

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ
ФГАОУ ВО «Крымский федеральный университет
имени В. И. Вернадского»
Институт иностранной филологии
(структурное подразделение)

Л. В. ЯГЕНИЧ, Е. М. САХНО, Л. В. КОЧЕРГИНА

***ИНОСТРАННЫЙ ЯЗЫК
ДЛЯ ПРОФЕССИОНАЛЬНЫХ ЦЕЛЕЙ ПРОВИЗОРА***

УЧЕБНО-МЕТОДИЧЕСКОЕ ПОСОБИЕ

для обучающихся по направлению подготовки
33.05.01 Фармация

Симферополь
2020

Рекомендовано к изданию учебно-методическим советом Института иностранной филологии (структурное подразделение) от «___» _____ 2020 г., протокол № _____.

Рецензенты:

Хлыбова Н.А., к. филол. наук, доцент (ФГАОУ ВО «Крымский федеральный университет имени В. И. Вернадского»)

Георгиади А. А., к. пед. наук, старший преподаватель (ГБОУВО РК «КИПУ имени Февзи Якубова»)

Ягенич Л. В., Сахно Е. М., Кочергина Л. В. Иностранный язык для профессиональных целей провизора. Учебно-методическое пособие. – Симферополь, 2020. – 92 с.

Учебно-методическое пособие разработано для обучающихся направления подготовки 33.05.01 Фармация.

Предназначено для обучающихся медицинских направленностей, а также для всех, кто стремится совершенствовать свои умения и навыки в области иностранного языка в сфере медицины.

Содержание

№	Содержание	Стр
1.	Урок 1. «Фармакология в нашей жизни». Вводное занятие.	6
2.	Урок 2. «Фармакологическая индустрия» Грамматика: Настоящие и прошедшие времена активного залога	10
3.	Урок 3. «Производство и упаковка лекарственных средств». Грамматика: Выражение будущего времени в активном залоге	15
4.	Урок 4. «Химия как наука. Разделы химии». Грамматика: Настоящие времена пассивного залога	20
5.	Урок 5. «Химия в нутрициологии и косметологии. Химические элементы». Грамматика: Прошедшие времена пассивного залога	25
6.	Урок 6. «Периодическая система Менделеева». Грамматика: Выражение будущего времени в пассивном залоге. Подмодуль I	30
7.	Урок 7. «Оборудование и реактивы химической лаборатории». Грамматика: Модальные глаголы в 1-м значении	35
8.	Урок 8. «Правила безопасности в химической лаборатории». Грамматика: Косвенная речь	40
9.	Урок 9. «Химические методы исследования». Грамматика: Согласование времён. Подмодуль II	45
10.	Урок 10. «Заболевания сердечно-сосудистой системы и их лечение». Грамматика: Эквиваленты модальных глаголов для выражения прошлого и будущего	50
11.	Урок 11. «Заболевания дыхательной системы и их лечение». Грамматика: Модальные глаголы во 2-м значении	55
12.	Урок 12. «Заболевания нервной системы и их лечение». Грамматика: Условные предложения 1 типа	60
13.	Урок 13. «Заболевания пищеварительной системы. Гастрит». Грамматика: Условные предложения 2 и 3 типа	65
14.	Урок 14. «Заболевания эндокринной системы. Диабет». Грамматика: Конструкции с инфинитивом	70
15.	Урок 15. «Заболевания покровной системы. Дерматит». Грамматика: Причастие и причастные обороты	75
16.	Урок 16. «Здоровье и медицина». Грамматика: Модели управления глаголов (инфинитив/герундий). Подмодуль III	80
17.	Вопросы к зачету.	83
	Словарь	85
	Таблица времен	88
	Таблица неправильных глаголов	90
	Список использованной литературы	92

ВВЕДЕНИЕ

В современных условиях повышается роль англоязычной подготовки специалиста в связи с непрерывным развитием медицинской науки, расширением информационного пространства и роли английского языка в мире. Иностранный язык является важным компонентом подготовки будущего врача на додипломном этапе. Совершенствование учебного процесса требует перехода от информационно-сообщающих к активным формам обучения. Необходимость формирования у будущих врачей иноязычной коммуникативной компетенции в профессиональной сфере способствует интенсификации учебного процесса.

Основной целью курса «Иностранный язык для профессиональных целей провизора» является формирование компетенций, обозначенных во ФГОС 3+ для обучающихся медицинских вузов. Владение будущими педиатрами английским языком необходимо для успешной профессиональной межкультурной коммуникации; это предполагает овладение устными и письменными формами общения на иностранном языке. Изучение иностранного языка призвано также обеспечить:

- повышение уровня учебной автономии, способности к самообразованию;
- развитие когнитивных и исследовательских умений;
- развитие информационной культуры;
- расширение кругозора и повышение общей культуры обучающихся;
- воспитание толерантности и уважения к духовным ценностям разных стран и народов.

Именно для достижения данных целей и был создан «Иностранный язык для профессиональных целей провизор», курс английского языка для обучающихся второго курса по направлению подготовки *33.05.01 Фармация*. Он обеспечивает формирование навыков и развитие коммуникативных умений в говорении, чтении, письме и аудировании, необходимых для успешного общения на английском языке как в устной, так и в письменной формах.

Курс состоит из 16 уроков (Units). Каждый урок обеспечивает усвоение базового языкового материала по предложенным темам, необходимым для обучающихся медицинских факультетов в вузах Российской Федерации. В соответствии с рабочей программой, каждый урок (Unit) рассчитан на 2 часа практических занятий, в целом обеспечивая необходимый материал для 34 часов аудиторной работы. Пособие имеет следующую структуру уроков, которые включают такие разделы:

Lead-In (Введение). Введение в тему, где преподаватель путем выполнения несложных упражнений, наглядности и в ходе вопросно-ответной беседы выясняет, что обучающиеся уже знают по данной проблеме, таким образом активизируя словарный запас обучающихся и одновременно представляя им новую тему.

Reading (Чтение). Этот раздел включает учебный текст, содержащий новый лексико-грамматический материал по теме урока. Предложенные тексты взяты из аутентичных источников.

Top Margin (Верхнее поле страницы) содержит цитаты. Это дополнительный материал, который внесет разнообразие в урок и будет интересен продвинутым обучающимся, которые усваивают материал быстрее остальных.

