsley, sprout, radish, pepper, cucumber, pumpkin, squash, asparagus, perennial crops, pot-herbs, bulb crops, cucurbits

1.1.6 Give the corresponding English equIvalents of

Морковь, капуста, салат, редис, перец, огурец, спаржа, горчица, лук, свекла, петрушка, укроп, брюква, тыква обыкновенная, мангольд или свекла листовая, пастернак, кабачок, мексиканский огурец, сладкий картофель

1.1.7 Translate into Russian

1. Potatoes, sweet potatoes and mature onions contain appreciable quantities of phosphorus. 2. The leafy, green and yellow vegetables contribute about 33 per cent of the vitamin A supplied by the major food groups. 3. Potatoes and sweet potatoes supply about 16 per cent of ascorbio acid, while citrus fruits and tomatoes furnish about 34 per cent. 4. The vegetables ranking highest in vitamin A are carrots, turnip, greens, spinach, sweet potatoes, beet greens, mustard greens, winter squash, chard, and broccoli. 5. Successful storage requires a good product, the proper temperature and atmospheric humidity, the right stage of maturity for the products to be stored, and freedom from disease and other injury. 6. Many types of kale are known but they all probably belong to the same species. 7. Salad crops are especially valuable for the ash constituents and for their vitamin content, as well as for supplying bulk. 8. These crops generally are eaten without cooking and are the main ones so consumed.

1.1.8 Give sentences of your own in which the following words and word combinations are used

Perennial crops, pot-herbs, bulb crops, cucurbits, carrot, onion, turnip, lettuce, parsley, parsnip, radish, squash, asparagus, beet, mustard, chard, rutabaga, sprout, pepper, garlic

1.1.9 Translate into English

1. Важную роль в питании человека играют свежие овощи, а также разнообразные продукты, получаемые в результате их переработки. 2. Они являются весьма ценными источниками витаминов и необходимых для организма минеральных веществ. 3. Такие овощи, как салатношпинатные, бобовые, капустные и некоторые другие, являются продуктами растительного происхождения с высоким содержанием белковых веществ. 4. Корнеплоды являются источником углеводов, преимущественно сахаров, а также витаминов, минеральных солей, вкусовых и ароматических веществ. 5. Перец принадлежит к семейству пасленовых. 6. Спаржа — многолетнеерастение из семейства лилейных. 7. Укроп богат витамином С, поэтому он не только улучшает вкус пищи, но и витаминизирует ее. 8. Зеленые овощи богаты азотистыми веществами, из которых значительную часть составляют белки. 9. Овощная зелень — важный источник витаминов С, К, каротина и минеральных веществ, особенно железа, фосфора, йода, кальция, микроэлементов.

1.1.10 Get ready to speak about food value of vegetables.

1.2 Lesson 2 Nutritional value of milk

1.2.1 Read the following words and word combinations. Mind their meaning

1 nutritious – питательный
2 versatile – многосторонний
3 mammal – млекопитающее
4 udder – вымя
5 species [spi:ʃi:z] – вид
6 insulating – изоляционный, изолирующий
7 reindeer – северный олень
8 consumption – потребление
9 nutrient – питательное вещество
10 disperse – распространять
11 globule – шаровидная частица
12 deflect – преломлять
13 ray – луч
14 opalescent – опаловый (имеющий молочный отлив)
15 abundant – богатый
16 skim milk – снятое молоко
17 constituent – составная часть, компонент
18 digestible - легко усваиваемый
19 carbohydrate – углевод

1.2.2 Read the words according to transcriptions and find them in the text

[`jɔgət] [brest] [ju:`ni:k] [si:l] [`prəuti:n] [la:mə] [`bʌfələu] [`tekstʃə] [`læktəus] [`keisiin] [`mɔlikju:l] [pə`tæsiəm] [`səudiəm]

1.2.3 Read and translate the text

Nutritional Value of Milk

Milk, highly nutritious, versatile food. People enjoy drinking milk in its natural form and also use it to make a wide range of food products, including cream, butter, yogurt, cheese, and ice cream.

Female mammals produce milk to feed their newly born young. Milk is produced in the mother`s mammary glands, which are found, for example, in the breasts of humans or the udders of cows, sheep, or goats. Each species of mammals produces milk with a unique composition designed to meet the specific needs of its infants. For instance, the milk of animals that need to develop a thick layer of insulating fat, such as seals, has a high fat content. The milk of animals that grow rapidly, such as cows, which double their weight in 50 days, is rich in protein and minerals.

Humans drink the milk produced from a variety of domesticated mammals, including cows, goats, sheep, camels, reindeer, buffaloes, and llama. By far the vast majority of milk used for commercial production and consumption is from cows.

Most milk is composed of 80 to 90 percent water. The remaining 10 percent consists of an abundance of the major nutrients needed by the body for good health, including fats, carbohydrates, proteins, minerals, and vitamins.

Cow milk typically contains about 3.5 to 5 percent fat, which is dispersed throughout the milk in globules. In addition to providing milk1s characteristic taste and texture, fat supplies vitamins A, D, E, and K as well as certain fatty acids that the body cannot produce on its own.

Lactose, a kind of sugar found only in milk, gives milk its sweet taste. Making up about 5 percent of milk`s content, lactose is a carbohydrate that is broken down by the body to supply energy.

The most important protein in milk is casein, accounting for 80 percent of milk protein. Casein is a complete protein, meaning that it contains all of the essential amino acids, which the body cannot manufacture on its own. Casein molecules and globules of fat deflect light rays passing through milk, giving milk its opalescent appearance. Other proteins present in milk include albumin and globulin.

Milk contains many minerals, the most abundant of which are calcium and phosphorus, as well as smaller amounts of potassium, sodium, sulfur, aluminum, copper, iodine, manganese, and zinc. Milk is perhaps the best dietary source of calcium – one liter of milk supplies as much calcium as 21 eggs, 12 kg of lean beef, or 2.2 kg of whole wheat bread. Milk is an excellent source of vitamins A and B2. All other vitamins are present also, but in lower doses. Vitamin D is typically added to commercially sold milk. Vitamin A, which found in the globules of fat, is removed when fat is skimmed away to make low-fat or skim milk. Generally, vitamin A is replaced during the production of commercially sold low-fat milk.

The great importance of milk in the diet is due to that fact that it contains most of the essential food constituents in easily digestible form.

1.2.4 Answer the following questions

What do people use milk for?
Is milk of animals rich in protein and minerals?
What is most milk composed of?
What is lactose?
Does milk include only casein?
What minerals does milk contain?
Why does milk have the great importance in the diet?

1.2.5 Give the corresponding English equivalents of

Составная часть, раствор, растворимый, нерастворимый, свертывание (коагуляция), творог, жировые шарики, сладкий творог с мускатным орехом

и сливками, масло, сметана, сыворотка, простокваша, нерастворимые соли, свертываться, свернувшееся молоко, созревать, осаждать

1.2.6 Find in the text and prove that

1 Each species of mammal produces milk with a unique composition.
2 Fat supplies vitamins.
3 The most important protein in milk is casein.
4 Milk is the best dietary source of calcium.

1.2.7 Give sentences of your own using the following words and word-combinations

Constituent, content, ingredient, solution, soluble salts, flavour, whey, cream, to curdle, whip, curd, cottage cheese, butter

1.2.8 Complete the list with names of food or drink. Skip the letters X and Z

A – apple juice
B –
C –
D –
E –
F –
G –
H –
I –
J –
K –
L –
M –
N -
O -
P -
Q -
R -
S -
T -
U -
V -
W -
X -
Y -
Z -

1.2.9 Comment on the quotations

‘Tell me what you eat and I will tell you who you are.’

Anthelme Brillant-Savarin

‘Man is the only animal that can remain on friendly terms with the victims he intends to eat until he eats them.’

Samuel Butler

‘A gourment is just a glutton with brains.’

Philip W. Haberman Jr.

‘Where the guests at a gathering are well-acquainted, they eat 20 percent more than they otherwise would.’

Edgar Watson Howe

‘The whole of nature, as has been said, is a conjugation of the verb to eat in the active and passive.’

William Ralph Inge

1.2.10 Get ready to speak on

1 Milk and its Composition.
2 Nutritional Value of Milk.

1.3 Lesson 3 Milk Products

1.3.1 Read the following words and word combinations. Mind their meaning

1 diet - пища, питание
2 solution – раствор
3 albumin –
4 acidity – кислотность
5 retail – продажа
6 whip – взбивать
7 curd – свернувшееся молоко
8 curds – творог
9 coagulation – коагуляция, свертывание
10 to ripen – созревать
11 variety – разнообразие
12 whey – сыворотка
13 churn – маслобойка, сбивать
14 lump – ком, крупный кусок
15 to pasteurize – пастеризовать
16 pathogenic – болезнетворный
17 butter milk - пахта

1.3.2 Find Russian equivalents to the following word combinations

1 composition of milk	a. жировые шарики
2 essential minerals	b. продукты распада
3 soluble salt	c. растворимая соль
4 insoluble salt	d. взбитые сливки
5 to be held in suspension	e. молочно-кислые бактерии
6 colour pigment	f. состав молока
7 lactic acid bacteria	g. процесс созревания (молока)
8 whipping cream	h. красящий пигмент
9 cottage cheese	i. прессованный творог
10 high percentage	j. в зависимости от породы коровы
11 decomposition products	k. высокое процентное содержание
12 fat globules	l. ценные минеральные вещества

13 ripening process	m. нерастворимая соль
14 according to breed of cow	n. находиться во взвешенном состоянии

1.3.3 Read and translate the text

Milk products

The amounts of various constituents in milk vary, from season to season, with the food of the cow and the breed.

The average percentage of water is 87. The carbohydrates present is lactose, which is held in solution along with minerals as soluble salts. The yellow colour of milk is due to the colour pigment of the fat, which, in turn, is derived from the green food eaten by the cow. The principal proteins present are casein and albumin.

Cream. The cream of milk is best separated by a centrifuge, which may be so regulated that cream of any desired fat-content may be obtained. Cream contains the same constituents as milk, but in a very different proportion. It resembles milk in many of its properties. Heat affects it in a similar fashion, and lactic acid bacteria develop in it, producing acidity. Cream intended for retailing is usually of two grades – heavy or whipping cream and coffee cream.

Whipping cream must contain not less than 30 per cent of fat and coffee cream not less than 18 per cent.

Cheeses. “The curd of milk which has undergone changes in its composition through the growth of microorganisms” is a fair definition of cheese. Most cheeses are made from the acid curds.

Cottage cheese represents the casein of milk separated by acid coagulation, along with a high percentage of calcium salts and fats. The water is not very thoroughly pressed out of this cheese so it contains many of the soluble salts of the milk. The curd produced by acid constitutes a green cheese, which must be allowed to “ripen”, undergoing marked changes in the constituents of the curd. The course of ripening depends upon the microorganisms present in the green cheese.

All cheeses may be considered as rich sources of protein and protein decomposition products, and of minerals, especially calcium. The composition of each cheese vary according to its preparation. Some contain more of the whey of the milk, or more of the fat of the milk, and these influence the percentage of other constituents. There are approximately 400 known varieties of cheese.

1.3.4 Answer the following questions

What kinds of milk do you know?
How can the cream of milk be obtained?
How are coffee and whipping creams differentiated?
Give the definition of cheese.
What does cottage cheese represent?

What other milk products do you know?

1.3.5 Pick up the right answer among those given below

1 The yellow colour of milk is due to the ...
  a) fat globules.
  b) proteins.
  c) colour pigment.
2 Lactic acid bacteria developed in cream produce ...
  a) acidity.
  b) sweeetness.
  c) flavour.
3 Cottage cheese represents the casein of milk separated by ...
  a) lactic coagulation.
  b) acid coagulation.
  c) pasteurization.
4 The course of ripening of green cheese depends upon ...
  a) decomposition products.
  b) soluble and insoluble salts.
  c) microorganisms.

1.3.6 Make up sentences joining the given parts of them

1 The amounts of constituents in milk depends upon ...	a. ... from the acid curds.
2 The legal amount of water in a butter is ...	b. ... to its preparation.
3 The cream of milk is best separated ...	c. ... less than 16 per cent.
4 Most cheeses are made ...	d. ... the season and the breed of cow.
5 The composition of each cheese will vary according ...	e. ... by a centrifuge.

1.3.7 Translate the following sentences from English into Russian

1 Milk and milk products are available in many forms.
2 Fresh fluid milk is almost always pasteurized.
3 Evaporated, dry, frozen, condensed and fermented milk (butter-milk and yogurt) are used in preparation of food.
4 Evaporated skim milk may be diluted with an equal amount of water and used like fresh skim milk.
5 You can use dry milk in addition to fluid milk to increase the nutritive value.
6 Consumer interest in yogurt and yogurt products has reached an all-time high and now is still be climbing.
7 To improve the vitamin content of milk, many dairies add vitamin D either by special food given to the cows or by addition to the milk.

1.3.8 Find out what the following idioms mean matching the two parts

1 to bite off more than one can chew	A. to have a lot of tasks
2 to take something with a pinch of salt	B. extremely rich in producing food
3 to have a lot on one's plate	C. to be sold out very quickly
4 to know which side one's bread is buttered on	D. to make an unpleasant thing seem less so
5 flowing with milk and honey	E. not to believe entirely
6 to sell like hot cakes	F. to be an unwanted member of a trio
7 a storm in a tea-cup	G. where one is in a position of advantage
8 to sugar the pill	H. for certain
9 to play gooseberry	I. to attempt to do more than one can
10 as sure as eggs is eggs	J. disturbance over a trifling matter

1.3.9 Get ready to speak about milk products

1.3.10 Text for written translation

Butter

If cream is whipped or churned for a long time, the fat globules combine, and fat separates out in lumps which include some of the proteins, milk sugar and salts with a considerable quantity of water adhering. This mass is essentially butter. Most of the butter on the market is made from pasteurized cream to which a starter (a culture of bacteria) has been added. The main purpose of pasteurization is to reduce the number of microorganisms which might be pathogenic or produce undesirable flavour in the butter.

Milk with known content of lactic acid bacteria is added to start the "ripening" of the pasteurized cream. During the ripening process compounds are produced which give butters their characteristic flavours. At the same time, the lactic acid produced aids in the more complete separation of fat from the other constituents of cream (butter-milk). After the ripening process, the cream is churned to separate the fat. The amount of colouring matter to be added depends upon the amount of natural colour in the cream, and this varies according to breed of cow and the amount of green food consumed by her. The separated fat is washed to remove the adhering buttermilk, but carefully, as too much washing produces a flat-tasting butter. Salt is now added for three reasons: it helps in the removal of buttermilk, it enhances the flavour of the butter, and it improves its keeping qualities. The amount of salt added varies with the amount of water left in the butter; the more water the more salt. The legal amount of water in butter is less than 16 per cent.

1.4 Lesson 4 Composition of eggs

1.4.1 Read the following words and word combinations. Mind their meaning

1 indispensable – необходимый, обязательный
2 colloidal – коллоидный
3 abundant – обильный
4 external – внешний, наружный
5 significance – важность, значительность
6 smooth (shiny)- гладкий (блестящий)
7 emulsify – делать эмульсию, превращать в эмульсию
8 sufficient – достаточный
9 valuable source – ценный источник
10 exposure – выставление, местоположение
11 thickening power – способность сгущать (ся)
12 ease – легкость
13 baking powder – пекарный порошок
14 food value – пищевая ценность
15 egg poached – вареное яйцо
16 scrambled eggs – яичница-болтунья
17 leavening agents – разрыхлитель

1.4.2 Read the words according to transcriptions and find them in the text

[`lesiθin], [ k□n`stitju□nt], [`ælbjumin], [ `glɔbju:lin], [dʒel□`ti:n], [ dʒi`lætin□s], [k□n`sist□nsi], [`kɔnt□nt], [`klɔr□fil].

1.4.3 Find Russian equivalents to the following word combinations

Colloidal form, colloidal nature, brown-shelled and white eggs, a clean-shelled egg, phosphorus-containing compound, dietary constituent, cookery processes, technique of mixing and baking, food materials, keeping qualities

1.4.4 Read and translate the text

Composition of eggs

Eggs are indispensable in the average diet. They contain in colloidal form many of the more important but less abundant food materials, vitamins and minerals, along with fat and protein, and are easily digestible, easily prepared, nutritious, and concentrated food in themselves, as well as being most important in the preparation of many other foods because of their colloidal nature.

There are great differences in eggs which may be attributed to many causes: the feeding and care of the hens, the kind of hen, and the care of the eggs after they are laid.

The consumer has little or no way to judge the quality of an egg from its external appearance. Difference in size does not indicate difference in quality. The colour of the shell is of little significance. The investigation has proved brown-

shelled and white eggs alike in composition and in every property. A clean-shelled egg indicates a clean hennery and, therefore, an egg of better keeping qualities and flavour than those with dirty shells. An egg shell with a chalky appearance is usually fairly fresh. A shiny smooth shell indicates an old egg.

The composition of an egg is roughly 75 per cent water, 12 per cent protein, 12 per cent fat and 1 per cent minerals and vitamins. The fat is all contained in the yolk, where it is present with the protein in highly emulsified form. A large percentage of it is in the form of a phosphorus-containing compound known as lecithin. Most of the minerals of the egg are found in the yolk. Of these the iron is the most important, being present in sufficient amount to make eggs of the most valuable sources of this necessary dietary constituent.

The whites are a 12 percent colloidal solution of the proteins, albumin, mucin and globulin, with few, if any, vitamins and no fat. It is thought that mucin, a compound protein, is largely responsible for the gelatinous consistency of the whites. The value of egg whites depends on the fact that they represent the most easily digestible proteins, and from the point of view of the cook they are indispensable.