Vocabulary Practice (Активизация лексики). Этот раздел содержит упражнения, направленные на работу с новыми словами и словосочетаниями, введенными в текст. Обучающиеся активизируют лексику, подбирая синонимы и антонимы, однокоренные слова, используя слова в контексте и т.д.

Language Development (Развитие навыков владения языком). Данный раздел развивает навыки владения языком, консолидируя практическое занятие и самооценку студента. Упражнения разработаны таким образом, что при их выполнении студент должен использовать активную лексику урока, грамматические конструкции в своей устной и письменной речи.

Grammar Point (грамматический момент). Раздел презентует интернет-ссылки на грамматический материал, с целью его закрепления в разнообразных грамматических упражнениях и тестах.

Checklist (Проверьте себя). Раздел позволяет обучающимся проверить, насколько успешно они усвоили изученный материал.

Key Words (Ключевые слова). Раздел содержит активные для данного урока лексические единицы, обязательный для запоминания и употребления вокабуляр по изучаемой теме. Каждый обучающийся может дополнить перечень новых слов другими лексическими единицами, которые он считает полезными и необходимыми именно для него (в конце каждого урока отведено специальное место для заметок).

Пособие также снабжено словарем, включающим как активную лексику уроков, так и дополнительные слова и словосочетания, встречающиеся в пособии, таблицу неправильных глаголов (в алфавитном порядке), таблицу времен, представляющую английские глагольные формы в активном и пассивном залоге.

В пособии также представлены вопросы к зачету по завершении курса. Литература включает список использованной литературы и другие источники, которые могут быть рекомендованы обучающимся для углубления знаний по английскому языку.

UNIT I. PHARMACOLOGY IN OUR LIFE

In this unit

- talking about my future profession, about significance of pharmacology in our life
- *grammar test*



1. Ответьте на вопросы:

- What faculty do you study at?
- What is your future profession?
- Is it difficult to study at the pharmaceutical faculty?
- What subjects, in your opinion, are the most important for a pharmacist?
- Chemistry is considered to be the most significant subject for a future pharmacist. Do you agree with the opinion? Why?
- Have you chosen the sphere of your future activity? Would you like to work for a big pharmaceutical company, or would you prefer to work at a chemist's?
- What particular skills do you think a pharmacist is required? Make a list.
- Can you say that a job of a pharmacist is rewarding? stressful and demanding? profitable? Prove your opinion.
- In case you choose a pharmaceutical company, what department would you prefer to work

at? Is it research and development department? production or marketing department?

2. Проведите опрос одноклассников и нарисуйте диаграмму по результатам опроса.

Number of students/%	Why did you choose a pharmaceutical faculty?
%	of students chose the speciality because their relatives have drugstores
%	of students entered the faculty accidentally
%	of students like the speciality
%	of students think of starting their own drugstore
%	of students chose the speciality because it is easy to find employment

Number of students/%	Where are you going to work after graduating from the academy?
%	in the wholesale company
%	in the own drugstore
%	in the representative offices
%	In the pharmaceutical production
%	in the drugstores
%	other positions



Benjamin Franklin was a pharmacist, while Agatha Christie was a pharmacy technician.

As a pharmacologist, a toxicologist, or a pharmacist, you'll have a starring role in the medicines and treatments that keep us healthy.

Reading

Pharmacy and Pharmacists

Pharmacy is the science about drugs and medicine. Pharmacists - people who prepare the medicines under the recipe of the doctor and sell to sick people. Traditionally, pharmacists have compounded and **dispensed** medications on the orders of physicians.

But today **pharmacists** are drug therapy experts, and the primary health professionals who optimize medication management to produce positive **health outcomes**.

Pharmacognosy is a science which embraces the history, source, cultivation, collection, preparation, distribution, identification, composition, **purity** and preservation of drugs of vegetable and animal origin.

A **Pharmacopoeia** is a book containing a list of medicinal substances with description, tests and formulas for preparing the same. The pharmacopoeial names of chemical substances do not always represent their chemical composition.

Pharmacology is the study of drugs and the body's reaction to drugs. Toxicology is the study of the potential risks to the body. The field of Pharmacy can generally be divided into three main disciplines: Pharmaceutics, Pharmaceutical chemistry (often Medicinal chemistry), Pharmacy practice. Pharmacology is sometimes considered to be the fourth discipline of pharmacy. As a pharmacologist, a toxicologist, or a pharmacist, you'll have a starring role in the medicines and treatments that keep us healthy.

International Pharmaceutical Federation (FIP)

Pharmacists are represented internationally by the **International Pharmaceutical Federation (FIP)**. The International Pharmaceutical Federation (FIP) was established in 1912. FIP is a world-wide federation of national pharmaceutical (professional and scientific) associations with a **mission** to represent and serve pharmacy and pharmaceutical sciences around the globe.

FIP connects, represents and serves more a million pharmacists and pharmaceutical scientists around the world.

Online pharmacy

Online pharmacy is one of the hottest business on the internet today. Recently, a number of pharmacies have begun operating over the internet. Many such pharmacies are, in some ways, similar to community pharmacies. Some customers consider this to be more convenient than traveling to a community drugstore. Some internet pharmacies sell prescription drugs without requiring a prescription. Some customers order drugs from such pharmacies to avoid the "inconvenience" of visiting a doctor or to obtain medications which their doctors were unwilling to prescribe. However, this practice has been criticized as potentially dangerous, especially by those who feel that only doctors can reliably assess contraindications, **risk/benefit** ratios, and an individual's **overall suitability** for use of a medication. There have also been reports of such pharmacies dispensing **substandard** products.

Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Соотнесите следующие определения со словами в тексте, выделенными жирным курсивом:

1. pharmacy	a. a special book with some special information for pharmacists
2. pharmacists	b. one of the three main disciplines of pharmacy
3. pharmacology	c. a field of science related to medicine
4. pharmacopoeia	d. drug therapy experts
5. pharmacognozy	e. studies drugs and the body's reaction to drugs
6. pharmacy practice	f. a science which embraces the history, source, cultivation, collection, preparation, distribution, identification, composition, purity and preservation of drugs of vegetable and animal origin

3. Закончить следующие предложения, используя слова из таблицы:

contraindications	substandard
purity	chemical formulas
dispensed	health outcomes
distribution	prescription

1. Medicine provided by a chemist or pharmacist without a _____ is called an over-the-counter drug.

2. _____ and equations are written in terms of atoms and molecules.

3. Drugs are _____ and stored in an area known as a pharmacy.

4. _____ medicines may cause negative health outcomes.

5. The final stage of producing penicillin is labelling and packing ampoules for _____.

6. Factors in the patient's condition which prevent the use of a particular drug or treatment is called _____.

7. Testing of the drugs requires documentation proving of characteristics, i.e., chemical composition, quality, _____ and potency of the drug.

8. Effective prevention improves _____ and reduces health system costs.

4. Закончите предложения, используя информацию из текста:

Example:

To become a pharmacist..... -

To become a pharmacist one should achieve knowledge of different subjects.

1. To compound medicine ...

2. To speak of preparation, distribution, identification, preservation of drugs of vegetable and animal origin ...

3. To dispense medicines ...

4. To describe drugs ...

5. To produce positive health outcomes ...

Language Development

1. Прочитайте текст еще раз и будьте готовы ответить на вопросы.

1. Give the definition of pharmacy, pharmacognozy and pharmacology.

2. What is it necessary to become a pharmacist? What are the duties of a pharmacist?

3. What are the main disciplines of a pharmacy?

4. What is a pharmacopoeia?

5. What is the International Pharmaceutical Federation (IPF)? What is its mission?

6. Is our country a member of FIP?

7. Are you for or against online pharmacy? Give your arguments.

2. Проект.

Speak on the role of pharmacology in our life. Give examples from your own life to prove the significance of pharmacology for people.

Grammar Point

1. Тестирование с целью проверки уровня знаний английского языка.

https://www.englishdom.com/test-your-english-level/?utm_source=google&utm_medium=pc&utm_campaign=all_gdn_objch_interesty_pc&gclid=EAlaIQobChMlrZGi0eiw6glVBZebCh3JNwppEAEYASAAEgJtfD_BwE#

Key Words

chemical composition
dispense / di'spens / v
health outcomes- результаты лечения
International Pharmaceutical Federation (FIP)
Medicinal chemistry
mission / 'mɪʃ(ə)n / n
online pharmacy
overall suitability
pharmaceutics / ,fɑ:mə's(j)u:ɪtɪks / n
pharmacy practice
pharmacognozy / ,fɑ:mə'kɒɡnəsi / n
pharmacopoeia / ,fɑ:məkə'pi:ə / n
pharmacopoeial / ,fɑ:məkə'pi:əl / adj
purity / `pʊrɪti / n
risk/benefit ratio
substandard / sʌb'stændəd / adj -
некачественное
(лекарственное средство)

Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT II. PHARMACEUTICAL INDUSTRY

In this unit

- talking about job profiles, professions and departments of a pharmaceutical company
- discussing cultural differences of marketing drugs and medicines
- *Present and Past Active Tenses*

Lead-in

1. Работа по картинке. Соотнесите высказывания людей на картинке с названием отдела, в котором каждый из них работает

2. Ответьте на вопросы:

In the picture you see a team of professionals working for a pharmaceutical company. What department does each member of the team work at?

What does each department deal with?
Would you like to work in such company?
In what department?

3. Прочитайте текст о фармакологической компании и будьте готовы рассказать о направлениях работы компании, о команде сотрудников, работающих в компании, и о должностных обязанностях, выполняемых ими.

1 We compound the raw materials into drugs, package them, and put in the leaflets for the patients. We also keep careful records of all the steps in this process.

2 We find new substances to make new drug formulations or change existing dosage forms, for example, from tablets to capsules.

3 We compile the drug documentation and send it to the regulatory drug authorities so we can get authorization to market the product.

4 We plan the promotion and distribution of drugs which will be launched, and make decisions about the packaging or tablet colour of new products.

5 We test or organize testing on live subjects, and make sure that our drugs are safe and effective for the patients.

6 We ensure that products meet the standards which the law requires, and contain the active ingredients advertised.

☐ Clinical Affairs

☐ Marketing and Sales

☐ Production

☐ R & D (Research and Development)

☐ Regulatory Affairs

☐ QA (Quality Assurance)

The global pharmaceuticals market is worth \$300 billion.

If pharmaceutical companies do not exist, there will be no drugs or medications to cure or prevent illnesses.

Reading

A Pharmaceutical Company

The pharmaceutical industry holds a vital role in the global healthcare sector. This is the industry that discovers, manufactures, and markets pharmaceutical products and medical devices for clinical and for consumer use. If pharmaceutical companies do not exist, there will be no drugs or medications to use to treat disorders or to cure or prevent illnesses. Living a healthy life will be impossible if the pharmaceutical industry is non-existent today.

The recent global pandemics are proof of how vital pharmaceutical companies are to the world. We rely on science to come up with solutions to problems through research and testing. A pharmaceutical company may have a number of departments such as Clinical Affairs, Production, Marketing and Sales, Research and Development (R&D), Regulatory Affairs, Quality Assurance (QA). Below you will read the job profiles of members of such company.

A.



I collect drug safety information about patients **on our medications**. I must report any **serious adverse events** to the health authorities.

C. I operate complex scientific instruments and perform tests to determine whether **ingredients** in liquids, powders or tablets meet requirements.



E. I co ordinate and manage the cross-functional teams that develop and launch a drug. It's not easy to get people to meet deadlines.



G. My job is to make sure that suitable clean containers are used to get product from the company to the patient.

In general, I check for compliance with **health regulations**.

B. When a company starts to test drugs on live **subjects**, I work closely with the doctors to make sure that the studies are done correctly.



D. It's my job to research, write, and edit clinical and study reports before we submit them to regulatory authorities. I summarize and interpret clinical data.

F. According to European law, I am personally responsible for the quality of each product that leaves the production line. I must manage all the processes in production, QA, and the labs to make sure **Standard Operating Procedures (SOPs)** are followed.



H. In my work, I develop pharmaceutical dosage forms. At the moment, I am changing a tablet formulation into **ointment** and gel forms.

Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Соотнесите следующие определения со словами в тексте, выделенными жирным курсивом:

1. _____	a. taking our medicine
2. _____	b. a substance in a drug
3. _____	c. a description of a working method or process
4. _____	d. a human or animal whom drugs are tested on
5. _____	e. any health problem which starts while on a new medicine
6. _____	f. rules or laws about health
7. _____	g. an oily substance like a cream

3. Соотнесите должностные обязанности работников А-Н в тексте с названиями профессий в таблице:

1.	clinical research associate
2.	formulation scientist
3.	laboratory technician
4.	medical writer
5.	packaging technician
6.	pharmacovigilance manager
7.	project manager
8.	qualified person

4. Подчеркните правильный глагол в следующих предложениях:

- Companies must **conduct/report** serious adverse events to the health authorities.
- New drugs are **tested / determined** on live subjects.