The colour, the flavour, and the vitamin content of the yolk are all dependent upon the food which the hen eats. Foods containing chlorophyll increase the depth of the yellow colour. The vitamin A and B complex are always present, the former in abundance. The vitamin D may or may not be present, being apparently dependent on the content of the hen's diet and her exposure to sunlight.

1.4.5 Answer the following questions

What do eggs contain?
What does a shiny smooth egg shell indicate?
What is the composition of an egg? (Compare the yolk and the white)
What are the colour, the flavour and vitamin content of the yolk dependent upon?
Are vitamins A, B, D always present in the yolk?
The thickening power of eggs is due to the ease with which the protein coagulates, isn`t it?
Where is the emulsifying property of eggs illustrated well?

1.4.6 Make up sentences joining the given parts of them

1 Eggs are indispensable	1 where it is present with the protein in highly emulsified form.
2 The consumer has little or no way	2 in the protein present in colloidal form.
3 The fat is all contained in the yolk,	3 depend upon the technique of mixing and baking.
4 It is thought that mucin, a compound protein,	4 in the average diet.
5 For most cookery processes the value	5 to judge the quality of an egg from

of the eggs lies	its external appearance.
6 The actual leavening and thickening	6 is largely responsible for the gela-
accomplished by the use of eggs	tinous consistency of the whites.

1.4.7 Ask questions to which these sentences are the answers

1 There are great differences in eggs which may be attributed to many causes.
2 The investigation has proved brown-shelled and white eggs alike in composition and in every property.
3 The iron is present in sufficient amount to make eggs of the most valuable sources of this necessary dietary constituent.
4 Foods containing chlorophyll increase the depth of the yellow colour.

1.4.8 Give sentences of your own using the following words and word combinations

Nutritious, consumer, property, ability, grade, size, new-laid egg (freshly laid egg), baking powder, scrambled eggs, food value

1.4.9 Text for written translation

Changes in eggs on keeping

The shell of freshly laid egg is completely filled, the yolk spherical in shape, and the white thick and gelatinous. The new-laid egg contains no bacteria which promote spoilage. It may contain drops of blood or bits of extraneous matter. Soon after the egg is laid, evaporation of the water with the dissolved carbon dioxide takes place through the porous shell. As these gases leave the shell, air containing microorganisms enters. At the samr time, some of the water passes from the white to the yolk, and the whites begin to lose their gelatinous consistency and become thinner. The exact cause of this liquefaction of gelatinous egg white is not known.

The change may be physical or chemical. It is well known that eggs with thin white do not poach well, as the thin white spreads before cagulation starts.

Other changes in the egg occur as the egg ages. The membrane which surrounds the yolk becomes stretched and weakened by increasing amount of water. The yolk no longer appears spherical but flattens out when the egg is broken into a dish; sometimes the stretched membrane around the yolk will be broken on cracking the egg.

The change in the location of the water appears to be due to the changing hydrogen-ion concentration of the egg through loss of carbon dioxide. The pH of the egg white increases from about 7.6 when the egg is freshly laid to 9.7 after keeping, an increase in alkalinity of about 100 per cent.

The enlargement of the air space is due to the evaporation of moisture from the egg, but as the loss of water depends on the relative humidity of the storage space

the size of the air space is not positive indicition of either the age of the egg or its quality.

1.4.10 Get ready to speak on

1 Food value of eggs.
2 Composition of eggs.

1.5 Lesson 5 Meat, physical structure and chemical composition

1.5.1 Read the following words. Mind their meaning

1 flesh – мякоть мяса
2 tissue – ткань
3 fats – жиры
4 tendon – сухожилие
5 beef (cattle) – говядина
6 veal (calf) – телятина
7 pork (swine) – свинина
8 lamb – молодая баранина
9 mutton (sheep) – баранина
10 glands – железы
11 edible organs – части, годные в пищу (субпродукты)
12 fiber – волокно
13 carcass – туша
14 pigments – пигменты (красящие вещества)
15 to digest – переваривать, усваивать
16 to yield – производить
17 hematin – кровяное тело
18 nutritional – питательный
19 liver – печень
20 kidney – почка
21 sweetbread – зобная и поджелудочная железы
22 ribs – ребра
23 lean meat – нежирное, костное мясо
24 to extract – получать
25 conformation – форма, структура
26 distribution - распределение
27 saltpeter - селитра

1.5.2 Pronounce the following words correctly

Protein, myosin, albuminoid, elastin, collagen, ossein, gelatin, carbohydrate, enzyme, aminoacid, hemoglobin, creatine, purin

1.5.3 Read and translate the text

Meat, physical culture and chemical composition

Part 1

«Meat is the flesh of animals used for food» - Webster`s International Dictionary. In the sense used here, meat consists of the muscular tissues or lean internal fat, and the fat which is

deposited between the tendons and tissues. Strictly speaking, meat means the flesh of any animal used for food, but ordinarily it applies only to the animals raised for food, the wild animals are called “game”. The meats found in the market are beef (cattle), veal (calf), pork (swine), lamb and mutton (sheep).

Meat, as it is purchased in the market, consists of muscular tissue, connective tissue, bones, glands and edible organs. All meats contain fat in the connective and adipose tissue, between the fibers and muscles, between the cells or in the muscle cells. Fat adds weight to the carcass, increases palatability, and helps to retain the moisture of the muscles.

Meats contain proteins, fats, water, inorganic salts, nitrogenous extractives, non-nitrogenous extractives, carbohydrate, enzymes, and pigments. Meat is one of the most important sources of protein.

The protein of meat may be classified under simple proteins which when digested are broken down into groups called “building stones” or “aminoacids”. The chief proteins found in meat are myosin which is the basis of muscular tissue, serum albumin or blood, the albuminoids which are the proteins found in the skin, the skeleton and its connections.

Elastin and collagen in the tendos and in the connective tissue and ossein of the bones when boiled in water yield gelatin.

Gelatin is an incomplete protein which has some food value when the red colour of meat is due chiefly to the hemoglobin of the blood which is still present. Hemoglobin is made up of the protein molecule and the pigment hematin. Meat contains enzymes which bring about ripening or aging.

Vitamins are nutritional factors which are essential to growth and health in the young and the maintenance of health in the adult. Vitamin A is found in fat meats, with liver being an excellent source. Vitamin B is present in lean meat especially in lean pork. Lean meat is an excellent source of vitamin C. The glandular tissues, liver, kidneys, sweetbreads, etc. are valued especially for the vitamins they contain. Mineral salts are essential for the well-being of the body. Meats are rich sources of iron and phosphorus, however, they are low in calcium. Meat also contains copper which functions with iron in hemoglobin formation. Meat contains small amounts of extractives which, although they have little food value, are extremely important because they give flavour to meat and act as a stimulant to the flow of the digestive juices. The essential extractives found in meat are creatine and purins. They are called extractives because they may be extracted by boiling water. The extractives

also contribute to the satiety value (feeling of satisfaction after having taken of food) which is one of the characteristics of meat.

Part 2

There are several important factors which determine the quality and palatability of meat. Grade of meat is based on the three factors: conformation, finish and quality. The term conformation covers the general build, form, shape, contour or outline of the carcass, side or cut. The term finish refers to the thickness colour, character and distribution of fat. Quality is a characteristic of the flesh and the fat included therein.

It is related primarily to the thickness, firmness, and strength of both the muscle fiber and connective tissue. It also involves the amount, consistency and character of the juices or extractives. Colour does not determine quality, but it is an excellent index of quality. The best finish in beef implies a smooth covering of brittle, flaky, white fat over most of the interior and a much thinner covering over the interior surface of the ribs. Best quality in beef is indicated by a lean of a bright cherry red colour, good marbling, firm, fine grain, a cut surface which is smooth and velvety to sight and touch. Red porous bones indicate a young animal as contrasted to the white, flinty bones of the older animal.

Meat may be preserved for future in several ways:

1) canning is one way. Fresh meats are canned;
2) curing is a very important method of preservation.

Common salt is the basis for all curing and is the only really essential ingredient. Smoking aids in preserving meats and it gives a pleasant flavour. Sugar and saltpeter are other ingredients of the curing formulae. Examples of cured meats are:

Corned beef
Dried beef
Ham
Bacon
Salt pork and some types of sausages;

3) meat may be held in cold storage to preserve it;
4) freezing quickly at a very low temperature is a new development in meat preservation and merchandising.

1.5.4 Answer the following questions

What is meat?
What kinds of meat do we find in the market?
What does meat, as it is purchased in the market consists of?
What is tallow fat?
What is lard?
What does meat contain?
Give the classification of the proteins of meat.

What are the chief proteins in meat?
Give the characteristics of vitamins present in meats.
Why do we value liver, kidneys, sweetbreads?
What elements is meat rich in?
What gives flavour to meat and acts as a stimulant to the flow of the digestive juices?

1.5.5 Find Russian equivalents to the following word combinations

1 palatability of meat	a. сорт мяса
2 satiety value	b. поддержание здоровья
3 maintenance of health	c. источник протеина
4 to render	d. задерживать влагу
5 nitrogenous extractives	e. вкусовые качества мяса
6 grade of meat	f. питательная ценность
7 to bring about	g. топить сало
8 food value	h. азотные соединения
9 a weight unit	i. вкусовое качество
10 to retain the moisture	j. вызывать
11 source of protein	k. единица веса

1.5.6 Fill in the blanks with the suitable words given below

1 ... represent one of the most popular sources of protein.
2 The … are tubelike in structure and tapering at each end.
3 ... is found not only within the muscle fiber but between and around it.
4 Bundles of muscle fibers are held to the bony structure of the animal by dense strands of connective tissues called ....
5 The muscle fibers of red meat contain more ... and muscle pigments than the light or colourless meat.
6 The location and ... of the fat greatly affect the tenderness of the meat.
7 Within the muscle fibers are solutions of salts, ..., enzymes and certain proteins-myosin (globulin), myogen (albumin) and derived proteins.

Meat, vitamins A and B complex, hemoglobin, muscle fibers, distribution, tendos, fat.

1.5.7 Complete the following sentences and translate them

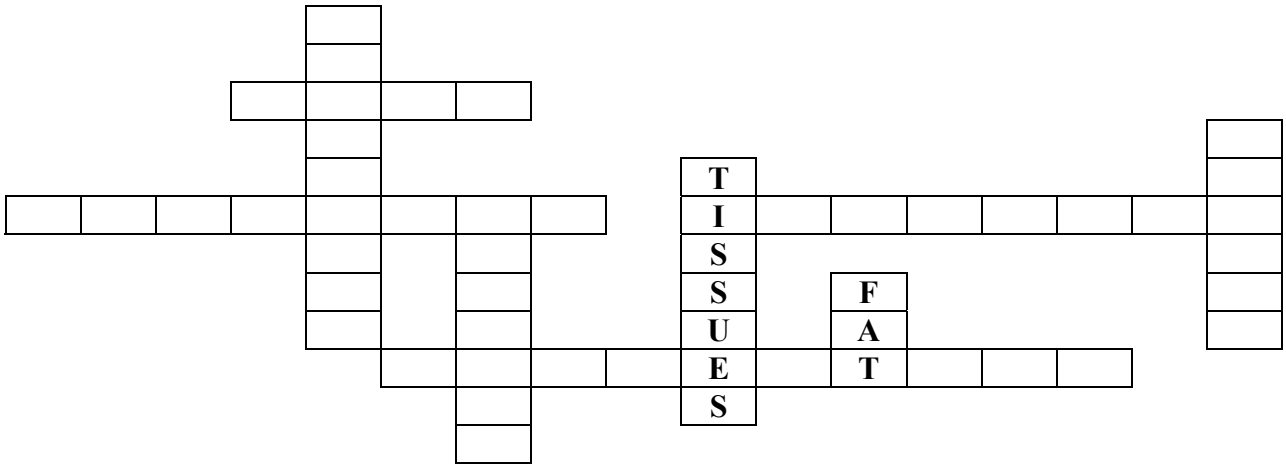
1 The meats found in the market are … .
2 Fat adds weight to the … .
3 The chief proteins found in meat are … .
4 Vitamin A is found in … .
5 Lean meat is … .
6 Meat contains small amounts of … .

7 Quality is a characteristic of … .

1.5.8 Translate these sentences into English

1 Питательная ценность мяса определяется его химическим составом, вкусовыми качествами и усвояемостью.
2 В состав мяса входит вода, белки, жиры, углеводы, экстрактивные вещества, минеральные соли, витамины.
3 Химический состав мяса зависит от породы, пола, возраста животного, от его кормового рациона.
4 Белки являются наиболее важной составной частью мяса.
5 Коллаген является наиболее распространенным белком в соединительной ткани.
6 Костная ткань в целом состоит из минеральных и органических веществ.
7 Жир не только повышает калорийность мяса, но и влияет на его цвет, вкус, аромат.

1.5.9 What kinds of tissues and fats do you know? Find in the text and guess the crossword



1.5.10 Get ready to speak on

1 Chemical composition of meat.
2 Physical structure of meat.

2 Meals and cooking

2.1 Lesson 1 Meals and Cooking

2.1.1 Read the following words and word combinations. Mind their meaning

1 stick to – придерживаться, держаться
2 intricate – запутанный, сложный
3 cuisine [kwi`zi:n] – кухня, стол
4 sentence to - осуждать
5 starve – голодать
6 course – блюдо
7 soft drinks – безалкогольные напитки
8 starter – первое блюдо
9 herring – сельдь, селедка
10 steak – бифштекс
11 chop – отбивная (котлета)
12 to have a bite – перекусить, закусить
13 mislead – вводить в заблуждение
14 eat out – питаться вне дома
15 shrimp – креветка
16 inedible – несъедобный
17 the table groans with food – стол ломится от яств
18 stuff – достаточный запас
19 pickle – соленье, маринад

2.1.2 Pronounce the following words correctly

Diet, sausage, bacon, marmalade, waffles, cocoa, sophsticated, Chinese, Italian, restaurant, biscuits, calories

2.1.3 Read and translate the text

Meals and Cooking

Living in Russian one cannot but stick to a Russian diet. Keeping this diet for an Englishman is fatal. The Russians have meals four times a day and their cuisine is quite intricate.

Every person starts his or her day with breakfast. Poor Englishmen are sentenced to either a continental or an English breakfast. From the Russian point of view, when one has it continental it actually means that one has no breakfast at all, because it means drinking a cup of coffee and eating a bun. A month of continental breakfasts for some Russians would mean starving. The English breakfast is a bit better, as it consists of one or two fried eggs, grilled sausages, bacon, tomatoes and

mushrooms. The English have tea with milk and toast with butter and marmalade. As a choice one may have corn flakes with milk and sugar or porridge.

In Russia people may have anything for breakfast. Some good-humoured individuals even prefer soup, but. Of course, sandwiches and coffee are very popular. One can easily understand that in Great Britain by one o'clock people very much ready for lunch. Lunch is the biggest meal of the day. That would be music for a Russian's ears until he or she learns what lunch really consists of. It may be a meat or fish course with soft drinks followed by a sweet course.

The heart of a Russian person fills with joy when the hands of the clock approach three o'clock. His or her dinner includes three courses. A Russian will have a starter (salad, herring, cheese, etc.), soup, steaks, chops, or fish fillets with garnish, a lot of bread, of course, and something to drink. The more the better. At four or five the Russians may have a bite: waffles, cakes with juice, tea, cocoa, or something of the kind.

In Great Britain they have dinner at five or six. Soup may be served then, but one should not be misled by the word "soup". British soup is just thin paste and a portion is three times smaller than in Russia. A lot of British prefer to eat out. "Fish and Chips" shops are very popular with their take-away food. The more sophisticated public goes to Chinese, Italian, seafood or other restaurants and experiments with shrimp, inedible vegetables and hot drinks.

Supper in Russia means one more big meal at seven. The table groans with food again. In England it is just a small snack – a glass of milk with biscuits at ten.

Most Russians have never counted calories and they are deeply convinced that their food is healthy. Some housewives may admit that it takes some time to prepare all the stuff, including pickles, home-made preserves and traditional Russian pies and pancakes. But they don't seem to mind too much and boil, fry, roast, grill, broil, bake and make. Paraphrasing a famous proverb one can say: 'what is a Russian man's meat is a British man's poison'. (What is one man's meat is another man's poison – Что русскому хорошо, то немцу – смерть (посл.).

2.1.4 Answer the questions

How many times a day do the Russians have meals?
What is the difference between English and Russian breakfast?
Do the Russians have lunch?
Where do the English prefer to eat?
Have most Russians ever counted calories?