- Laboratory technicians **operate / perform** complex scientific instruments and **determine / perform** whether liquids, powders or tablets meet requirements.
- Clinical research associates **report / perform** clinical trials. They must also summarize, **interpret / regulate** and process clinical data.
- Regulatory Affairs **reports / submits** documents to regulatory authorities.
- Formulation scientists **develop / summarize** pharmaceutical dosage forms.

5. В каждом разделе есть термин, который не соответствует заголовку раздела. Найдите это слово.

non-production pharmaceutical professions	clinical research associate, formulation scientist, line worker, pharmacovigilance manager, laboratory technician
dosage forms	capsules, ointment, gel, prescription drug, sugar-coated tablets
What goes into drugs?	chemicals, formulation, ingredient, raw materials, substances
pharmaceutical documentation	clinical reports, dossiers, marketing claims, study reports, protocols

6. Подберите синонимы к данным словам:

1. pharmacovigilance	a. a human being
2. adverse events	b. control, supervision
3. formulation	c. component, constituent
4. live subject	d. composition
5. ingredient	e. side effects

NB! Mind the difference!

Side effect - any unintended reaction caused by a drug or medical treatment. This term is used by the general public, but is often avoided by medical authorities.

Adverse event - an unwanted medical occurrence which a patient experiences during treatment. This may or may not be a side effect of a drug.

Serious adverse event (SAE) - an adverse event that threatens life, requires or prolongs hospitalization, or results in death.

Language Development

1. Прочитайте следующую статью из газеты и будьте готовы ответить на вопросы.

Cross-cultural differences in marketing drugs internationally

Some companies are successful at marketing their drugs all over the world without making any major changes to them. Others have different formulations, advertising, and packaging in each country due to differences in customs and laws. See what various experts think about this topic.



Marie Simone, European marketing consultant:

In France, medicines should not only cure a disease but also look fresh and interesting. For example, pink eye drops have been popular here, which would be unthinkable in our

subsidiary in Germany. There people expect medicine to look more 'clinical'.

Sabine Schmitz, Regulatory Affairs, Germany:

The strength of medicine varies considerably depending on what health authorities allow. Here, health authorities prefer companies to sell drugs with only one active ingredient, rather than in combinations. They also prefer lower drug dosages as compared to those set by authorities in other places.

Brad Townsend, consumer specialist, Canada:

Some people prefer to take several small tablets per day, whereas others prefer to swallow only one big one. In some countries they would take one look at such a large tablet and say, 'I'd give it to a horse, but there's no way that is going down my throat!'



Swetlana Sheremetieva, Russian pharmacist:

In Russia, we prefer to buy over-the-counter products, like cold remedies or cough syrup, from people in pharmacies wearing white lab coats. So, when foreign companies try to introduce drugs here, we ask them for good in-pharmacy training programmes because our staff will have to answer many questions before people are willing to buy such cures.

Miko Tanaka,

QA specialist, Japan:

Quality is important all over the world, but in Japan we take it one step further. We will reject a whole shipment of drugs if we find the smallest scratch or imperfection in one single package even if it makes no difference to the product at all.



Harry Hart, advertising agent, USA:

US patients tend to self-medicate and buy drugs online. Unlike in many countries, you'll also find many cheerful, bright coloured ads in magazines, which promote anti-depressants and other prescription drugs in the US. Of course, the next page is always full of all the warnings, possible side effects and things to ask your doctor about.

2. Ответьте на вопросы:

- Can you name any medicines that are marketed differently in different countries?
- Should companies try to keep their medicines as similar as possible wherever they are sold?
- Are there any cultural preferences in the way medicines are marketed throughout the world? Do you think any of these differences are important?

3. Просмотрите текст о фармакологической компании еще раз и ответьте на вопросы.

1. Why is the pharmaceutical industry so important in our life?

2. What do pharmaceutical companies deal with?

3. What departments do pharmaceutical companies usually have?

4. What specialists work in a pharmaceutical company and what are their job profiles?

5. What kind of job would you like to fulfil if you work in a pharmaceutical company?

Grammar Point

Времена Present and Past Active

1. Повторите грамматический материал по теме занятия:

https://www.englisch-hilfen.de/en/grammar/english_tenses.htm

2. Выполните грамматические упражнения по следующим ссылкам:

https://www.englisch-hilfen.de/en/exercises/tenses/time_phrases.htm

https://www.englisch-hilfen.de/en/exercises/tenses/find_tenses3.htm

https://www.englisch-hilfen.de/en/complex_tests/simple_present_progressive1/index.php

4. Проект.

You are the leader of a big pharmaceutical company. Describe it: what departments it has; what specialists you would like to see in the company, what is the job profile of each specialist.

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I can describe job profiles, professions and departments of a pharmaceutical company
- I know the differences of marketing drugs and medicines
- I can use *Present and Past Active Tenses*

Key Words

adverse event – побочное явление

Clinical Affairs- клинический отдел

formulation – состав, подбор состава,

технология изготовления лекарственного препарата

health regulations – правила охраны труда и здоровья

job profile – должностные обязанности, профиль работы

Marketing and Sales department – коммерческий отдел

pharmaceutical industry – фармацевтическая отрасль

pharmacovigilance – фармакологический надзор

Quality Assurance (QA) - контроль качества

Regulatory Affairs - отдел нормативно-правового регулирования

Research and Development (R&D) – научно-исследовательский отдел

Standard Operating Procedures – технологическая инструкция

Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT III. PRODUCTION AND PACKAGING DRUGS

In this unit

- describing the production processes of pharmaceuticals and safety requirements to their quality
- analyzing packaging challenges of drugs
- *Future Active Tenses*