2.1.5 Say when you have meals and what you like to eat and drink for breakfast, dinner and supper. Say what you dislike for breakfast, dinner and supper

2.1.6 Say which drinks are good for health and which are not. Give your reasons

Orange juice, milk, skimmed milk, tea, coffee, beer, brandy, cognac, Scotch whisky, Coca-Cola, Pepsi-Cola, apple juice, tomato juice, pineapple juice, gin, rum, vodka, champagne, port, dry sherry, sweet sherry, vermouth, ale, lager

2.1.7 Study the list of English verbs and group the ones close in meaning matching them with the Russian verbs. Comment upon the difference in their meanings

English: to swallow, to crunch, to champ, to hog, to munch, to gobble (up), to nibble at something, to gnaw, to gulp, to chew, to devour, to bolt, to bite
Russian: пожирать - … - … - …
глотать - … - … - …
жевать - … - … - …
грызть - … - …
откусывать - … - …

2.1.8 What do we call places where people go to eat? Match the words in the left column with the definitions in the right column

1 snack bar	A. originally a British public house license to serve beer and other alcoholic beverages. Customers get get their drinks from the counter and either stand there or sit at the tables. Some light snacks like pies and sandwiches are served
2 café/ cafeteria	B. a counter where food and drink may be bought and eaten (e.g. in a railway station or on a train)
3 pizzeria	C. small restaurant mainly concentrating on cakes, sandwiches, coffee and tea. Choice of food is often very limited
4 refectory	D. a place where guests normally come fairly late and stay until the small hours. Always with dancing and often also with floor shows. Food is sometimes available
5 buffet	E. a place where students or workers have their lunch, usually connected with a school, office or factory
6 night club	F. a nice place where meals are served to customers
7 canteen	G. a modest restaurant where customers collect their food on trays at counters and carry it to tables. Choice of dishes is based on convenience and speed, with food like hamburgers, sausages and sandwiches
8 pub	H. a restaurant specializing in pizzas, and other Italian-type food
9 restaurant	I. a university café

2.1.9 What types of restaurant would you recommend to the following people?

1 A young couple who want food and some entertainment late at night.
2 A man who wants a meal in a place where he can meet some local people.
3 Someone wanting a quick, cheap meal.
4 Someone at a railway station.
5 Someone who wants non-English food.
6 A student staying at the university all day.
7 A factory worker at lunch-time.
8 A family who wants to celebrate some special occasion.

2.1.10 Write an essay on one of the following topics:

1 From All Diets I Choose ...
2 Non-Traditional Food – Pros and Cons.
3 Better Cooks – Men or Women?
4 Each Family Has its Own Style of Cooking.
5 What I Like and What I Hate to Eat.

2.2 Lesson 2 Food in America

2.2.1 Read the following words and word combinations. Mind their meaning

1 be famous for srnth. — быть знаменитым чем-то
2 solid and unchanging diet — основательная и постоянная пища
3 various — разнообразный
4 ethnic food — национальная пища
5 health food — диетическая пища
6 home-cooked meal — приготовленная дома пища
7 be filled with smth. — быть заполненным чем-то
8 ethnic section — этнический район
9 enjoy food — наслаждаться едой
10 from all over the world — со всего света
11 be we11-known for smth. — быть хорошо известным чем-то
12 strong traditions — сильные традиции
13 physical well-being — физическое благосостояние
14 preservatives — консерванты
15 lunch break — перерыв на ланч
16 attitude — отношение

2.2.2 Pronounce the following geographical names correctly

Chinatown — Китайский город
Little Italy — маленькая Италия
Germantown — Немецкий город
California — Калифорния
Lousiana — Луизиана

Creole — Креол
Carribian Island — остров в Карибском море

2.2.3 Read and translate the text

Food in America

Many changes are taking place in "food styles" in the United States. The United States is famous for its solid and unchanging diet of meat and potatoes. There are various ethnic food, health food, fast food and traditional home-cooked meal in this country.

There are many ethnic restaurants and supermarkets in the United States because it is a country of immigrants. Any large American city is filled with restaurants serving international cooking. Many cities even have ethnic sections: Chinatown, Little Italy or Germantown. With this ethnic choice, people can enjoy food from all over the world. This is very good for those who come to the United States to travel or to work because they usually can find their native food there. There are also regions in the country which are well-known for certain food because of the people who live there. For example, Southern California has many Mexican restaurants, and Lousiana has strong Creole traditions in food. (Creole is a mixture of French, African, and Carribian Island food).

Health food became more popular when people began to think seriously about their physical well-being. Health food is fresh and natural. It does not contain chemicals and preservatives.

There are many fast-food restaurants all over the country. People usually have a short lunch break, and in fast-food restaurants they can have lunch quickly. The food is always cheap there. Some examples are burger, pizza and McDonald places. American's attitude to food is changing too. The traditional big breakfast and dinner at 6 p.m. are losing popularity. People understand the social importance of food. Dinner with family or friends is becoming a very special way of enjoying and sharing.

2.2.4 Answer the questions about the details

1 Many changes are taking place in "food styles" in:

a) the United States
b) France
c) England

2 The United States is famous for its solid, unchanging diet of

a) vegetables and fruits
b) meat and potatoes
c) sausage and noodles

3 There are many ethnic restaurants and supermarkets in

a) Spain
b) Sweden
c) the United States

4 Any large American city is filled with restaurants serving

a) native cooking
b) international cooking

5 There are also regions in the country which are we11-known for

a) the people who live there
b) certain customs and traditions
c) certain climate
d) certain food

6 Health food does not contain

a) chemicals
b) vitamins

7 People usually have a short lunch break and they can have lunch quickly in

a) ethnic restaurants
b) fast-food restaurants
c) supermarkets

8 American's attitude to food is

a) stable
b) changing

9 The traditional big breakfast and dinner at 6 p.m. are

a) gaining popularity
b) losing popularity

10 Dinner with family or friends is becoming a very special way of

a) wasting time
b) enjoying and sharing

2.2.5 Agree or disagree, express your doubt or uncertainty

1 Many changes are taking place in "food styles" in the United States.
2 The United States is famous for its solid and unchanging diet of fruits and vegetables.
3 There are various ethnic food, health food, fast food and traditional home-cooked meal in this country.
4 There are very few ethnic restaurants and supermarkets in the United States.
5 Any large American city is filled with restaurants serving international cooking.
6 Many cities have ethnic sections: Chinatown, Little Italy or Germantown.
7 With this ethnic choice, people can enjoy food from very few countries.
8 There are also regions in the country which are well-known for certain food because of the people who live there.
9 Health food lost its popularity when people began to think seriously about their physical well-being.
10 There are very few fast-food restaurants all over the country.
ll People usually have a short lunch break, and in fast-food restaurants they can have lunch quickly. But the food is always expensive there.
12 American' s attitude to food is stable.
13 People understand the social importance of food.

2.2.6 Discuss the following

1 What changes are taking place in "food styles" in the United States?
2 Speak about ethnic restaurants and supermarkets in the United States.
3 What do you know about health food?
4 Speak about fast-food restaurants. Why are they so popular?
5 What is American' s attitude to food?

2.2.7 Read the dialogue to find answers to these questions

Eating out and eating at home

A.: What’s the distinction between eating out and eating at home? What should be the difference?
B.: Restaurants should be for a grander experience. They should give you something you can’t get at home. You can pretend that you’re rich if you’re going to a very fancy restaurant. You can learnt about a culture if you’re going to a Chinese restaurant. Eating at home, on the other hand, above all else should be comfortable.
A.: What does “comfortable” mean in this case?
B.: That means being able to put your elbows on the table and spend a really long time at the table. But the most important thing about a home meal isn’t the food. It’s that we sit down together, we pay attention to each other and we talk.
A.: Is everyone eating the same thing important?

B.: Yes. There is something very important about sharing the same food at the same time at the same table. It's a way of building family connection and unity. When a mother cooks a meal, or a father, or whoever you're giving your family something of yourself.

2.2.8 Discuss the following

Do you think eating out is enjoyable? Explain why you do or don't.

2.2.9 Complete the questions using *much* or *many*

1 How _____ people are there in the room?
2 How _____ money do you have in your pocket?
3 How _____ cigarettes do you smoke a day?
4 How _____ petrol is there in the car?
5 How _____ potatoes do you want?
6 How _____ eggs do you want?
7 How _____ beer is there in the fridge?

Choose an answer for each question

a) A kilo.
b) There are six cans.
c) A packet of twenty.
d) Three pounds fifty p.
e) Half a dozen.
f) Twenty. Nine men and eleven women.
g) It's full.

2.2.10 Each sentence has a mistake. Find it and correct it

1 I don't like an ice-cream.
2 Can I have a bread, please?
3 I'm hungry. I like a sandwich.
4 Would like you a cup of coffee?
5 I have thirsty. Can I have a drink?
6 I'd like some fruits, please.
7 How many money do you have?

2.3 Lesson 3 Principles of menu making

2.3.1 Read the following words. Mind their meaning

1 to furnish – снабжать, предоставлять
2 essential – необходимый, ценный

3 secretion of fluids – выделение жидкостей
4 starch - крахмал
5 carbon dioxide – углекислота, углекислый газ
6 to dispose – располагать, размещать
7 kidney - почка
8 tissue - ткань
9 to eliminate – очищать, удалять из организма
10 to supply - снабжать
11 to overlook – не учитывать
12 the bran of cereal – отруби хлебного злака
13 bulk – грубая пища
14 fibrous – волокнистый, жилистый
15 the outer coats – внешние оболочки
16 fuel foods – пища как источник энергии
17 waste products – отходы
18 leafy green vegetables – листовые овощи
19 digestive tract – пищеварительный тракт
20 malnutrition – недостаточное питание
21 foodstuffs – продукты питания

2.3.2 Pronounce the following words correctly

Chemical, physiology, balance, blood, hydrogen, alcohol, phosphorus, sulphur, calcium, source, onion, dietetic, rhythmic

2.3.3 Read and translate the text

Principles of menu making

No one food furnishes all the necessary food elements. A day`s, or even a week`s menus should be considered as a unit, rather than one meal. By varying the foods from meal to meal, and day to day, one may include all the essential foods.

A thorough knowledge of the chemical composition of foods, and of the physiology of digestion, makes possible a wiser selection of food. One must maintain a good balance of carbohydrates, fats, proteins, and the regularly elements, i.e., minerals, cellulose, water, and vitamins. The adult person requires a certain amount of fuel foods for the constant functioning of the many involuntary body activities, as muscular tone, secretion of fluids, respiration, and circulation of blood.

The big factor that increases the demand for fuel is exercises or work. Therefore, the more a person exercises, the more he requires fuel foods. These fuel foods are those foods which contain carbon, hydrogen, and oxygen.

The food that contain carbon, hydrogen, and oxygen are classified as (1) the carbohydrates, i.e., starches and sugars, (2) the fats, and (3) the proteins: meat,

milk, eggs. In the body these three classes of foodstuffs produce energy and leave, as waste, carbon dioxide, and water.

Proteins, the animal foods, have an added element of nitrogen, and sometimes phosphorus, sulphur, and iron. Since the tissues of our bodies are composed of these same elements, proteins have a special function of building new tissues and of keeping in repair old tissues. If proteins are used for fuel in the body, only the carbon, hydrogen, and oxygen are used, and the nitrogen, sulphur, phosphorous, and iron are but waste products to be eliminated through the kidneys. Proteins are expensive foods, and if used as fuel, only part of the elements are really utilized in the body.

It is therefore wise to use carbohydrates and fats to furnish the fuel for the body, and to use just enough protein to keep the tissues in repair. Tissue building is fairly constant in the adult. It is only in case of actual body growth that extra supply of protein is necessary. Therefore children and invalids require a good supply of milk, eggs, and other simple proteins to build up new tissues.

Our bodies are so complicated in form, that starches, fats, and proteins are not sufficient to supply all our needs. Certain minerals, as iron, calcium, phosphorous, and iodine are equally important in the repair and functioning of the body. Calcium forms a large per cent of bones and teeth. Iron is needed in the blood, and in other body fluids. Sources of iron are eggs, fresh, leafy green vegetables, onions, carrots, and the bran of cereals. In general we may say, the necessary minerals may be secured by using daily a variety of vegetables, fruits, whole cereals, and plenty of milk and eggs.

Another dietetic factor is cellulose, or bulk, of the food. The bulk is obtained from the fibrous part of fruits, and vegetables, and from the outer coats of cereals. Cellulose is neither fuel nor tissue builder, but as waste it increases the rhythmic movement of digestive tract, and acts as a cleaner.

2.3.4 Answer the following questions

What are the main principles of menu making?
What do the fuel foods contain?
How many classes of foodstuffs do you know?
Proteins have a special function of building new tissues, haven't they?
What minerals are important in the repair and functioning of the body?
Where can we find iron sources?
What is cellulose's role in our diet?

2.3.5 Say whether the following statements are true or false. Use the following: *that's right; nothing of the kind; I don't agree; I think that's exactly so; that's true; that's not right*

1 The human bodies are so complicated in form, that starches, fats, and proteins are sufficient to supply all our needs.
2 In the repair and functioning of the body only iron is very popular.

3 Iron is needed in the blood and in other body fluids.
4 Sources of iron are eggs, fresh, leafy green vegetables, onions, carrots, and the bran of cereals.
5 Cellulose is neither fuel nor tissue builder.
6 There is one perfect food.

2.3.6 Find in the text and prove that

1 The adult person requires a certain amount of fuel foods.
2 It is wise to use carbohydrates, fats, and just enough protein.
3 Certain minerals are equally important in the repair and functioning of the body.
4 Cellulose, or bulk, of the food is another important dietetic factor.

2.3.7 Translate the words and word combinations given in brackets

1 (Дневной) or even (недельный рацион) should be considered as a unit, rather than one meal.
2 The more a person exercises, the more he requires (пища как источник энергии).
3 In the body these three classes of (продуктов питания) produce energy and leave as waste, carbon dioxide, and water.
4 If proteins are used for fuel in the body, only (углерод, водород и кислород) are used, and the nitrogen, sulphur, phosphorus, and iron are but (отходы) to be eliminated through the kidneys.
5 Therefore children and invalids require a good supply of milk, eggs, and other simple proteins to build up (новые ткани).
6 Our bodies are so complicated in form, that starches, fats and proteins are (недостаточны) to supply all our needs.
7 (Источники железа) are eggs, fresh, leafy green vegetables; onions, carrots, and the bran of cereals.
8 Cellulose is neither fuel nor tissue builder, but as waste it increases the rhythmic movement of (пищеварительного тракта), and acts as a (очиститель).

2.3.8 Give sentences of your own using the following words and word combinations

Fuel food, leafy green vegetables, proteins, cereals, food stuffs, digestive tract, deficiency, shortage, iodine, the essential foods

2.3.9 Read and translate the article and give your opinion on this topic

How much food do you think you will eat by the time you are seventy nine?

The average Frenchwoman, for example, will eat:
25 cows 9,000 litres of orange juice

40 sheep	6000 litres of mineral water
35 pigs	1.37 tonnes of apples
1,200 chickens	768 kg of oranges
2.07 tonnes of fish	430 bags of carrots
5.05 tonnes of potatoes	720 kg of tomatoes
30,000 litres of milk	1,300 lettuces
13,000 eggs	Hundreds of packets of cofee, sugar,
50,000 loaves of bread	spaghetti, etc.
12,000 bottles of wine	8 kg of dirt

Delicious, isn`t it? How many cows and pigs have you swallowed already? Scientists say that we eat about half-a-ton of food a year – not counting drink! Some people eat even more. According to WHO (World Health Organization), Americans are the fattest people in the wiorld. 55% women and 63% of men over 25 are overweight or obese. Russia, The Czech Rebublic and Finland also have some of the heaviest people in Europe. Even in such countries as France, Italy and Sweden, Eyrope`s slimmest nations, people (especially women) are becoming fatter. The epidemic is spreading! So think twice before you start eating!

2.3.10 Get ready to speak on

1 Three classes of foodstuffs.
2 Important minerals and cellulose.
3 Principles of menu making.

2.4 Lesson 4 Vitamins

2.4.1 Read the following words. Mind their meaning

1 to cease – переставать, прекращать
2 to attribute – приписывать, относить
3 rutabagas – брюква
4 rickets – рахит
5 lassitude – усталость, апатия
6 acid solution – кислый раствор
7 delicate – тонкий, легкий (о пище)
8 intricate – сложный, затруднительный
9 to weave – соединять, сплетать
10 vital – жизненно важный
11 to omit – пренебрегать, упускать
12 exclusion - исключение
13 excessive – чрезмерный, излишний
14 to retard – замедлять, задерживать
15 to delay – препятствовать
16 apt – вероятный, возможный

17 intestinal – кишечный

2.4.2 Give Russian equivalents to the following word combinations

Leafy green vegetables, sweet potatoes, eye diseases, the embryo of cereals, uncooked greens, appetite's sake, sugar ferments, stomach digestion, holiday dinner, intestinal disorders

2.4.3 Read and translate the text

Vitamins

Much has been said in the past few years about a new set of necessary food constituents, called vitamins. Scientists have found that without these the body ceases to function properly. Many of the common diseases attributed to malnutrition are now said to be caused by a lack in the diet of one, or two, or all of the vitamins.

Vitamin A is found in leafy green vegetables, eggs, yolk, butter, cream, carrots, rutabagas, spinach, cabbage, yellow corn, and sweet potatoes. It is fairly stable to heat. Lack of this constituent causes eye diseases, and forms of rickets. Vitamin B is found in plant life, as oranges, spinach, cabbage, turnips, beets, tomatoes, carrots, potatoes, onions, and the embryo of cereals. Deficiency of vitamin B causes a lack of appetite, and general lassitude. Vitamin C is easily destroyed by heat, except in acid solution. Good sources of vitamin C are tomatoes, and uncooked greens, orange and lemon juice, fresh fruit, raw cabbage, and raw beets. Its absence is shown in skin diseases.

We may say that to avoid any dangers to shortage of these protective foods, the diet must contain milk, fresh vegetables, leafy greens, eggs, butter fat, and whole cereals. Canned vegetables may lose much of their value as sources of vitamins, due to high pressure cooking, especially if one does not use the liquid in which they are canned.

For the growing child one must provide a goodly supply of foods rich in mineral and vitamins. In the delicate and intricate weaving of new body cells it is of the utmost importance that no one of the vital constituents be omitted. There is no one perfect food. No vegetable or fruit can be used to the exclusion of all others. A variety of all the many fruits and vegetables is essential, not only for appetite's sake, but for the actual needs of the body.

A good balance between fat, sugar, and protein is to be desired. Excessive sugar ferments in the stomach cause distress from gas. Fat retards stomach digestion. Therefore, in a meal rich in fat and sugar, the action of the stomach is delayed until fermentation takes place. This is apt to happen after a holiday dinner.

Excessive use of meat tends to intestinal disorders, due to increased bacterial action. Meat is of such pleasing flavour that one must guard against the excessive use of meat to the exclusion of all essential vegetables, fruits, and dark breads.

It is mot expected that every meal of the day will contain all the desired foodstuffs in the proper amounts, but the day's meals, or the week's meals, can be considered as a unit. Surely in the course of a week the meals can have a good balance of starch, sugar, whole cereals, fat, milk products, eggs, meat, and variety of vegetables and fruits.

2.4.4 Answer the following questions

What is the reason of the common diseases?
What must the diet contain?
Is there one perfect food?
What supply of food is necessary for the growing child?
Why is a good balance between fat, sugar and protein to be desired?
What tends to intestinal disorders?
Can every meal of the day contain all the desired foodstuffs in the proper amounts?

2.4.5 Complete the following sentences and translate them

1 Vitamin A is found in …. .
2 Vitamin B is found in … .
3 Good sources of vitamin C are … .
4 Canned vegetables may loose … .
5 In the delicate and intricate weaving of new body cells … .
6 In a meal rich in fat and sugar, … .
7 Meat is of such pleasing flavour … .
8 In the course of a week the meals … .

2.4.6 Fill in the blanks with the suitable words from the text

1 Much has been said in the past few years about a new set of necessary food …, called vitamins.
2 Many of the common diseases attributed to … are now said to be caused by a lack in the diet of one, or two, or all of the vitamins.
3 … of vitamin B causes a lack of appetite, and general lassitude.
4 Vitamin C is easily destroyed by heat, except in … .
5 We may say that to avoid any dangers due to shortage of these protective foods, the diet must contain milk, fresh vegetables, leafy greens, eggs, butter fat, and whole cereals.
6 In the … and … weaving of new body cells it is of the utmost importance that not one of the vital constituents be omitted.
7 Excessive sugar ferments in the stomach … distress from gas.
8 It is not expected that every meal of the day will contain all the desired … in the proper amounts.

2.4.7 Translate these sentences into English

1 Молоко и молочные продукты имеют важное значение в ежедневном рационе человека.
2 В ежедневный рацион питания обязательно должны входить витамины, так как их недостаток приводит к различным заболеваниям.
3 Фрукты и овощи являются источником витаминов и минеральных солей.
4 Ржаная мука содержит больше минеральных солей, жиров, витаминов, чем белая, и поэтому более питательна.
5 Важно, чтобы в недельный рацион питания человека входили все необходимые для жизнедеятельности организма вещества.
6 Пища является источником энергии для живого организма.

2.4.8 Work in pairs. Imagine that you are going on a picnic. Make up dialogues discussing the food and utensils (посуда) that you are going to take. You can use the following expressions:

Why don`t we take ...	We are sure to need ...
We can`t do without ...	... will be of use, no doubt.
... is a must (настоятельная необходимость)...	It could be a good idea to take ...
	We`ll certainly need ...

2.4.9 Explain the meaning of the following proverbs

1 The proof of the pudding is in the eating.
2 You can’t eat a cake and have it.
3 The appetite comes with eating.
4 Man does not live by bread alone.
5 Too many cooks spoil the broth.
6 First catch your hare then cook him.
7 You cannot make an omelette without breaking eggs.
8 Enough is as good as a feast.
9 Hunger is the best sauce.
10 Dog does not eat dog.

2.4.10 Get ready to speak on

1 Function of vitamins in our diet.
2 A good balance between fat, sugar, and protein.
3 There is no one perfect food.

2.5 Lesson 5 When you cook

2.5.1 Read the following words and word combinations. Mind their meaning

1 superior – лучший, высшего качества

2 ally – союзник
3 flavour – вкус
4 to modify – смягчать, видоизменять
5 salad dressings – приправа к салату
6 tenderness – мягкость, нежность
7 pastry – кондитерские изделия
8 homogenized milk – гомогенизированное молоко
9 to treat – обрабатывать, подвергать действию
10 tiny – очень маленький, крошечный
11 evaporated skim milk – сухое обезжиренное молоко
12 off-flavour – безвкусный
13 to decompose – разлагать на составные части
14 fermented – заквашенное
15 to caramelize – карамелизовать
16 custard – заварной крем
17 condensed milk – сгущенное молоко
18 interchangeable – равнозначный
19 to curdle – свертывать(ся)
20 gravy – подливка, соус

2.5.2 Pronounce the following words correctly

Effort, major, to bind, bread, pasteurized, pressure, ingredient, recipe, yoghurt, dessert, granular, texture

2.5.3 Read and translate the text

When you cook

You can prepare better food if you know what goes on in the food you are preparing and why things happen as they do. Foods change physically and chemically during cooking. If you know their composition and structure you can control these changes and have superior products from your efforts. Protein, fats, and carbohydrates are your major allies (and may be problems) in cooking.

Fats give flavour and richness to foods, in which they occur naturally, as in mnilk, eggs, and meat, and the foods to which they are added, as in vegetables, baked products, and salad dressings. They are used to fry or to cook foods and to add tenderness to breads, cakes and pastry.

Carbohydrates have a part in thickening, tenderizing, or sweeting cakes, breads, candies, ice cream, and other foods.

Each group of foods has its own chemical and physical properties that determine the best method of preparing or cooking it. Eggs are highly useful in cooking. They give colour and flavour and hold other ingredients together.

Milk and milk products are available in many forms. Fresh fluid milk is almost always pasteurized. It may be homogenized – treated under pressure to reduce the

size and increase the number of tiny fat globules so they will rize to the top as cream.

Low cooking temperatures are recommended when milk is a main ingredient of recipe. Long cooking at high temperatures coagulates some protein, causes an off-flavour in the milk, and caramelizes the lactose that is, it decomposes or breaks it down into simpler compounds. The milk gets a brown colour.

You can use most forms of milk in place of fresh, whole milk in recipe. Exceptions are buttermilk and yoghurt, which might give an unwanted flavour, and sweetened condensed milk, which contains such a high percentage of added sugar that it is used almost entirely in making candy, cookies, and desserts.

Homogenized milk may be used interchangeably with non-homogenized milk in a number of dishes. Cornstarch puddings made with homogenized milk are more granular. Homogenized milk tends to curdle more readily than nonhomogenized milk in soups, gravies, scalloped potatoes, cooked cereals, and custards.

Evaporated skim milk, one of the newer forms of milk, may be diluted with an equal amount of water and used like fresh skim milk. Cereal products are cooked to absorb water, soften the texture, modify the starch and protein, and develop full flavour.

2.5.4 Answer the following questions

When can you control physical and chemical changes in foods during cooking?
What are our major allies in cooking?
What do proteins help during cooking?
What do fats give to foods?
What are carbohydrates functions in food?
What temperature is recommended in cooking when milk is a main ingredient of recipe?
What occurs in the milk during long cooking at high temperatures?
What kinds of milk may be used in place of fresh whole milk in recipe?

2.5.5 Find in the text and prove that

1 Foods change physically and chemically during cooking.
2 Milk and milk products are available in many forms.
3 Buttermilk and yoghurt can’t be used in a recipe.
4 Homogenized milk and evaporated skim milk may be used in a number of dishes.

2.5.6 Give sentences of your own using the following words and word-combinations

Pastry, tenderness, gravy, salad dressing, property, ingredients, fresh fluid milk, off-flavour, sweetened condensed milk, cereal products, a number of dishes, full flavour

2.5.7 Translate into Russian

1 In the preparation of pastry, fat is worked into the flour and water added in amounts sufficient to hold all together.
2 Tenderness results from the separation of most of the flour particles by fat.
3 When ordinary egg white is heated, coagulation of the protein takes place because the egg white has the ions necessary to precipitate the denatured protein.
4 Within recent years it has been definitely proved that, with the exception of potato starch, raw and cooked starches are equally well digested.
5. Milk which is not perfectly fresh may curdle when it is scalded, although there was no suspicion of sourness before heating.
6 Raw apples and other light-coloured fruits often darken from exposure to air when they are cut.

2.5.8 Look through the list of products and say which of them are sold in Russia:

1) by the kilo,
2) by quantity,
3) by tens.

Fish, carrots, kiwi, meat, eggs, pineapples, sausages, rye bread, oranges.

Look through the list of products and say which of them are sold in Great Britain:

1) by lbs (pounds),
2) by quantity,
3) by dozens.

Cheese, lemons, grapes, white bread, ham, mangoes, eggs, potatoes, chickens.

2.5.9 Discuss this text in your dialogues. Work in pairs.

Some milk for everyone every day:
Children 3 to 4 cups
Teen-agers 4 or more cups
Adults 2 or more cups

There are plenty of ways to get milk into meals. Many people never tire of drinking milk – plain or in flavoured beverages, hot or cold.

Many get of their daily quota of milk by using it on cereals.

Cooked foods and other prepared foods offer additional way to get part of the recommended amount of milk.

In food prepared with milk each serving can provide: ½ to 1 cup of milk in soups and chowders. ¼ to ½ cup of milk in scalloped or creamed vegetables, meat, fish or eggs. ¼ to ⅓ cup of milk in desserts such as ice cream, puddings, custards, and cream pies.

You can step up the milk included in many foods that contain fluid milk by adding non-fat or whole dry milk.

Four tablespoons of dry milk added to each cup of fluid milk used in a recipe doubles the milk content of the dish.

Poudings and the pie filling made with evaporated milk carry more milk into meals if 2 or more parts of evaporated milk are added to 1 part of water instaed of the usual 1-to-1 proportion. Cheese, too, provides many opportunities for adding milk value to dishes.

2.5.10 Get ready to speak on

1 Physical and chemical changes during cooking.
2 Milk's role in food cookery.

2.6 Lesson 6 Meat cookery

2.6.1 Read the following words and word combinations. Mind their meaning

1 palatable - вкусный, аппетитный, приятный
2 frying pan - сковорода
3 hearth – домашний очаг, камин
4 to melt – таять, растапливать(ся)
5 to evaporate - испарять(ся), выпаривать
6 to decompose - разлагать на составные части, растворять(ся)
7 caramel – жженый сахар (для подкрашивания кондитерских изделий)
8 applicable to – подходящий, применимый
9 to convert – превращать, переделывать
10 soluble - растворимый
11 tender – мягкий, нежный
12 roaster – жаровня, обжигательная печь
13 to dissolve – таять, растворяться, разлагать(ся) (на составные части)
14 to disintegrate – распадаться, расщеплять(ся)
15 scum – пена, накипь
16 to precipitate - осаждаться

2.6.2 Pronounce the following words correctly and find their meaning

Oven, moist, coagulate, enough, carbohydrate, collagen, gelatin, elastin, myogen, valuable, myosin

2.6.3 Find Russian equivalents to the following word combinations

Dry heat, moist heat, source of heat, dry-heat method, moist-heat method, soluble gelatin, moist atmosphere, covered pan, cooking process, covered roaster, tendering process, valuable soluble extractives

2.6.4 Read and translate the text

Meat cookery

Meat is cooked to make it more palatable, that is , to tender it if it is tough, to improve the flavour, and to improve the colour and appearance. The two general methods of cooking meat are by dry heat and moist heat. With dry heat, the meat is cooked in an oven, in a frying pan, or directly under a source of heat as in the broiler or directly over a flame as was done in the olden times on the hearth and is done today when meat is cooked on sticks at a picnic. By this process, the protein is coagulated, some of the fat melts always, some water evaporates, and if the temperature is high enough the meat browns. When meat browns, the carbohydrate, protein, and fat decompose. In the case of the carbohydrate, we say, it has caramelized. With dry heat, there is practically little change in the connective tissues, as under the conditions of dry heat, collagen does not change to gelatine. Therefore, it is important to select only the tenderest cuts to cook by the dry-heat method. The moist-heat method is applicable to the less tender cuts, as by this method, the collagen of the connective tissue is converted into the soluble gelatin.

The elastin is unaffected, and, for this reason, meats containing a high per cent of elastin are difficult to make tender. With moist heat, the meat is either cooked in water or cooked in moist atmosphere, as for instance when a piece of meat is put in a covered pan in which there is sufficient water to supply steam during the cooking process.

A cut of meat not quite tender enough to cook by dry heat when cooked in a covered roaster will have most of the desirable qualities of the more expensive cuts when served at the table. If meat is placed in cold water and then heated, much of the myogen and extractives are dissolved out before the coagulation of fibers takes place.

If salt is present, the myosin also dissolves. Meat cut up in small pieces, placed in cold water, and then cooked until tender is usually tasteless but the cooking water is very flavour-some. The tendering process is slow one, and if much tendering is necessary the more tender parts of the meat may disintegrate, with loss of valuable soluble extractives before the whole is made tender. The myosin and myogen which dissolve out during the first part of the cooking are precipitated by coagulation and usually form a scum on top of the water.

The water in which meat has been cooked is called stock. It is now generally agreed that a lower temperature than has been the custom produces the most satisfactory products. The advantages of a lower cooking temperature are many. Just as the protein of egg coagulates and sets to form a jelly so will the protein of meat. But if cooked at too high temperature, the coagulated protein shrinks, water leaves the jelly and the meat becomes hard and dry. This is particularly noticeable with liver. Unless liver is cooked exactly the right time and at right temperature, it becomes hard, dry, and, rubbery, which is often the reason for its unpopularity. The fat dispersed in other cuts of meat partially disguises the same effect in them.

The use of low temperature for meat cookery has other advantages. A roast of beef, for example, which is cooked at a high temperature will be well done on the outside and centre may be underdone or raw depending on the size of the roast. With low temperature, the roast cooks more evenly. Except for the first slice which is always overcooked, the rest of the roast will be the same throughout, rare, medium, or well-done whichever is preferred. Meat cooked to the well-done stage is cooked longer but not at a higher temperature, and experiments have shown that the longer cooking saves in the cost of fuel. There was a time when it was thought that all meat should be first browned with intense heat, the browning or searing, as it was called, was supposed to make an impenetrable skin through which neither water nor fat could go. Now we know that, if anything, searing increases the loss of fat and that its only advantage lies in the fact that well browned meat is more pleasing to look at, and helps to make a brown gravy.

As far as the rest of the meat is concerned searing has no advantages. With the use of lower cooking temperatures, it takes longer to cook a piece of meat, but the increase in tenderness, juiciness, and palatability justifies the change.

2.6.5 Answer the following questions

How can we cook the meat with dry heat?
What are the general methods of cooking meat?
Is the moist-heat method applicable to the less tender cuts?
Should we place the meat in cold water to get much taste of it?
The elastin is unaffected, isn`t it?
How is the meat cooked with moist heat?
Is the tendering process slow?

2.6.6 Find in the text and prove that

1 Meat is cooked to make it more palatable.
2 The moist-heat method is applicable to the less tender cuts.
3 By the dry-heat method the meat browns.
4 The cooking water is very flavour-some.
5 The tendering process is slow.

2.6.7 Translate the words and word combinations given in brackets

1 The meat is cooked in an (духовке), in a (сковороде), or on the (камине).
2 When meat browns, (углевод), (протеин), and fat decompose.
3 If the salt is present, the myosin also (разлагается на составные части).
4 By this process, the protein is (свертывается).
5 The collagen of the (соединительной ткани) is converted into the (растворимый желатин).
6 Much of the myogen and (экстрактов) are dissolved out.
7 The meat is either cooked in water or cooked in (влажной) atmosphere.

2.6.8 Translate from Russian into English

1 Добавлять воду во время жарки мяса не следует, потому что при низкой температуре приготовления ухудшаются его вкусовые качества.
2 При определенной температуре продолжительность варки всегда зависит от размера куска мяса и его качеств.
3 Бифштекс сначала поджаривают до коричневой корочки, а затем тушат, добавляя томатный соус, кислота которого не только придает вкус мясу, но и размягчает соединительные ткани.
4 Если мясо помещают сначала в холодную воду, а затем подогревают, большое количество миогена растворяется до коагуляции.
5 Вода, в которой варилось мясо, называется бульоном.
6 Если мясо поджаривают перед варкой, то бульон будет коричневого цвета.

2.6.9 Read and translate the following dialogue. Reproduce it in pairs. Make up your own dialogues on the analogy

At the Butcher`s

Shop assistant: Can I help you, madam?
Mrs. Gilbert: I`d like a leg of lamb. Do you sell it?
Shop assistant: Yes, we do, but I`m afraid we`ve sold out at the moment. If you`d care to call in tomorrow.
Mrs. Gilbert: Thank you, I won`t bother! I`ll buy some pork instead.
Shop assistant: Oh, yes. We`ve got excellent choice today. What part would you like to get - shoulder, leg or some other?
Mrs. Gilbert: This bit of shoulder is fine with me.
Shop assistant: Okay. It weighs four pounds.
Mrs. Gilbert: I`ll also have a chicken.
Shop assistant: Boiling or frying?
Mrs. Gilbert: Boiling, please.
Shop assistant: Will this do?
Mrs. Gilbert: Nice. That will be all. How much is it?
Shop assistant: Three pounds twenty pence.
Mrs. Gilbert: Here you are.
Shop assistant: Your change, madam. Thank you. Have a nice day.