Lead-in

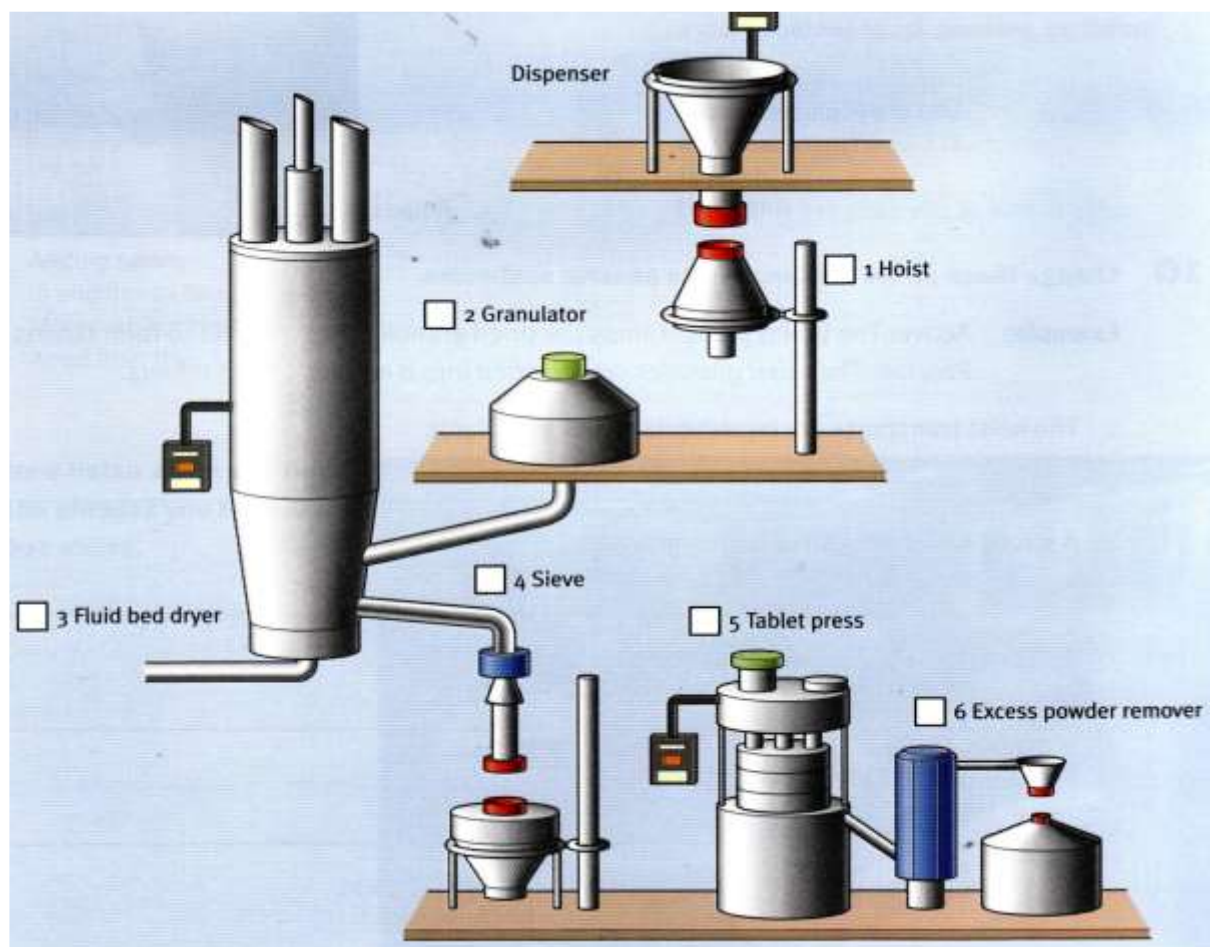
1. Интересные факты.

- About 5,000–10,000 chemical compounds must undergo laboratory screening for each new drug approved for use in humans.
- Of the 5,000–10,000 compounds that are screened, approximately 250 will enter preclinical testing, and 5 will enter clinical testing.
- The overall process from discovery to marketing of a drug can take 10 to 15 years.



2. Прочитайте текст о производстве лекарств и определите основные стадии создания лекарственных препаратов.

3. Посмотрите на схему производства лекарств и будьте готовы выполнить упр. 4 (VPractice).



The Greek word '**pharmaco**' (medicine) and the Latin term '**vigilantia**' (watchfulness) were put together to form the word **pharmacovigilance**. Government agencies, pharmaceutical companies and healthcare

professionals work together to monitor and evaluate suspected side effects of medicines to improve the safety of drugs in use.

Reading

Production and Packaging Drugs

The pharmaceutical industry discovers, develops, produces, and markets pharmaceutical drugs for use as medications to be administered to patients, with the aim to cure them, vaccinate them, or **alleviate** the symptoms. Pharmaceutical companies may deal with generic or brand medications and medical devices. They are **subject to** a variety of laws and regulations that govern the patenting, testing, safety, efficacy and marketing of drugs.

New pharmaceutical products must go through several processes before they can be produced for use. As part of these processes, scientists at many institutions carry out basic research in subjects such as chemistry, biochemistry, physiology, microbiology, and pharmacology. The development of a new **pharmaceutical** is very time consuming, extremely costly and high risk, with very little chance of a successful outcome.

According to the Food and Drug Administration (FDA), the following methods are included in the development of new drugs:

- **Discovery and development:** A lot of money is spent on research and development of new pharmaceutical products. This process will require the pharmaceutical industry to conduct thorough research on the most common health issues prevalent in the present times and determine how they can **intervene**.
- **Pre-clinical research:** Preliminary testing is usually done on animals to review the **merits** of a new drug or a medical device.
- **Clinical research:** Once the product passes the pre-clinical trials, it moves on to the clinical **trials**. Clinical research involves testing on humans. This is considered as

one of the **crucial** steps in the development of new pharmaceutical products.

Use of any developed drug carries with it some degree of risk of an adverse event and sometimes even can cause considerable harm. That is why **regulatory agencies** are based to oversee development and marketing of drug products. A number of safety tests are performed, a lot of pages will be written containing all research and safety data received during tests to **ensure** the safety and efficacy of drugs for the general public.

Only after that, a New Drug Application is submitted, and if the product is seen as having a positive benefit-risk assessment, approval to market the product is granted.

A pharmaceutical company may apply for a patent for the drug granting exclusive rights for producing the drug typically for about 20 years. However, only after thorough study and testing, which takes 10 to 15 years on average, governmental authorities will grant permission for the company to market and sell the drug.