2.6.10 Get ready to speak on

1 The two general methods of cooking meat.
2 Advantages of low temperature meat cookery.

2.7 Lesson 7 Vegetable cookery

2.7.1 Read the following words and word combinations. Mind their meaning

1 palatability - вкусовые качества, вкус
2 nutritive value - питательная ценность
3 moisture - влага
4 medium - среда
5 daily requirement - дневное потребление
6 roughage - грубая пища
7 satiation - насыщение, насыщенность, сытость
8 digestive tract - пищеварительный тракт
9 "pinch of soda" - щепотка соды
10 hard water - жесткая вода
11 pressure cooker - варочный автоклав
12 mealiness - мучнистость, рассыпчатость (о картофеле)
13 raw products - сырьевые продукты
14 pared potatoes - очищенный картофель
15 treatment – обработка

2.7.2 Read the following words correctly

Digestion, volatile, coagulate, requirement, roughage, juice, raw, utilize, content, appearance, evaporate, palatable, texture, softness, tenderness, leach, starch, tissue, storage, soak

2.7.3 Read and translate the text

Vegetable cookery

The composition of vegetables varies greatly. Some are good sources of proteins, others are largely starch. Unlike most of our foods, vegetables contain many valuable minerals and vitamins, along with considerable quantities of cellulose. While the vegetarian is interested chiefly in the protein content of this vegetables and the overweight person in their carbohydrate content, the average person values vegetables for their minerals, vitamins and cellulose. These constituents must, therefore, be our first consideration in vegetable cookery. While it is well known that the palatability (including flavour. Texture, and colour) of foods does not effect digestion, it is equally well known that the palatability does effect our selection of food. In the cookery of vegetables, then, we must consider both the nutritive value and the palatability of the cooked vegetable.

There are various methods of cooking vegetables. They may be classified according to the medium in which the vegetable is cooked, in boiling water, in steam (steamer, pressure cooker, waterless cooker, etc.), in hot fat (fry), in hot air (bake).

Why do we cook vegetables? To answer that question let us first see what happens during the cookery process. The flavour is altered, sometimes it is lessened, other times it is increased, but in both cases it is usually changed in character as well. The colour also may be altered. The constituents which give flavour and colour to vegetables are unstable compounds sensitive to changes in acidity and

heat. Many of the flavouring substances decompose, and many escape with steam as volatile products during the cookery process. As the hemicellulose is hydrolyzed, the texture is softened. Leafy vegetables lose moisture from the plant cells, shrink, and then become softer. The starch granules of all vegetables swell. Some of the starch may be hydrolyzed, some may be dissolved out. Some of the soluble proteins, dissolve out and coagulate, others coagulate in vegetable. Some of the soluble minerals dissolve out, others are held within the vegetable by coagulated protein cellular walls. Vitamin C is partly destroyed during the cooking process and a large amount dissolved out. Vitamin B complex is made up of several vitamins of which now, called vitamin B (B1) and G (B2), are differentiated. Both are soluble and therefore are dissolved in cooking of vegetables in proportion to the amount of water and the length of cooking, One vitamin B (B1) is largely destroyed by heat. Vitamin A will be effected by any cooking process.

While it might appear logical to conclude that the loss of vitamins during vegetable cookery is so great that it would be better to disregard cooked vegetables as a source of vitamins, this idea is erroneous. It has been found that there may be more vitamin C in cooking water from spinach than in raw carrots.

All authorities agree that the greatest loss of minerals results when vegetables are cooked in water for a long time, the larger the amount of water the greater the loss. The loss in minerals will be nil in all methods of cooking vegetables if the liquid in which the vegetables is cooked is utilized in one way or another. It is also possible that the water in which the vegetables are cooked may be completely evaporated off. Certain vegetables are more palatable if cooked in a comparatively large amount of water. This is true of such vegetables as cabbage, brussels sprouts, and turnips.

The addition of salt to the cooking water of vegetables is a common practice as it improves the flavour of the cooked product. Recently it has been shown that its presence does not in any way affect the loss of mineral element at least, calcium.

2.7.4 Answer the following questions

What is the composition of vegetables?
What happens during the cooking process?
In what way do we classify methods of cooking vegetables?
What is the function of the celluloses of vegetables in nutrition?
What vitamin is the most easily destroyed in the presence of heat and oxygen?
What is the best source of minerals?

2.7.5 Give the corresponding English equivalents of

Влага, среда, приятный вкус, грубая пища, пищеварительный тракт, щепотка соды, жесткая вода, испаряться, внешний вид, сырье, сок, насыщение, крахмал, мучнистость, рассыпчатость, очищенный картофель, питательная ценность, содержание

2.7.6 Translate into Russian

1. We prefer the changed flavour, even though it means less nutritive value. 2. We know that raw potato starch is less digestible than the cooked potato starch. 3. Some cooked fruits, notably pineapples, tomatoes, contain nearly as much vitamin C as the raw fruit. 4. When vegetables are cooked in the so-called waterless cookers, the loss of minerals depends upon the water which leaves the vegetables during the cooking process, because these vegetable juices are very rich in minerals. 5. The preservation of the natural flavour of vegetables and prevention of the development of unpleasant flavours may, in general, be controlled by the length of the cookery period. 6. It is impossible to set the time definitely for the cooking of any vegetable, since it varies with the size and age of the vegetable and the acidity of water.

2.7.7 Give sentences of your own using the following words and word combinations

Raw products, tenderness, treatment, softness, palatable, mealiness, nutritive value, daily requirement, pared potatoes, soak, appearance, utilize, moisture

2.7.8 Translate into English

1. Вкус овощей во время варки изменяется: иногда он становится лучше, иногда — хуже. 2. Овощи содержат большое количество минеральных солей. 3. Добавление небольшого количества соли в воду, в которой варятся овощи, улучшает их вкус. 4. Уменьшение питательной ценности овощей происходит из-за разрушения витаминов и растворения минеральных солей. 5. Сохранение природного вкуса овощей и предотвращение развития неприятного вкуса можно контролировать продолжительностью их варки. 6. На цвет овощей во время варки влияет продолжительность их приготовления. 7. Для того, чтобы картофель не темнел, перед приготовлением его следует подержать час в холодной воде.

2.7.9 Look at the word search below. There are seventeen words connected with food. They go across and down. Find them and write them here. The words begin with these letters.

M_____	B_____	C_____
C_____	R_____	F_____
B_____	V_____	Y_____
P_____	E_____	G_____
S_____	B_____	H_____
J_____	L_____	

L	**C**	**Y**	**P**	**N**	**C**	**R**	**I**	**S**	**P**	**S**	**M**
A	**V**	**Z**	**O**	**B**	**P**	**B**	**A**	**N**	**A**	**N**	**A**
M	**U**	**S**	**T**	**E**	**A**	**K**	**N**	**B**	**T**	**R**	**R**
B	**Z**	**Q**	**A**	**M**	**O**	**Y**	**R**	**Y**	**J**	**A**	**M**
K	**G**	**F**	**T**	**G**	**H**	**O**	**D**	**F**	**G**	**H**	**A**
B	**A**	**C**	**O**	**N**	**F**	**G**	**R**	**A**	**P**	**E**	**L**
H	**J**	**K**	**F**	**I**	**S**	**H**	**T**	**Y**	**U**	**I**	**A**
H	**O**	**N**	**E**	**Y**	**B**	**U**	**B**	**R**	**E**	**A**	**D**
R	**A**	**S**	**D**	**F**	**G**	**R**	**Z**	**K**	**L**	**P**	**E**
I	**B**	**V**	**E**	**G**	**E**	**T**	**A**	**B**	**L**	**E**	**I**
C	**Z**	**X**	**C**	**V**	**B**	**N**	**M**	**L**	**P**	**G**	**J**
E	**W**	**E**	**C**	**E**	**R**	**E**	**A**	**L**	**B**	**G**	**U**

2.7.10 Topics for discussion

1 General effect of cooking on vegetables.
2 Effect of different methods of cookery on nutritive value of vegetables.
3 Vegetables are our best sources of vitamins and minerals.

3 Food preservation

3.1 Lesson 1 Food preservation

3.1.1 Read the following words and word combinations. Mind their meaning

1 spoilage – порча
2 due to – обусловленный
3 harmless – безвредный
4 lectic acid – молочная кислота
5 dough – тесто
6 yeast – дрожжи, закваска
7 undesirable – нежелательный
8 mold – плесень, плесенный грибок
9 hygiene – гигиена
10 perishable foods – портящаяся пища
11 to prolong – продлевать, продолжать
12 availability – (при-)годность
13 wholesome – полезный, здоровый
14 ravages – разрушительное действие
15 living tissues – живые ткани
16 to assist – содействовать, принимать участие
17 decay – гниение
18 minute size – мельчайший размер
19 to split off – отделять
20 resistant - стойкий, прочный

3.1.2 Give the corresponding Russian equivalents of

Food spoillage, green vegetables, root vegetables, well-balanced diet, can, cure, vinegar, sour milk, original organism, spore-bearing organisms, canned foods, nutritive value, cell division

3.1.3 Read and translate the text

Food preservation

Food spoilage is due to the growth of microorganisms in the food. In the course of their development these produce, in some cases, harmless products, such as lectic acid in sour milk or carbon dioxide and alcohol in bread dough made with yeast; in others harmless but undesirable products, such as the flavour which mold imparts to bread; while, in still other cases, harmful toxins are produced. Food preservation has both hygienic and economic aspects. From the point of view hygiene, food is preserved in order to prevent the formation of products which are

harmful to the body. Many essential but perishable foods are preserved for the purpose of prolonging the period of availability. Oranges or tomatoes supply vitamin C from January to January. Green vegetables as well as the more stable root vegetables can be fresh or in cans at any time. Thanks to improved methods of food preservation, it is now possible for everyone at all times to have clean, wholesome food – a well-balanced diet.

For those who have studied bacteriology, the ravages of food by microorganisms make an old story. In all living tissues microorganisms are found which assist either in the growth of the plant or animal or in the decay. In addition the air, water, and all other substances with which food comes in contact contain microorganisms foreigh to the natural food but capable of reacting the solutions present in it.

Thus any food is subject to either decay or spoilage by the growth of microorganisms. Our study of microorganisms will confine itself to a description of the different classes and the conditions which are favourable or unfavourable to their growth. There are three classes – molds, yeast, and bacteria. All are characterized by their extremely minute size and their wide distribution. Microorganisms multiply more rapidly at moderate temperatures – for the most part about 40 ˚C and their growth is checked at very low temperatures.

Microorganisms may multiply in two ways. In one, a microorganism splits off a part of itself which resembles the original organism in appearance and method of reproduction. In the other, a rounded mass called a spore is developed, which is unlike the parent form but will develop into a similar organism, provided the conditions for growth are favourable. A spore differs from the microorganism from which it comes in being more resistant to conditions unfavourable to growth. Whereas most microorganisms are destroyed by boiling water, many types of spores which have been held at high temperatures will later grow and multiply, when the conditions of their environment become more favourable for growth. For this reason spore-bearing organisms are more difficult to destroy than those which multiply by simple cell division.

3.1.4 Answer the following questions

What is food spoilage due to?
Why is food preserved?
Is it possible now for everyone to have clean, wholesome food at all times?
Any food is subject to either decay or spoilage by the growth of microorganisms, isn’t it?
How many classes of microorganisms do you know?
Do microorganisms multiply more rapidly at moderate or low temperatures?
How may microorganisms multiply?
What is the difference between a spore and the microorganisms from which it comes?

3.1.5 Agree or disagree with the following statements. Give your reasons. Use:

For disagreement:	*For agreement:*
That's not quite right.	*That's right.*
Oh no, quite on the contrary.	*Exactly.*
It says in the text ...	*I agree entirely.*

1 Food spoilage is due to the growth of microorganisms in the food.
2 Microorganisms development produce, in some cases, harmless products; in others harmless but undesirable products, while, in still other cases, harmful toxins are produced.
3 It is no impossible for everyone at all times to have clean, wholesome food – a well-balanced diet.
4 Only in some living tissues microorganisms are found which assist either in the growth of the plant or animal or in the decay.
5 There are three classes of microorganisms which are characterized by their extremely minute size and their wide distribution.
6 All microorganisms are destroyed by boiling water.
7 Spore-bearing organisms are more difficult to destroy than those which multiply by simple cell division.

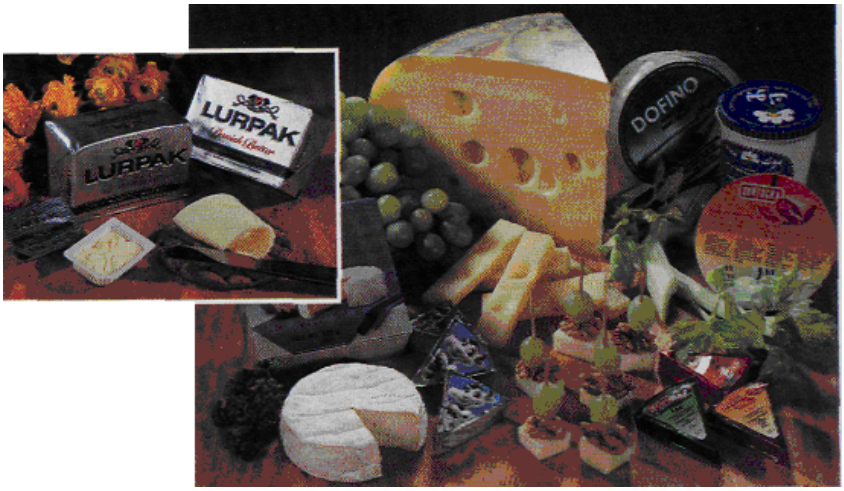
3.1.6 Give sentences of your own using the following words and word combinations

Moisture, appearance, yeast, mold, decay, cure, vinegar, can, bread, dough, minute, size, fermentation, nutritive value

3.1.7 Translate from Russian into English

1 Как известно, пищевые продукты быстро портятся.
2 Микроорганизмы делятся на несколько классов: плесень, дрожжи и бактерии.
3 В основном плесень образуется в темноте, но иногда и на свету. В большинстве случаев плесень прекращает расти, если она подвергается солнечному освещению.
4 Вкус сыров и масла изменяется под воздействием бактерий.
5 С другой стороны, порча консервированных продуктов – мяса, молока, овощей – тоже происходит под воздействием роста бактерий.
6 Самый благоприятный способ хранения пищевых продуктов в холодильниках; в этом случае вкус, вид и питательная ценность продуктов изменяются незначительно.
7 Хранение сухих продуктов питания имеет свои преимущества: они занимают меньше места, а продолжительность их хранения не зависит от температуры.

3.1.8 Imagine that you're a head of a big restaurant. You've just read the advertisement about dairy products you're interested in. Ask questions about the production of this company.



MD Foods, which was founded in 1970, produces an extensive variety of dairy products. High quality, hygienic Danish dairy products and close co-operation with clients and business partners form the basis of our growing success.

Main figures

Dairies	40
Milk intakes (1,000 tons)	3,000
Owners (farmers)	9,500
Employees	6,800
Annual turnover (DKK million)	12,000
Export share	60%

Each year **MD Foods** produces about 200,000 tons of cheese and 50,000 tons of our famous Lurpak butter.
Our assortment is tailored for leading retail chains, institutional as well as industrial clients.
Our range of products also includes liquid milk, fresh yoghurt without preservatives, cream, etc.

Product range

* Cheese
* Butter
* Milk products
  - Longlife milk and cream
  – Yoghurt
  - etc.

3.1.9 Get ready to speak on food as a subject of decay.

3.1.10 Role play "A Students' Party"

Setting: At a university hostel.

Situation: Two groups of Russian and British students decide to celebrate some holiday (Christmas, New Year, Easter, etc.) together and cook national dishes to treat each other. They cook, discuss the recipes, make others guess, what they have put into the dishes, and choose the best cooks.

Cards 1-7 – Russian students. They cook ravioli, borsch, Russian salad.

Cards 8-14 – English students. They cook a pudding, turkey, vegetables.

3.2 Lesson 2 Methods of fruit and vegetables preservation

3.2.1 Read the following words and word combinations. Mind their meaning

1 bottling -консервирование в стеклянной таре
2 herb — трава, лекарственное растение
3 sauerkraut — квашеная капуста
4 vinegar — уксус
5 pickles — соленья, маринады
6 to seal— закатывать (банки)

3.2.2 Read and translate text A

Text A. Methods of fruit and vegetables preservation

Drying, salting, cold storage, freezing, bottling and canning are methods used to preserve vegetables and fruit. If foods are kept for a few days in the air, they spoil because of the action of yeasts, bacteria and other types of microorganisms. Food preserving methods destroy these organisms or prevent their re-entry or slow down their growth.

As bacteria need moisture for their development, they cannot grow if foods are dried. Salting, like drying, reduces the moisture content of food, and, in addition, salt destroys certain organisms. Drying and salting have been practised for many centuries. Drying is still used commercially for preserving various fruit, such as grapes, apples, apricots, and vegetables, such as potatoes, onions, peppers and carrots. In some countries fruit, herbs and mushrooms are dried at home. Beans and sauerkraut are often salted, and salt and vinegar are combined in making pickles, such as cucumber pickles.

The first bottling was done about 180 years ago. In bottling and canning the food is heated to destroy spoilage organisms. In canning the container is sealed before it is heated; in bottling it is sealed afterwards. Bottling is cheaper because the bottles can be used again and again, but canned foods are more convenient for storage. At present bottling and canning are used for preserving a great variety of fruit and vegetables.

3.2.3 Name the main methods of fruit and vegetables preservation according to the text A

3.2.4 Make up the right sentences

Food preserving methods	are used	in making pickles.
Salting	reduces	the moisture content of foods.
Canning	is used	in making sauerkraut.
Drying	prevents	the re-entry of microorganisms.
Salt and vinegar		to destroy spoilage organisms.

for preseving apples, grapes and apricots.

3.2.5 Say what fruit and vegetables are preserved by this or that method

Grapes Apples Apricots Cherries Plums Beans Cucumbers Tomatoes Potatoes Peppers Carrots	are often preserved by (usually)	canning. bottling. drying. salting. freezing. cold storage.