Pharmaceutical packaging is highly regulated in all countries. Several common factors of drug packaging can include:

- **assurance** of patient safety;
- assurance of the **efficacy** of the drug through the intended shelf life;
- uniformity of the drug through different **production lots**;
- thorough documentation of all materials and processes;
- control of **degradation** of the drug by oxygen, moisture, heat, *etc.*;
- prevention of microbial contamination, sterility, *etc.*

Packaging is often involved in dispensing, dosing, and use of the pharmaceutical product. Packaging is an integral part of pharmaceutical product.

Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Подберите синонимы к данным словам:

1. alleviate	a. interfere
2. production	b. research
3. drug	c. effectiveness
4. merits	d. important, significant
5. trial	e. worsening
6. crucial	f. positive qualities
7. health issues	g. health problems
8. degradation	h. manufacture
9. efficacy	i. pharmaceutical
10. intervene	j. relieve

3. Закончите предложения, употребив подходящие слова из упр. 2.

- The clinical _____ in human volunteers determine if a medicine is safe and effective, at what doses it works best and what side effects it causes.
- Medical experts are constantly reviewing _____ of newly developed drugs.
- The exact way that this medicine acts against cancer is not known. However, it seems to _____ with the growth of the cancer cells, which are eventually destroyed.
- Many medicines need to be stopped slowly, with regular checks from a doctor to ensure there are no _____.
- The impact of vastly improved chemical analysis has been a notable significance in the area of pollutants and _____.
- It is recommended that a physician be consulted if pain is not _____ within 5 days.
- The researchers will need several years of clinical trials and several hundred thousand dollars to continue their work and develop the vaccines' application into the _____ stage.

4. Прочитайте описание процесса производства лекарств и, используя картинку упр. 3 в Lead-in, расставьте стадии этого процесса в правильной последовательности:

1.	2.	3.	4.	5.	6.
----	----	----	----	----	----

- A. As the tablets go up a spiral, they are shaken and the excess powder is vacuumed off. The pressed tablets are put into a drum and stored until it is time to coat them.
- B. In the granulator the ingredients are mixed to create a wet mixture.
- C. The wet granules are pressed through a sieve on their way to the fluid bed dryer.
- D. The granules are air-dried.
- E. The dried granules are stamped into a mould to form tablets.
- F. Dry ingredients are weighed and transported to the granulator by the hoist.

5. Соотнесите тип упаковки с ее описанием.

syringe	sticky label	inhaler
sachet	blister pack	jar

- A(n) _____ is an aerosol dispensing device which releases medication into the mouth of the patient. The medication is breathed deeply into the lungs, or stays in the mouth or throat.
- A(n) _____ is a needle attached to a plastic tube used for putting medicine to the body or removing blood.
- A(n) _____ is a multi-use glass container with a twist-on lid. It can hold pharmaceuticals, or any kind of fluids or solids. It can be opened and closed several times until the contents are used up.
- A(n) _____ is a small disposable bag containing an individual dose of the medicine.
- A(n) _____ is a piece of paper attached with adhesive to the primary packaging to identify it and give details concerning its ownership, nature and/or use.
- A(n) _____ is a type of single-use plastic container, and is used for pharmaceutical products as well as for other consumer goods. The product is placed in the formed cavity and sealed by lidding foil.

6. Какую упаковку вы порекомендуете для следующих лекарств?

nose drops	ointments	tablets
cough syrup	suppositories	

Language Development

1. Просмотрите текст об производстве лекарств еще раз и ответьте на вопросы.

1. What are pharmaceutical drugs produced for?

2. How can you characterize the process of drug development?

3. What stages are included into the drug development?

4. What is the role of regulatory agencies?

5. How can a pharmaceutical company get a patent for production of drug?

6. What are the most common factors of drug packaging?

2. Прочитайте статью и будьте готовы ответить на вопросы.

Boy killed by potent pain patch



*A few years ago, a mother was convicted of **negligence** leading to her son's death. It was claimed that he had died from a pain medication overdose. Now the woman has taken*

measures to ensure that other children do not die the same way.

A four-year-old boy was found dead after he had stuck a highly potent, pain-relieving **patch** to his leg. His mother was sentenced to several years' community service for leaving a used patch in a place where her young son could have access to it. The patches had been prescribed for her as treatment for a serious intestinal disorder.

She claimed that she always put her used patches into an empty soda can, but one day she put the used patch directly into the garbage. Her son later found it and stuck it onto his leg, just the way he had seen his mother do it. The authorities became interested in this case. The boy's death highlighted a problem that no one had anticipated up to that time. Because of her son's death, the young mother demanded that **safe-disposal boxes** be included in the packages of medicated patches. These boxes should have a small slit at the top to discard used patches and it should be impossible to open them.

In the meantime, many medications, especially those that involve needles, come with disposal boxes for **discarding** them. However, besides a warning about the effects of the medication, authorities have unfortunately not made the requirements regarding the disposal of potentially dangerous materials any stricter.

Fortunately, though, many pharmaceutical companies have recognized the problem and now supply boxes for disposal with their products.

- Who do you think is responsible for the boy's death? The mother? The pharmaceutical company? Someone else?
- Do you know of any similar cases involving pharmaceutical products?
- Pharmaceutical companies are required to package their products in a childproof but elderly accessible way. Why is this so difficult?

Grammar in Use

Времена Future Active

1. Повторите грамматический материал по теме занятия:

https://www.englisch-hilfen.de/en/grammar_list/zeitformen.htm

2. Выполните грамматические упражнения по следующим ссылкам:

https://www.englisch-hilfen.de/en/exercises/tenses/will_future_mix.htm

https://www.englisch-hilfen.de/en/exercises/tenses/going_to_future_mix.htm

https://www.englisch-hilfen.de/en/exercises/tenses/future_perfect_statements.htm

4. Проект.

You are going to develop a new vaccine against a new virus which occurred in the whole world.

What will you start with?

Describe the stages and methods of your research.

What will you do to get a patent for your vaccine?

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I know the main stages of drug production and requirements to their quality
- I can describe different types of drug packaging
- I can use *Future Active Tenses*

Key Words

alleviate / ə'li:vieɪt / v

assurance / ə'ʃʊə(ə)ns / n

blister pack

crucial / 'kru:ʃ(ə)l / adj

degradation / ,deɪgrə'deɪʃ(ə)n / n

efficacy / 'efɪkəsi / n

ensure / ɪn'ʃʊə / v

intervene // v

New Drug Application - заявка на регистрацию нового препарата

packaging / 'pækɪdʒɪŋ / n

patent / 'pat(ə)nt/ n

pharmaceutical / ,fɑ:mə's(j)u:tɪk(ə)l / adj

production lot партия продукции

regulatory agencies / 'rɛɡjʊlət(ə)rɪ 'eɪdʒənsɪs/

sachet / sæ'ʃet / n

shelf life срок годности, срок хранения

subject to / 'sʌbdʒekt / v

sticky label

trial / 'trɪəl / n

Просмотрите еще раз материал урока.

Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT IV. CHEMISTRY AS A SCIENCE

In this unit

- giving the definition of chemistry
- describing different branches of chemistry
- talking about pharmaceutical chemistry and its tasks
- *Present Passive Tenses*

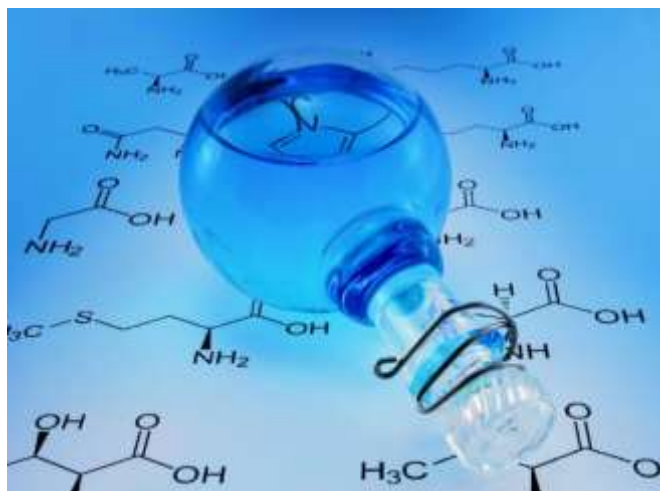
Lead-in

1. Интересные факты:

- Chemistry emerged from alchemy around AD 1700.
- Alchemy, a combination of chemistry, magic and philosophy, tried to find or prepare substances which would turn cheaper metal into gold and silver and which would also cure any human ailment and prolong human life. In its fullest sense alchemy was a philosophical system containing a complex and rudimentary science, elaborated with astrology, religion, mysticism, magic, theosophy and many other constituents. Alchemy dealt not only with the mysteries of matter, but with those of creation and life. It sought to harmonize the human individual with the universe surrounding him.
- R. Boyle (1627-91) was the first scientist to separate chemistry from alchemy and to formulate a precise definition of a chemical element.



Robert Boyle, an Anglo-Irish natural philosopher, chemist, physicist and inventor.



- In the early stages of chemistry development, considerable emphasis was placed on the origins of various substances.
- The 18th century saw the emergence of chemistry in Europe and the discovery of several new elements.
- The field of chemistry is now very large. There are more than thirty different branches of chemistry. Some of them are analytical chemistry, pharmaceutical chemistry, nuclear chemistry, industrial chemistry, and colloidal chemistry.

2. Любопытные факты

- The hair dye used to color someone's hair was developed using chemistry.
- Firefighters study chemistry to understand how fires spread and how to contain them.
- Dentists, doctors, and nurses must understand chemistry as they give medicines and prescribe treatments.

Reading

What Is Chemistry?

Chemistry is the study of **matter**, its **properties**, how and why **substances** combine or **separate** to form other substances, and how substances **interact** with energy. Many people think that chemists are white-coated scientists mixing strange liquids in a laboratory, but the truth is we are all chemists. Understanding basic chemistry **concepts** is important for almost every profession. Chemistry is part of everything in our lives.

Every material in existence is made up of matter — even our own bodies. Chemistry is **involved** in everything we do, from growing and cooking food to cleaning our homes and bodies to launching a space shuttle. Chemistry is one of the physical sciences that help us to describe and explain our world.

Five branches

There are five main **branches** of chemistry, each of which has many areas of study.

Analytical chemistry uses **qualitative** and **quantitative** observation to **identify** and **measure** the physical and chemical properties of substances. In a sense, all chemistry is analytical.

Physical chemistry combines chemistry with physics. Physical chemists study how matter and energy interact. Thermodynamics and quantum mechanics are two of the important branches of physical chemistry.

Organic chemistry specifically studies **compounds** that contain the element **carbon**. Carbon has many unique properties that allow it to form complex chemical bonds and very large molecules. Organic chemistry is known as the “Chemistry of Life” because all of the molecules that make up living **tissue** have carbon as part of their makeup.



Inorganic chemistry studies materials such as metals and gases that do not have carbon as part of their **makeup**.

Biochemistry is the study of chemical processes that **occur** within living organisms.

Fields of study

Within these broad categories are countless fields of study, many of which have important effects on our daily life. Chemists improve many products, from the food we eat and the clothing we wear to the materials with which we build our homes. Chemistry helps to protect our **environment** and **searches** for new **sources** of energy.

Pharmaceutical chemistry is the study of drugs, and it involves drug development. This includes drug discovery, delivery, absorption, metabolism, and more. There are elements of biomedical analysis, pharmacology, **pharmacokinetics**, and **pharmacodynamics**. Pharmaceutical chemistry work is usually done in a lab setting.

Studying pharmaceutical chemistry allows students to **contribute** to life-saving remedies, **increase** the speed of **delivery** of new medications, and help others.

Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Образуйте существительные от следующих глаголов:

Verb	Noun
to deliver	
to measure	
to absorb	
to discover	
to contribute	
to interact	

3. Подберите синонимы к данным словам:

1. to involve	a. to find the size, length or amount
2. to occur	b. an idea or a principle
3. substance	c. to research
4. to identify	d. to enlarge
5. to separate	e. composition
6. makeup	f. to divide
7. to increase	g. to determine
8. to search	h. matter
9. concept	i. to happen
10. to measure	j. to include
11. property	k. characteristics

4. Заполните пробелы словами из таблицы:

source	tissues	environment
increases	measure	involves
compounds	source	properties
carbon (2 times)	matter	

1. Elements can combine to form _____ as when iron and oxygen combine to form rust.

2. Neon presents no threat to the _____, because it is chemically unreactive and forms no compounds.

3. Photosynthesis _____ the uptake of carbon dioxide, water and other nutrients by plants to form organic matter and oxygen.

4. Local anesthetics may be applied topically or injected into the _____.

5. Bromium compounds have a number of _____ that make them useful.

6. Alchemy was a major _____ of knowledge until 1600s.

7. Whether a particular substance exists as a solid, a liquid, or a gas depends on the degree of _____ among the atoms or molecules involved.