3.2.6 Read the text B and try tounderstand the main idea of it

Text B. The canning of fruit and vegetables

The canning of fruit and vegetables is very important as this food preservation process does not seriously injure the natural flavour of fresh food.

The first stage in the process consists of preparing the raw material by removing diseased fruit, and throwing away the waste portions such as stalks from plums, cherries or blackcurrents. Vegetables, carrots, potatoes are peeled and washed. Most of this work is done mechanically. Delicate fruits, such as strawberries and raspberries are prepared entirely by hand, and filled directly into the cans. When fruits or vegetables are filled into the cans, brine is added to the cans of vegetables or syrup to the cans of fruit. The syrup is made by dissolving sugar in water, and sometimes a small amount of colouring matter is added.

The filled cans pass through a pre-heating process which removes any gases from the tissues of the fruit or vegetables. After heating during 5 to 12 minutes the cans are supplied with lids and hermetically sealed by a closing machine. They are then ready for sterilizing. Fruits, because of their high acidity, are easily sterilized in boiling water for 8 to 15 minutes. Vegetables, which have little acidity, cannot be sterilized at boiling point, and are heated for about 30 minutes under steam pressure at a temperature of 240˚F. The sterilization is usually done in steel vessels holding about 1,000 cans.

After sterilization the cans are cooled down to a temperature of about 90˚F. Then they are labelled by automatic machines which can label 150 cans a minute and are packed into fiber-board cases, either by hand or by automatic machinery.

3.2.7 Put the stages of the fruit canning in the correct order

1 The cans are cooled.
2 Fruits are filled into the cans.
3 Fruits are sterilized.
4 The cans are supplied with lids.
5 Colouring matter is added.
6 The syrup is added to the cans of fruit.
7 The cans are labelled.
8 Diseased fruit is removed and waste portions are thrown away.
9 The cans are hermetically sealed.

3.2.8 В тексте приводятся значения температуры по шкале Фаренгейта (F), а не по стоградусной шкале (шкале Цельсия). Запомните соответствия

0 ˚C — 32 ˚F
100 ˚C — 212 ˚F

Формулы перевода:
C = (F - 32)/1.8; F = 1.8C + 32
Определите, сколько градусов по шкале Цельсия составляют
240˚F, 90˚F

3.2.9 Complete the table 1 according to the text B

Canning

Table 1

Food	Liquid added	Acidity	Sterilization time	Sterilization temperature, ˚C	Steam pressure	Cooling temperature
Fruit	?	?	8-15 min	100 ˚C	?	?
Vegetables	brine	low	?	?	?	?

3.2.10 Get ready to speak on

1 Fruit preservation
2 Vegetables preservation

3.3 Lesson 3 Dried and preserved fruits

3.3.1 Read the following words and word combinations. Mind their meaning

1 preserved condition - условие хранения
2 desiccation - сушка
3 fruit-producing countries - страны, производящие фрукты
4 drying process - npouecc высушивания
5 "stemmer" - приспособление для отделения плодоножек
6 leading grade - первый сорт
7 spent oven - сушильная печь, сушка
8 lemon peel - лимонная корка
9 crystallized fruits - засахаренные фрукты

3.3.2 Pronounce the following words correctly

Preservation, procurable, storage, ramification, scorch, currant, treatment, raisins, grape, plum, prune, peel, confectionary, pickle, dried fruits, crystallized fruits, desiccation, commodity, candied peel

3.3.3 Read and translate the text

Dried and preserved fruits

Preserved fruits are now numerous, but not every kind of fruit is suitable for preservation. Some fruits, of course, are preferred in their natural state, while others are preferable and sometimes only procurable, in a preserved condition.

As most fruits are seasonable, it follows that those demanding them out of season must accept them in a preserved form. There are at least four different methods of preserving fruits: (1) by desiccation (drying); (2) by utilization of cold air; (3) by the use of chemicals; and (4) by the exclusion of air. The fourth method is that in general use by canners, as is also the third so far as vegetables are concerned, and in the case of some fruits, perhaps, when the preserves wish to maintain or to create a "colouring".

The second method is that of cold storage and refrigeration in all their ramifications. The first method is applied to such fruits as we shall now proceed to consider.

The "drying" and "evaporating" methods are practised extensively in fruit-producing countries. The drying process takes some days to complete, after which the fruit is put into boxes holding about 150 lb. to be transported to the packing houses. Sorting is the next process. The choicest are packed in boxes made to hold five, ten, fifteen and twenty pounds, and other grades are stemmed, seeded and packed in cartons of one pound capacity.

Machines called "stemmers" are brought into use for removing the stems. Again the fruit is graded and passed to a "seeder", which flattens raisins and brings

the seeds to the surface, while another piece of mechanism, a teeth-like roller, removes the seeds.

Plums destined for the leading grades of prunes are gathered by hand, laid in shallow utensils, and then placed in a cool and dry building to soften. Afterwards they are put into spent ovens for about twenty-four hours, a procedure which is repeated until the fruit is of the requisite dryness. Later comes the cooling process and the final packing into cans, jars, boxes, or whatever receptacle is considered most suitable for the various markets. The drying process naturally calls for the exercise of care and skill, so that the fruit may not be deprived of its original flavour and fruity consistency. Usually three pounds of plums are necessary to yield one pound of prunes, the exact proportion being regulated by the degree of waste during the drying processes.

Citron peel and lemon peel are consumed in large quantities by the people of Europe and America. There is difference in colour and thickness between the two commodities, even enough both are members of the citrus family of fruits. The lemon peel is candied, otherwise the process of preserving is similar to that applied to the citron.

The rind is left to pickle for a few weeks in a salt solution, afterwards being boiled until it is tender, and then it is soaked in water slightly sweetened. The first soaking removes the greater part of the salt, but a succession of solutions is necessary before the peel is ready for the final process of preserving. The final treatment is in the nature of boiling in thick syrup. From the vats it passes in specially constructed racks into a heating room, where it dries and crystallized in due course.

3.3.4 Answer the following questions

How many methods are there of preserving fruits?
The "drying" and "evaporating" methods are practised extensively in fruit-producing countries, aren't they?
What are machines called "steamers" used for?
What can you tell about plums' drying process?
Where are citron peel and lemon peel consumed in large quantities?

3.3.5 Translate into Russian

1. 'To prevent deterioration through the growth of any microorganisms in jams, marmalades, and jellies sufficient amount of sugar usually are used. 2. Jams are made up largely of fruits held together by a thick syrup or jelly. 3. Preserves resemble jams but are usually of thinner consistency. 4. Jellies are made from fruit juices only. 5. In the preparation of all of these products, efforts are made to preserve or enhance the natural colour and flavour of the fruit. 6. The crystallized fruits are made by extracting the juice from the raw product and replacing it with sugar syrup. 7. Any kind of fruit or combination of fruits may be used in the making of jams and preserves. 8. Drying has been a means of food preservation for

centuries and is still used. 9. Foods containing sugar require less drying than others, as drying concentrates the sugar solution. 10. Most dried fruits require soaking before cooking.

3.3.6 Give sentences of your own using the following words and word combinations

Currants, raisin, prune, peels, confectionary, pickle, dried fruits, crystallized fruits, desiccation, commodity, candied peel, preservation, leading grade, market

3.3.7 Translate into English

1. В настоящее время существует много методов сохранения фруктов. 2. Фрукты можно сушить, консервировать, замораживать. 3. Можно сушить сливы, вишни, яблоки, груши, абрикосы, финики и другие фрукты. 4. Для производства джемов используются любые фрукты. 5. Мармелады и желе изготовляют только из фруктов, содержащих пектин и достаточное количество кислоты. 6. Засахаренные лимонные и апельсиновые корочки очень популярны в Европе и Америке. 7. Необходимо сохранять естественный цвет и вкус фруктов при производстве из них джемов и желе. 8. При приготовлении компотов следует следить sa тем, чтобы фрукты не переварились и не потеряли свой вкус.

3.3.8 Role play “Do we need meat?”

1 You are vegetarian beginners. Some of you became vegetarians because of ethical reasons, others – because of healthy reasons. Have a competition and give as much arguments as possible to prove your points.
2 So, you’re divided into vegetarians and meat-eaters. Convunce your opponents that you are right.
3 You are a skin-care specialist. Compile two diets for your customers; a vegetarian and a meat-eater. Do it in a written form.

3.3.9 Write *a* or *some*

1 _____ book
2 _____ rice
3 _____ mushroom
4 _____ music
5 _____ rain
6 _____ ice
7 _____ bacon
8 _____ money
9 _____ fruit
10 _____ five-pound note

3.3.10 Get ready to speak about different methods of preserving fruits.

3.4 Lesson 4 Meat preservation by salting and pickling

3.4.1 Read the following words and word combinations. Mind their meaning

1 keeping quality – сохранное качество
2 pickling solution – рассол, маринад
3 curing – консервирование, заготовка
4 to sprinkle with – посыпать чем-либо
5 smoking process – процесс копчения^
6 on account of – из-за, вследствие
7 to inhibit – препятствовать, мешать
8 to impart – давать, придавать
9 to chill – охлаждать, остужать
10 to accomplish – достигать, выполнять
11 brine – рассол
12 bleeding animal – обессиленное животное
13 to subject –подвергать (воздействию, влиянию)

3.4.2 Read the words according to transcriptions and translate them

[kən`stitjuənt], [prezə`veiʃn], [ə`kʌmpliʃ], [`naitreit], [`naitrait], [naitrə`səuhi: mə`gləubin] [`fleivə], [pri`zɜ:vətiv], [sɔlt`pi:tə], [pə`tæsiəm], [`spɔilidʒ], [bæk`tiəriəl], [ rifridʒə`reiʃn]

3.4.3 Read and translate the text

Meat preservation by salting and pickling

The preservation of meat may be accomplished in numerous ways including the use of refrigeration, canning, drying, and salting, pickling, and curing. Salting is often followed or combined with other processes, such as smoking, which improves both the flavour and keeping qualities of special products, including hams, and bacon. In the use of salt as a preservative, either alone or in combination with such compounds as saltpeter nitrates of sodium or potassium, there are several objectives.

It is necessary to prevent spoilage by microorganisms, but in addition the final product must have a desirable taste and flavour. The appearance must also be attractive. It has been common practice for many years to use the pickling solution because of increased efficiency in curing meat products. More recently the nitrites have been found even more effective. The nitrates serve a useful purpose in respect to the appearance of the products because when they are present, certain changes take place when the hemoglobin of the meat tissues is chemically combined to form nitrosohemoglobin.

The nitrites are more effective than nitrates in checking spoilage and also have the colour fixing ability. Sugar is also used as a constituent of pickling solutions. Many of the solutions containing sugar are called sweet pickling process. In some instances the so-called dry sugar cures may be used, in which case the meat is packed in tight containers and sprinkled with dry mixtures of salt, sugar and small quantities of nitrate or nitrite. It is a common practice of smoke some salt-cured meat and meat products.

The smoking process preserves not only on account of some drying of the meat through the heat applied during smoking but also on account of the chemicals deposited on the surface. These compounds may penetrate somewhat into the meat and to inhibit bacterial growth and action. Instead of smoking meats it is possible to use a specially prepared salt meat. Such salts have a pleasant smoked flavour which may be imparted to meat by using dry-curing processes and eliminating the smoking operation. Meats may be preserved by means other than refrigeration, although chilling is the first step, and preliminary to any further treatment.

In Europe a number of different methods have been suggested to accomplish the same purpose. One depends on injecting the brine by pressure into the heart of the still bleeding animal. Another method consists in subjecting the meat to a vacuum and then subjecting it to a brine under pressure for several hours.

3.4.4 Answer the questions

What ways of meat preservation do you know?
What does the smoking process preserve?
Are nitrates or nitrites more effective? Why?
What is sugar used for?
Does the smoking process preserve on account of the chemicals?
How many methods used in Europe for the same purpose, do you know?

3.4.5 Make up sentences joining the given parts of them

1 The preservation of meat may be accomplished	1 although chilling is the first step, and preliminary to any further treatment.
2 The nitrates serve a useful purpose	2 in respect to the appearance of the products because when they are present, certain changes take place.
3 Many of the solutions containing sugar	3 than nitrates in checking spoilage and also have the colour fixing ability.
4 The smoking process preserves not only on account of some drying of the meat	4 in numerous ways including the use of refrigeration, canning, drying, and salting, pickling, and curing.
5 Meats may be preserved by means other than refrigeration,	5 through the heat applied during smoking but also on account of the chemicals.

6 The nitrites are more effective 6 are called sweet pickling processes.

3.4.6 Agree or disagree with the following statements. Give your reasons. Use:

For agreement:	For disagreement:
Exactly, so.	Quite on the contrary.
That`s right.	It is said that…
I agree entirely.	That is not quite right.

1 The appearance must not be attractive.
2 The nitrites are less effective than nitrates in checking spoilage.
3 Instead of smoking meats it is possible to use a specially prepared salt meat.
4 Sugar is not used as a constituent of pickling solutions.
5 Meats may be preserved by means other than refrigeration, although chilling is the first step, and preliminary to any further treatment.

3.4.7 Give sentences of your own using the following words and word combinations

Desirable taste, hemoglobin, refrigeration, increased efficiency, sugar, bacterial growth, curing, meat tissues, pressure

3.4.8 Imagine that you are a head of a big plant in Russia.
You have read about RAYNAL-PETERSEN COMPANY.

RAYNAL-PETERSON (RP) belongs to ESS FOOD Group from Copenhagen (ESS FOOD is the biggest meat trading group in the world).

RP – WORLDWIDE MEAT SUPPLY

1 RP is a beef specialist.
2 RP sales are 12,000 tons per year in France alone and it exports 8000 tons per year to third world countries.
3 RP are experts on all the different cuts used in the beef trade and it works with the largest European firms to satisfy all requirements.
4 RP is interested to find end users who wish to sell special beef products or special beef cuts.

5 RP is also interested in importing other products from Russia for the French market.

Your task is to write down about the advantages of meat preservation at your plant, about different methods and various processes used in your work to cooperate with RAYNAL-PETERSEN COMPANY.

3.4.9 Text for written translation

Pork curing. Bacon and hams.

Pork is sometimes dry-cured by rubbing with salt and piling-in stocks in curing cellars, which are kept at relatively low temperature. A small percentage of saltpeter may be added to the salt to assist in the colouring of the tissues. If the cuts are packed by layers and other curing agents added between the layers, there will eventually be a brine formed owing to the extraction of water from the tissues. This method is commonly used for bacon which requires several weeks to cure, after which it is removed from the brine, soaked in water for short time and smoked. The soaking may be omitted if the meat is subjected to a spray of hot water followed by drying with a compressed air jet which evaporates the excess moisture on the surface.

Bacon is usually aired for a number of hours in the warm air of the smoking chamber before the actual smoking is started. When the smoking is completed any salt which has crystallized on the interior is brushed off and the bacon packed in boxes, barrels.

Some bacon, sliced or unsliced, is now packed in transparent parchment to keep it clean and preserve its appearance. Bacon may also be canned. Hams, which make up one of the most valuable meat products from hogs, are the hind legs of swine from above the hock. There are many kinds of hams depending largely on the type of curing process and the methods of smoking used.

Most hams contain an abundance of fat, but virginia hams, which are quite noted for quality and flavour, are relatively lean. The function of the smoke is not merely to impart the characteristic flavour, but it also serves to inhibit the microorganisms which gain access to the surface of the meat.

3.4.10 Get ready to speak on

1 Pickling processes.
2 Curing.
3 Smoking processes.

3.5 Lesson 5 History of development of the dairy industry in our country

3.5.1 Read the following words and word combinations. Mind their meaning

1 landlord - помещик, землевладелец
2 to exceed – превышать, быть больше
3 output – выработка. выпуск
4 annual – ежегодный
5 gross – валовой
6 milk yield – надой молока
7 prior to – раньше, до
8 craft – ремесло
9 improvement – улучшение
10 steady – постоянный
11 efficient – эффективный, продуктивный
12 to account for – составлять определенную часть
13 collective (state) farms – колхоз (совхоз)
14 purchase – закупка, приобретение
15 share – доля, часть
16 live-stock – домашний скот
17 to attach – прикреплять
18 scale – масштаб
19 treatment – обработка
20 to own – владеть, обладать
21 simultaneously – одновременно
22 fluctuate – колебаться, меняться
23 to amount - составлять, равняться

3.5.2 Pronounce the following words correctly

Organization, private, major, exprot, adequate, ton, mechanized, source, technology, productivity, consolidation, mechanize, apparatus, Ukrainian, Georgian, Moldavian, hygienic

3.5.3 Read and translate the text

History of development of the dairy industry in our country

Industrial processing of milk in Russia began at the end of the 18th century with the organization of cheese production on landlords' farms. Later, at the end of the 19th century, butter making began to exceed cheese making. An important role in butter making was played at that time by small producers' dairies side by side wjth private capital. The major part of the butter production was exported to the countries of Western Europe because of the absence of an adequate home market.

There was practically no whole milk production at that time in Russia. Thus, in 1913 milk plants with a total output of 100 tons milk per day existed only in six towns in our country. Altogether there were in 1913 only 6,900 small,

nonmechanized milk processing plants, their annual volume of milk processing reaching only 2.3 million tons, i.e. 7 % of the gross milk yield.

As will be seen from the above, industrial processing of milk in Russia prior to 1917 was a backward branch of national economy, and is usually described as a primitive domestic craft.

The considerable improvement in the material well-being of the Soviet people, the steady increase of sources of raw milk in our country and the wide introduction of modern highly efficient equipment and up-to-date technology at our dairy plants accounted for the rapid development of the dairy industry.

Collective and state farms played an important role in state purchases of milk; their share in 1953 was 71 % and in 1963, 94.6 %.

An increase in milk production in our country came as a result of the increase in live-stock, on the one hand, and of the increase in milk productivity, on the other.

The consolidation of our dairy farms attached to the state and of the collective farms made it possible to mechanize on a wider scale the process of milking and milk treatment on these farms. More than 127 thousand sets of milking apparatus were owned by the state and collective farms and made it possible to milk simultaneously 13-14 million cows.

Milk was paid for on the basis of its fat content, the calculations being made in accordance with its basic fat content in one ton (kilogramme) and cream was paid on the basis that the fat content of 1 kg of cream must ammount to 10 %. Thus, the price for milk and cream fluctuated depending on their fat content.

Basic fat content was different in different Republics of the Soviet Union, a certain average having been fixed for each. Thus, for the Russian Soviet Federative Sociali8st Republic it amounted to 3.7 %; for the Ukrainian Soviet Socialist Republic and for the Georgian Soviet Socialist Republic this figure was 3.6 %; and for the Moldavian Soviet Socialist Republic the average figure was 3.5 %. The actual fat content of milk in our country in 1962, was 3.68 % on the average.

Milk delivered to state dairy plants possessed the following physical and chemical as well as hygienic properties: fat content not less than 3.2 %, density not less than 1.027; acidity not more than 3.2 %, 20 ˚C; temperature not exceeding 10-15 ˚C.

3.5.4 Answer the following questions

When did industrial processing of milk begin in Russia?
Was the major part of the butter production exported to the countries of Western Europe?
How many milk processing plants were there in 1913?
What accounted for the rapid development of the dairy industry?
Did collective and state farms play an important role in state purchases of milk?
What was milk paid for?
Milk delivered to state dairy plants possessed the following physical, chemical and hygienic properties, didn’t it?

3.5.5 Fill in the blanks with the suitable words from the text

1 At the end of the 19th century, butter making began ..... cheese making.
2 There was practically ..... milk production at that time in Russia.
3 Industrial processing of milk in Russia ..... 1917 was a backward branch of national economy.
4 Collective and state farms share in 1953 was ...% and in 1963, ...%.
5 More than 127 thousand sets of milking ..... were owned by the state and collective farms.
6 Basic fat ..... was different in different Republics of the Soviet Union.

3.5.6 Choose the right answer among those given below

1 Industrial processing of milk in Russia began at the end of the 18th century with the organization of ..... production on landlords' farms.
a) butter
b) cheese
c) cream
2 In 1913 milk plants with a total output of 100 ..... milk per day existed only in six towns in our country.
a) kilogrammes
b) tons
c) pounds
3 ..... and state farms played an important role in state purchases of milk.
a) landlords'
b) collective
c) private
4 An increase in milk production in our country came as a result of the increase in ..... .
a) sources of raw milk
b) epuipment
c) live-stock
5 More than 127 thousand sets of milking apparatus were owned by the state and collective farms and made it possible ..... simultaneously 13-14 million cows.
a) to milk
b) to breed
c) to clean
6 Price for milk and cream fluctuated depending on their ..... content.
a) vitamins
b) fat
c) carbohydrates

3.5.7 Look at the different dishes in picture 1. Match the dishes with the countries below.
1 – Italy

India Italy the United States Mexico Spain Morocco Japan

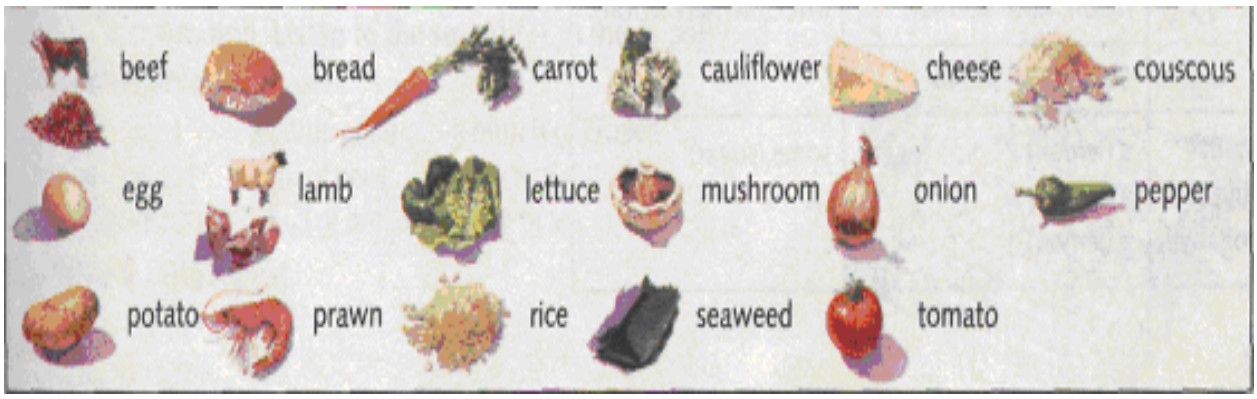
3.5.8 Ask and answer about each dish. Follow this example:

A: Picture 1. What's it called?
B: It's a pizza.
A: Which country is it from?
B: It's from Italy.
A: What are the ingredients?
B: Flour, cheese, tomatoes, mushrooms and oil.

3.5.9 Highlight the meanings of the English proverbs and make up situations to illustrate them

1 Forbidden fruit is sweet.
2 Tastes differ.
3 Honey is sweet but the bee stings.
4 Take it or leave it.

3.5.10 Get ready to speak about the history of dairy industry in our country.



Picture 1

3.6 Lesson 6 The structure of the dairy industry in our country

3.6.1 Read the following words and word combinations. Mind their meaning

1 to deliver – поставлять, доставлять
2 batch – партия
3 acidity – кислотность
4 tank – цистерна, бак
5 vessel – сосуд
6 respectively – соответственно
7 sample – проба
8 reduction – изменение состояния
9 contamination – загрязнение
10 density – плотность
11 to attach – назначать, прикреплять
12 detergent – очищающее, моющее средство
13 procurement – поставка
14 provided – при условии, в том случае, если
15 schedule - план, график

3.6.2 Read the words according to transcriptions and find them in the text

[pla:nt] [`likwid] [weit] [`meʒə] [`intəvl] [mæ`staitis] [`praivət] [`dautfl] [`teknikl] [maikrəubai`lɔdʒikl] [`kwɔliti] [`pækid] [`vetrənəri] [ɔ:`ϴɔrəti]

3.6.3 Read and translate the text

The structure of the dairy industry in our country

The processing of milk is carried out in the following plants: butter-making, cheese-making, city milk plants producing liquid milk, as well as farm plants, condensed and dried milk plants. Dairy farms deliver milk, as a rule, directly to the plant.

Before being delivered to the plant the milk is to be filtered and cooled. Each batch of milk is delivered together with the document which indicates the weight, fat content, acidity, temperature and the time of delivery. Acidity is checked in each tank or vessel respectively, and the fat content is measured in each batch of milk, the sample being taken from each vessel; the temperature is measured selectively. Reduction test and contamination test are carried out once in ten days. The density of milk, and other characteristics are checked at regular intervals. Mastitis, brucellosis and other tests are also carried out.

Milk from private farms is analyzed for fat content, contamination and density are checked not less than once in ten days, and acidity is checked only in doubtful cases.

Special departments of technical control have been organized at dairy plants chemical and microbiological laboratories attached to them. The chemical laboratory is responsible for the tests of both milk properties and its quality as well as the tests of milk products; it is to control all technological processes, packaging materials, the concentration of detergents and the finished products. The microbiology laboratory carries out sanitary inspection (inspection of the apparatus, its sanitary condition, cleanliness of the personnel and the pasteurization effect).

3.6.4 Answer the following questions

Where is the processing of milk carried out?
What tests are carried out before?
How is milk from private farms analyzed?
What is the chemical laboratory responsible for?
What inspections does the microbiology laboratory carry out?

3.6.5 Agree or disagree with the following statements. Give your reasons. Use:

For disagreement:	*For agreement:*
That's not quite right.	*That's right.*
Oh no, quite on the contrary.	*Exactly.*
It says in the text ...	*I agree entirely.*

1 There are different dairy plants in our country.
2 Each batch of milk is delivered without documents.
3 Acidity is checked in each tank or vessel respectively.
4 Reduction test and contamination test are carried out once in five days.
5 The chemical laboratory carries out sanitary inspection.
6 The microbiology laboratory is to control all technological processes, packaging materials, the concentration of detergents and the finished products.

3.6.6 Put in the missing prepositions looking for help in the text.

1 Dairy farms deliver milk, as a rule, directly ... the plant.

2 Before being delivered ... the plant the milk is to be filtered and cooled.
3 The fat content is measured in each batch of milk, the sample being taken ... each vessel.
4 Reduction test and contamination test are carried ... once in ten days.
5 Milk from private farms is analyzed ... fat content, contamination and density are checked not less than once in ten days.
6 Special departments of technical control have been organized ... dairy plants chemical and microbiological laboratories attached ... them.

3.6.7 Match the phrases in the left column with the words in the right column

1 a bottle of	A. jam
2 a packet of	B. parsley
3 a drum of	C. toothpaste
4 a cake of	D. cleanser
5 a carton of	E. juice
6 a jar of	F. chocolates
7 a tin of	G. eggs
8 a tube of	H. honey
9 a bunch of	I. sugar
10 a box of	J. soap
11 a tub of	K. luncheon meat

3.6.8 Think and say what else can be sold in cartons, bunches, etc.

a bottle of	a drum of
a carton of	a bunch of
a packet of	a jar of
a tin of	a box of

3.6.9 Exclude from the lists below products which cannot be sold as prepared, frozen, dried, tinned

pre-prepared	frozen	dried	tinned
garlics	cherries	bananas	flour
steaks	onions	fish	pork
fish fillet	turkey	meat	peaches
potatoes	bread	ham	lettuce
tomatoes	spaghetti	plums	tuna

3.6.10 Get ready to speak about the structure of the dairy industry in our country

4 Texts for supplementary reading

Methods of vegetables classification

According to *botanical classification* plants are divided into four groups, or "subcommunities". These are as follows:

I. Thallophyta. The thallophytes.
II. Brophyta. Mosses and liverworts.
III. Pteridophyta. Ferns and their allies.
IV. Spermatophyta. The spermatophytes, or seed plants.

Classification based on hardiness. Vegetables are often classified as hardy and tender. Those classed as hardy will endure ordinary frosts without injury, while those classed as tender would be killed. Some of the hardy plants will not thrive well under hot dry conditions. Others will withstand frost and also thrive during the hot weather of summer. Some tender vegetables do not thrive in cool weather even if no frost occurs. The terms cool-season and warm-saeson crops are used to suggest conditions under which the crops thrive best, rather than thier susceptibility to frost injury.

Classification based on parts used as food. In this system of classification those crops grown for their leaves or stems are placed in one group. This group includes cabbage, kohlrabi, collards, asparagus, rhubarb, all the salad crops. A second group includes those crops grown for their fruits, as melons, tomatoes, egg-plant, beans, and peas, while a third group includes those grown for flower parts, as cauliflower and broccoli. Those crops grown for their underground portions (roots, tubers, bulbs, and corns), as potatoes, beets, carrots, parsnips, radishes, turnips, salsify, onions, garlic and dasheen, constitute a fourth group.

Classification based on methods of culture. A system of classification based on essential methods of culture is very convenient. In this system all those crops that have similar cultural requirements are grouped together. This system combines some parts of the other three methods.

According to this classification the vegetables are placed in 13 groups. The grouping is as follows:

Group 1. Perennial crops: asparagus, rhubarb, artichoke, sea kale.

Group 2. Pot-herbs or greens; Spinach, orach, kale, chard, mustard, collards, dandelion.

Group 3. Salad crops: Celery, lettuce, endive, chicory, cress, corn salad, parsley, salad chervil.

Group 4. Cole crops: Cabbage, cauliflower, broccoli, brussels sprouts, kohlrabi, Chinese cabbage.

Group 5. Root crops: Beet, carrot, parsnip, turnip, rutabage, salsify, turnip-rooted chervil, skirret, radish, hoeseradish, scorzonera, or black salsify, or Spanish salsify.

Group 6. Bulb crops: Onion, leek, garlic, shallot, cibone, chive, orchive.

Group 7. The potato.

Group 8. The sweet potato.

Group 9. Peas and beans: Pea, bean, broad bean, common, or garden bean, tepary bean, Soybean, cowpea, or Southern pea.

Group 10. Solanaceous fruits: Tomato, egg-plant, pepper husk tomato, or physalis.

Group 11. The cucurbits: cucumber, gherkin, muskmelon, watermelon, citron, melon, pumpkin, squash.

Group 12. Sweet corn, okra, mertynia.

Group 13. Chayote, yam, dasheen (taro), manioc.

Vegetables: palatability, flavour, colour.

Palatability is greatly affected by cookery processes. People select food because of its nutritive value, its palatability, that is, the texture, flavour, and colour. By texture is meant softness or tenderness, mealines, and so on.

During the cooking of all vegetables, there are changes in texture which are due to the same general causes. The protein coagulates. There is a partial gelatinization of starch, softening of cellulose and, with the solubility of the pectic substances which hold the cellulose together, a general disintegration of the plant tissue.

Only those vegetables which contain and retain enough moisture in which to cook can be cooked in hot air or hot fat. A potato baked in an oven cooks in its own water content. Cabbage and other vegetables containing a large amount of water cannot be cooked in the oven because they evaporate off their water too rapidly.

When vegetables are cooked in either steam or water, the texture is affected primarily by the length of time cooking.

Flavour is greatly affected by method of cooking. In general, fried and baked vegetables taste more like the raw products than those cooked in water, as many constituents which are leached by water or boiled out with steam are held within vegetable when it is baked or fried.

The colour of cooked vegetables is greatly affected by the mode of preparation. It is sufficient to say at this point that retention of the colour of green vegetables is favoured by cooking in as lightly alkaline medium. The discolouration of potatoes is quite different. Every housewife knows that old potatoes become dark during the cooking process. This blackening is due primarily to the hydrolysis of proteins of the potato during storage.

As the hydrolytic products are soluble in cold water, the best remedy is to soak the pared potatoes in cold water an hour or more before cooking. As this treatment greatly reduces the mineral content, it is only recommended for the old potatoes which become unsightly when cooked.

Dry or summer sausage

Materials. Summer sausage – or dry sausage, as it is more accurately designed – requires the very highest quality of meat products, and following are points with reference to meat qualities which should receive attention.

First, it is not safe to use pork or beef that has been cut more than 72 hours. The sooner you use the trimmings after cutting, the better the binding qualities. Therefore it is rather difficult to use shipped trimmings in manufacturing summer sausage.

Second, it is quite necessary to watch the proportion of fat pork to the proportion of beef, as too much fat pork will seriously affect the binding quality of the sausage.

The general gradings of the products going into summer sausage, from the standpoint of building qualities, are as follows:

Beef. 1. Mixed beef trimmings, shank meat, boneless chucks.
2. Weasand meat, hanging beef tenderloins, beef cheeks.
3. Number two beef cheeks, sheep hearts.

Pork. 1. Extra lean large pieces pork trimmings; butts.
2. Regular pork trimmings, small pieces; head meat.

The following kinds of meat are not used for the best grades of summer sausage: beef hearts, hog hearts, tripe and ox lips.

Smoking summer sausage. It starting the fire in the smoke house, use as little wood as possible, say one stick of ash cordwood, with only enough fire to keep the sawdust smoldering and not blazing. Keep adding sawdust until you have sufficient fire to scatter it over the entire bottom of the smoke house, keeping the sawdust ignited only from the coal of the wood with which you first started the fire, which generally lasts through the entire 24 or 48 hours. If your smoke houses are naturally cold, it may be necessary for you to keep more fire than has been mentioned, in order to keep the temperature up to 70ºC.

Smoking summer sausage requires the greatest possible care. If the temperature is allowed to get too high and remain any length of time, your sausage will sour. If the fire kept too low and the smoke is too dense, the sausage will have a smoky ring, the same as if it had not been dried properly before being put into smoke.

Drying Summer Sausage

After the sausage is smoked it is taken to the drying room, which should be held at a temperature of 46º to 53ºC, the proper temperature being 48ºC, if it can be obtained. The drying room must be fitted with steam coils running beneath the sausage and around the sides of the rooms, and must also be supplied with plenty of windows, for at all times the windows must be kept open a little to allow fresh air to enter, no matter how cold the temperature. If the weather is damp, the window nearest the top of the room should be opened a little. If the room is supplied with fans, they should be kept going and the windows closed, steam to be turned on to dry the atmosphere, providing the weather is not too warm and the room can be kept as low as 53ºC.

Summer sausage in hog bunds can stand more draught or air than summer sausage in beef casing; consequently, beef casing are hung nearer the center of the room, where they will get plenty of fresh air, but no draught.

By modern mechanical methods of air conditioning the sausage maker can turn out a product of good colour, relatively free from mold. Goods made under these conditions can be shipped direct from the dry room, and do not have to be washed. This apparatus is somewhat expensive, but gets the best results.

Summer sausage is usually sold in three different weights:

First. New sausage between 10 and 25 days after smoke.

Second. Medium dry, from 30 to 60 days.

Third. Dry, 90 days and over.

In case summer sausage is not sold in a reasonable length of time, it may be packed in boxes and carried in a temperature of 36º above zero. Before shipping, however, it is advisable to take it out and wipe it well before packing.

Meat canning

The object of canning meat is to preserve and protect it for future use. The principle employed is that of the destruction of all the microorganisms or bacteria and yeasts by means of heat after the product is placed in an air-tight receptacle, tin usually being employed. The sterilization process is accomplished by means of sufficient heat, by steam pressure, or two or three successive boilings in water are sometimes employed for certain classes of meat products. The latter process is not quite so sure as the former. The successive boilings are necessary, due to the fact that some organisms are spore producers, which means that they are very resistant in certain stages of their development and therefore it is necessary to heat them a second or third time so that this particular class of organisms may be killed when they are in the vegetative state.

Various machines have been developed to aid the canning process such as the stuffing machines, vacuum machine, can-washing machinery, capping machinery, soldering machinery, etc. It will not be necessary here to enter into the various details relative to the operation of these different machines, as that is supplied by the manufacturer. It should be stated, however, that the best of machinery and good quality tin should always be used, for one of the greatest sources of loss in canning departments is that produced by ”leaks”, which means that both the value of the can and the product is practically destroyed. It is dangerous practice to reprocess leaky cans, for there may be developed poisonous by-products from the result of bacterial action which may cause sickness or even death.

While the meat canning business has had its ups and downs, there will always be a consistent demand for canned meats.

Manufacture of dried beef

The curing of dried beef is somewhat more difficult than the curing of most pork products. This is due to the fact that there is a greater variation in the quality of the meat itself and the length of time of curing and other factors have to be varied accordingly.

An average pickle for curing beef hams may be up as follows: to 100 gallons of water add 245 lbs. of salt, 20 lbs. of brown sugar and 5 lbs. of saltpeter or its equivalent of nitrate of soda. The length of time to cure depends on the factors mentioned above, usually from 6 to 8 days to a pound is sufficient, depending on the temperature. Many packers use a temperature of 36ºF and find it satisfactory. Others cure at a temperature of 28º to 30ºF, regarding the cure but allowing the curing time to extent 25 per cent longer.

After curing, the beef hams should be soaked from 20 to 24 hours in fresh 60ºF water, and then washed in warm water at a temperature of 120º to 130ºF before being hung in the smokehouse. The time required for smoking is again dependent upon the weight of the hams. A good rule to follow is to smoke until the hams are dry. Sometimes four days may be sufficient again it may require seven or eight days. Ninety-six hours at a temperature of 135ºF is usually sufficient time to smoke.

Poultry. A large, dynamic industry

The United Kingdom poultry industry is a major part of the UK food industry, producing and processing 600 million broilers chickens, 30 million turkeys, 10 million ducks and a third of a million geese annually. Together with 11,000 million eggs, the annual retail turnover of the United Kingdom Poultry industry is over £2,000 million. Many of the products of the poultry industry are processed to give fast-food, prepared meals and high-value specialities.

This means new products are constantly being developed and the production industry has to adapt to the needs of the processors and the preferences of the customer. In recent years publicity about healthy eating has stressed the advantages of white meat, and the poultry industry has grown on the strength of this trend towards eating low-fat products.

Scottish Agricultural College (SAC) is a part of the poultry industry, producing a wide range of poultry products which are packaged and sold. More significantly perhaps, the College is responsible for providing an advisory service to the poultry industry throughout Scotland, and the industry frequently invests large amounts of money in research projects carried out at SAC.

The major UK poultry companies market and service their products throughout the world. Qualified and committed staff are required at all levels of the industry to follow a range of interesting and rewarding careers. Your work will not always be 9-5, nor will it always necessarily be Monday to Friday, as birds need attention at all times, but in return you will be involved in an industry that can give tremendous job-satisfaction. You may choose to work at home in the UK, but for those who would enjoy the challenge and rewards of work abroad, there are many overseas opportunities in developing and thriving poultry industries.

Many former students have taken well-paid jobs in the operation and management of production units, poultry processing plants and feed mills, in teaching, or have established careers in technical and advisory posts in

pharmaceutical, feed and equipment manufacturing companies that service the poultry industry.

The need for a safe, healthy and varied diet

Our food industry is a massive business. It is a major employer – over half a million people – and we, the consumers, spend in the region of £32 billion on food every year. Food is essential: without food we cannot live, yet as a glance at a newspaper shows, food can sometimes be harmful. On the one hand, poor hygiene can lead to food poisoning, whilst on the other a poorly balanced diet may lead to a wide range of disorders.

Food manufacture is all about making foods that people want to eat and that are safe to eat. It is about the processing of raw ingredients on a factory scale to create the wide, and changing range of food products found in the modern supermarket. There are some courses for people who want to be involved in a major employment sector and enjoy understanding and experimenting with food. Understanding food technology means putting scientific knowledge to work; it means learning manufacturing techniques such as chilling, canning, freezing and dehydration to provide high quality foods. Safety is all important, and quality assurance in food manufacture is all about continually increasing standards to provide safe, healthy foods. To achieve this involves good management at all stages of the production process, and courses in food production emphasise training in supervisory and management skills.

Calories

Just as a railway engine requires fuel to supply it with energy, so our bodies require food to keep them going. But whereas an engine, when not working, does not use up fuel, a man, even when resting, still needs energy to keep the heart, lungs, and other organs working and to maintain the body temperature.

As heat and energy are different forms of the same thing, they can be measured in the same units, namely “Calories”. The Calorie is the amount of heat necessary to raise the temperature of 1,000 grammes of water 1º Centrigrade. The energy which results from eating any food can also be measured in Calories. Foods vary greatly in the amount of energy that they produce when they are taken into the body, that is in their calorific values.

The following table shows the amount of energy which an average person needs for various activities:

Form of activity	Calories used per hour
Sleeping	65
Sitting at rest	100
Dressing and undressing	113
Dish washing	144
Light exercise	170
Walking slowly	200

Active exercise……290
Fast walking……300
Swimming……...500

Except for water, almost everything the diet has calories in it. For example, 1 ounce (28.3 g) of butter provides 215 calories, 1 ounce of chocolate provides 150 calories, 1 ounce of sugar contain 110 calories, an ounce of cheese – 100, of potatoes – 20, apples – 12 and tomatoes – 4.

There is one important thing to remember about calories. If you are eating a well-mixed diet – which includes plenty of milk, eggs, meat, fish, fruit, vegetables, bread, butter and cheese – you will be getting all the calories you need for good health.

Yeasts

Yeasts, unlike molds, will grow only on foods containing sugars. The reaction called fermentetion changes the sugar to alcohol and carbon dioxide with minute quantities of other products. Although yeasts will grow only in the presence of sugar, they may be found widely distributed.

The mixture of various kinds of yeasts present everywhere in the air is called wild yeast. Yeasts multiply either by spores or by cell division. Among the essentials for the growth of yeasts are sugar, oxygen, water and certain inorganic salts such as those of calcium, nitrogen, and sulphur. They are easily destroyed by high temperatures (100 °C). The alcohol which they produce in their life processes slows down and, finally, completely checks further growth. For this reason beverages of high alcoholic content can be obtained only by distillation.

In strong sugar solution yeasts multiply slowly.

All fruit juices are subject to fermentation, unless the yeasts which they naturally contain are destroyed, which may easily be done by bringing the juices to boiling temperatures and sealing in clean containers while hot. Apple juice which ordinarily becomes "hard" in a few days may be kept for months or years this method.

Bacteria

Although there are many properties which are characteristic of all bacteria, the differences in the behaviour of the different kinds of bacteria are greater than those of the different kinds of yeasts and molds.

Bacteria are widely distributed. Like yeasts and molds, they may be found anywhere — in the air, water, soil, and in all foods. In a less acid medium they multiply most rapidly, and, therefore, it is the less acid foods which are most subject to bacterial decomposition. The products of decomposition vary with the kind of food and the kind of bacteria. While in most cases we wish to decrease the bacteria content, certain foods are made desirable by products of bacteria growth. Sauerkraut owes its flavour and physiological effects to the lactic acid which is produced by the microorganisms in the course of its preparation. The flavours of

cheeses, butter, and butter substitutes are also products of bacterial activity. On the other hand, the spoilage of canned foods (консервированные продукты), meats, milks and vegetables is also due to the products of bacterial growth.

Bacteria require moisture for growth. Exposure to sunlight for sufficient length of time destroys bacteria but not their spores. The temperature for optimum growth will vary (20 to 55 °C) with the kind of bacteria. Bacteria are more difficult to destroy than the other microorganisms.

The methods of food preservation may give temporary preservation by checking the growth of microorganisms or permanent preservation by destroying them.

Refrigeration or cold storage is the most common method of temporarily preserving food. Indeed, it is one of the most satisfactory of all methods of food preservation, as it does not markedly alter either the taste, appearance, or nutritive value of the food. Refrigeration is practised in the home and commercially. It is most successful with the foods which are least subject to bacterial decomposition, but other foods may be preserved a long time if freezing temperatures are used. Fish and animal products can be kept only by refrigeration at very low temperature. Considerable success is now being experienced in the preserving of fish and meat and of many fruits and vegetables by freezing. New methods of freezing and better storage facilities for frozen products have improved the flavour and texture of the food so treated.

The electric refrigerators are somewhat colder and contain drier air and are, therefore, more successful for the preservation of foods which are subject to bacterial growth.

Drying

Drying has been a means of food preservation for centuries and is still used for many foods. It promotes preservation by removing the water essential for the growth of all microorganisms. We find in the market dried fruits, milks, meats, and vegetables, but the varieties of each are few.

The method of drying varies greatly with the food. Foods containing sugar require less drying than others. Within the last few years, intensive efforts have been made to produce dried products which are not only clean but also will resemble fresh foods in appearance and nutritive value.

Dried foods occupy less storage space and may be stored without consideration of temperature. Most dried foods require soaking before cooking in order to restore the water lost by drying. The dried foods most commonly used are prunes, raisins, currants, apples, apricots, peaches, figs, dates, beans, fish, beef, and mushrooms.

Chemical preservation

Many foods are preserved by the use of added substances, which destroy or check the growth of microorganisms. Although many chemicals are known which

could be used to help in the preservation of foods, few are allowed by government authorities.

Among the legal chemicals are benzoic acid and sodium benzoate. Sulphur dioxide (SO_a) and sodium bisulphate ($NaHS0_3$) are used in dried fruits such as apples, because the darkening of the fruit is lessened by their presence. These sulphur compounds have also a preserving action.

Smoke contains phenols which help in the preservation of smoked products. The preserving action of cloves and cinnamon depends upon their eugenol or cinnamic aldehyde content.

Potassium nitrite and potassium nitrate, used in the curing ("corning") of pork and beef, improve the taste and redden the colour. They have no preservative effect.

Salted products are usually partly dried as well as salted. Common examples are found in chipped beef and salt codfish. Less drying is necessary when salt is used, as the concentrated salt solution preserves by osmosis.

Canning

Canning is the most common form of food preservation. Preservation is insured by the use of sufficient heat to destroy all microorganisms which might develop in the canned product during storage. The temperature in the canning of food depends upon several factors, the hydrogen-ion concentration of the food, the number of microorganisms present in the uncooked food and the rate at which heat can penetrate the food to be canned.

It has already been stated that bacteria and their spores become less resistant to heat as the hydrogen-ion concentration of the media increases. Consequently, foods of high hydrogen-ion concentration may be preserved either by a low temperature for a long time or by a short heating period at a high temperature. In canning, boiling temperature 100 °C is considered low, 115 to 119°C high.

It may be noted that foods of high acid concentration require either less time, or lower temperature, or both, than the less acid foods.

The time allowed for processing is governed not only by the hydrogen-ion concentration but also by the rate at which the heat penetrates into the food. It is well known that metals are better heat conductors than asbestos.

Experiments have shown that the rate of heat penetration is governed by a number of factors, some of which are more predictable than others. It goes without saying that the food in the centre of a glass jar will take longer to reach sterilization temperature than that in a tin, can, that large-size containers require a longer time than small, that food which is processed at 115 °C reaches 100 °C sooner than that processed at 100 °C, and that a jar of cold food requires a longer period than one of preheated food.

Formerly it was thought that this treatment "set the colour and flavour" of the food, but now it is known that blanching has no such exalted position in the 'canning ritual but serves merely to reduce the bulk (spinach), or to help remove the skins (tomatoes, peaches, beets), or to set vegetable protein solution (corn).

The cook-in-the-kettle method consists in cooking the food in an open kettle until all has reached sterilization point, or longer if desired. The food is then packed and sealed in clean sterile jars. From a bacteriological point of view it is obvious that this method of canning is applicable only to foods which provide a poor medium for the growth of microorganisms, such as acid fruits or fruits in sugar syrup. It has certain advantages over the other method in that it requires less apparatus and usually less time.

The cook-in-the-can method describes Itself. Food to be canned is washed, blanched if necessary, cut into suitable pieces, and placed in either tin cans or glass jars. Hot water, usually containing either salt or sugar, or both, is added to fill completely the can or jar, which is placed in a suitable cooker to destroy the microorganisms present. Tin-canned food is sealed before processing. All food which is commercially canned in tin cans is heated previous to sealing.

Storage of Canned Food

While every effort is made to destroy the microorganisms of the food during the processing, it should be remembered that if any spores resist the temperature of the cooker, then development will be hindered by storing the canned food at low temperatures. Low temperatures are also unfavourable to the reactions which take place between the food and the tin or iron. It has been shown that the natural colour of fruits is preserved much better by storing fruits in a warehouse at 0 °C, than at higher temperatures, no discolouration being observable after two and a half years of storage. It is recommended, therefore, that canned food which is not to be used within a very short time should be stored at a temperatures as near 0 °C as possible.

Canned food is graded. Many labels on canned foods do show a grade for the product. Definitions of these grades are given as follows: the fancy grades (высший сорт (экстра)) use uniformly perfect fruit in the best state of ripeness and of the largest size. The fruit is packed in a thick syrup. Cans of choice grade (лучший сорт (отборный)) fruit contain nearly perfect fruit of average size in a medium syrup. Standard grade uses smaller, less uniform fruit in a thinner syrup.

In addition to these, there are two lower grades which are used largely for cooking.

Butter

Butter has been used for various purposes since 2000 B.C. or before. Its use as a food is modern. In the early centuries butter was offered as a sacrifice in worship or used for medical purposes in skin diseases. During the seventeenth century it could be purchased in shops but was sold "for external use only". Later it was used as flavouring for foods.

Uses of butter in cookery. The use of butter in cookery has decreased considerably in the last 15 years. Its advantages and disadvantages are more accurately weighted. It is the most expensive fat, being two and three times more

expensive than others. Sufficient quantities of fats are used in the average home to make it worthwhile to substitute for butter wherever it is wise. Butter still holds place of honour where the flavour of the fat is of importance to the flavour of the food. More of butter than of any other fat must be used in cookery, as its fat content seldom exceeds 85 per cent. Many cooks, who use a less expensive fat than butter in their cakes, grease the cake tin with butter fat. The fat of the cake itself is so intimately mixed with the starch and other constituents that its flavour is masked, but the absorbed film of butter fat on the outside makes the first bite of cake more pleasing if butter is used on the pan. On the other hand, the presence of other constituents besides the fat makes butter a poor fat with which to grease pan. The protein present coagulates and sticks to the pan while the water occupies space where fat should be. If butter is to be used for greasing a pan, either the butter fat only or a thick coating of whole butter should be used.

Shortening power of fats

It has already been shown that fats differ considerably in keeping qualities and in their value in frying. Similarly, we find variations in shortening power of fats. Many experiments have been done to test this variations. Strange as it may seem, the scientists, basing his results on accurate impersonal tests, agrees very closely with the bakers who draw their conclusions from years of practical experience.

To vizualize how a fat acts in a baked product helps us to understand its shortening power. When flour is mixed with milk or water, the starch is held in a meshwork of developed gluten. This mass is elastic, and when baked is a tough product to break. When fat is added to the ingredients, the results are different as the fat prevents the gluten from forming a mesh-work structure. The fat is nor soluble in any of the ingredients. When cold it is absorbed by the gluten as a film and separates the particles it surrounds. During the baking the starch similarly absorbs the fat. A good deal of the water passes off, but the fat remains surrounding or partly absorbed by, the particles of gluten and the starch granules. The tenderest product is one in which the fat has surrounded the largest surface of gluten and starch. Since fats differ in their susceptibility to absorption, it is obvious that the same amount of different fats will shorten more or less well.

Manufacture of margarin

Oleomargarin is made from animal and vegetable fats, churned with milk. The principal oils used are oleo oil, neutral lard, peanut oil, cottonseed oil, and coconut oil.

One of the most important steps in the manufacture of mar-garin is the churning, the temperature of the mixture in the churn depending upon the formula used. In general, such a temperature should be used as will create a perfect emulsion of the milk and oils; 80° to 85 °C is often employed for white goods or even a somewhat colder temperature, while for natural colour goods a little higher temperature is usually employed, so as not to destroy the colour.

Two general methods of crystallizing the emulsion are used, one the vat method and second the sluice method. The advantage of the second is that the crystallized margarm gravitates directly into trucks, whereas in the vat method it must be removed by manual or mechanical labour.

Ripening

After crystallizing, some manufacturers have allowed the margann to ripen further, in order to develop flavour, the time required for this being about twelve hours at a temperature of 70 °C. This, however, depends upon the grade of goods. Other manufactures immediately put their goods onto the workers, salt them, and print and package them, allowing the flavour to develop during transit.

In general, it may be said that the fresher the goods gets to the buying public the better. The working of the goods has an important bearing on the consistency and body of the same European methods having been developed much further along this line that the average American methods. The latter are being rapidly improved, however.

A good oleomargarin should contain about 2½ per cent of salt, 13½ per cent of moisture and ½ of 1 percent of casein, and it should also have a smooth, uniform velvety body, with no trace of visible moisture. The flavour of the product is the most important thing to consider, a clean, acid buttermilk flavour being most desirable.

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