8. Temperature is a _____ of molecular motion – the higher the temperature, the greater the average motion.

9. Aspirin should not be taken with alcohol, because this _____ gastrointestinal damage.

10. With _____ and hydrogen, oxygen forms the chemical bases of much organic material.

11. _____ dioxide is colorless, odorless gas, slightly soluble in water and denser than air.

12. An atom is a basic structural unit of _____, being the smallest particle of an element that can enter into chemical combination.

5. Определите науку, занимающуюся следующим:

1. _____ the study of the chemistry of materials from non-biological origins, including metals, salts and minerals.

2. _____ is the chemistry of living organisms and vital processes.

3. _____ is the scientific study of matter.

4. _____ deals with the study of drugs and their development.

5. _____ studies compounds which contain carbon.

6. _____ is the branch of pharmacology that describes the behavior of drug in the body.

Language Development

1. Просмотрите текст о химии и ее разделах еще раз и ответьте на вопросы.

1. What does chemistry study?

2. What is the main task of analytical chemistry?

3. What does physical chemistry deal with?

4. Why is organic chemistry known as the "Chemistry of Life"?

5. What does inorganic chemistry study?

6. What is the focus of study in biochemistry?

7. Which stages of drug development does pharmaceutical chemistry deal with?

2a. Прочитайте текст.

Why is Chemistry Important?

It's easy to say chemistry is important because everything is made from chemicals but there are a lot of other reasons why chemistry is a big part of daily life and why everyone should understand basic chemistry.

The following answers from real chemists, teachers, students, and readers will give you an idea of the many reasons why chemistry is so vital to our lives.

- As the earth originated, chemistry also began to play an important role... Life... began because of chemicals. Chemistry is everywhere.

- The food we eat, air we breathe, water we drink—everything is made up of chemicals. Life can't exist without chemistry.
- Studying chemistry is not all about observing any reactions and recording the result. It's about knowing why they are able to react like that. It is really fascinating and an exercise for our brain.
- Many biology and anatomy, physiology and pharmacology courses begin with chemistry. More than just nutrients, medicines and poisons, everything we do is chemical. Geology too: why do we wear diamonds and not calcium carbonate on our fingers?
- For me, chemistry is very interesting because I feel by learning it we can understand the other sciences too. My specialization is in analytical chemistry. This tells us about nutritional values, specimen analysis, toxicity, sampling, and so many valuable things. So chem is around us and inside us. Moreover, with today's instrumentation and with the help of a large variety of chemical measurements available, we can get the results of clinical, environmental, occupational health, safety applications, and industrial analysis.
- Chemistry is important because it helps to build our body system. It helps us in our daily activities... and is also important because it helps us to know how to take good care of our health.
- If not for chemistry, by now, the world will not exist. Chemists all around the world through rigorous research have saved us, in term of health.
- When we wake up we brush our teeth with toothpaste which is chemistry, then we bathe with soap (alkaline), we eat our food (vitamins, minerals, water, folic acid), we go to work by vehicles which feed on petrol... We ward off mosquitoes with repellents which is chemistry!
- Chemistry helps our industry produce more materials—such as paints, plastics, iron or steel, cement, kerosene, and also motor oil. Chemistry also helps farmers to enrich the soil with chemicals ... to grow fresh vegetables.

7. Задание.

Give your examples which speak about the significance of chemistry.

Grammar Point

Времена Present Passive

1. Повторите грамматический материал по теме занятия:

https://www.english-hilfen.de/en/grammar/active_passive.htm

2. Выполните грамматические упражнения по следующим ссылкам:

https://www.english-hilfen.de/en/exercises/active_passive/active_or_passive.htm

https://www.english-hilfen.de/en/exercises/active_passive/form_sentences_simple_present.htm

https://www.english-hilfen.de/en/exercises/active_passive/sentences_present_progressive.htm

3. Проект.

Choose any sphere of our life where chemistry is of great importance and describe the role of chemistry there in detail.

What is the role of chemistry in your future career.

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I can give the definition of chemistry
- I can describe different branches of chemistry
- I can talk about pharmaceutical chemistry and its tasks
- I can use *Present Passive Tenses*

Key Words

branch / brɑ:n(t)ʃ / n
carbon / 'kɑ:b(ə)n / n
compound
/ kəm'paʊndəb(ə)l / n
concept / 'kɒnsɛpt / n
contribute / kən'trɪbjʊ:t / v
delivery / dɪ'lvɪ(ə)ri / n
environment / ɪn'vʌɪrənm(ə)nt / n
identify / ɪd'entɪfaɪ / v
increase / ɪn'kri:s / v
interact / ɪntər'akt / v
involve / ɪn'vɒlv / v
makeup / 'meɪkʌp /
matter / 'mætə / n, v
measure / 'meɪʒə / v
occur / ə'kɜ:/ v
pharmacodynamics / ,fɑ:məkəʊdɪ'nəmɪks / n
pharmacokinetics / ,fɑ:məkəʊkɪ'nɛtɪks / n
property / 'prɒpəti / n
qualitative / 'kwɒlɪtətɪv / adj
quantitative / 'kwɒntɪtətɪv / adj
search / sə:tʃ / v
separate / 'sep(ə)rət / v
source / sɔ:s / n
substance / 'sʌbst(ə)ns / n
tissue / 'tɪʃu:/ / 'tɪsju: / n

Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT V. CHEMISTRY IN NUTRITIOLOGY AND COSMETICS

In this unit

- talking about the main tasks of food chemistry
- describing the role of innovative technology in cosmetic chemistry
- *Past Passive Tenses*

Lead-in



2. Исторические факты:

- Food chemistry's history dates back as far as the late 1700s when many famous chemists were involved in discovering chemicals important in food.
- In 1785 Carl Wilhelm Sheele isolated malic acid from apples.
- In 1813 Sir Humphry Davy published the first ever book on agricultural and food chemistry titled "Elements of Agricultural Chemistry"
- In 1874 the Society of Public Analysts was formed, with the aim of applying analytical methods to the benefit of the public. Its early experiments were based on bread, milk and wine.
- In 1906 the United States Food and Drug Administration was created which is responsible for protecting and promoting public health through the control and supervision of food safety, tobacco products, dietary supplements, prescription and over-the-counter pharmaceutical drugs (medications), vaccines, biopharmaceuticals, blood transfusions, medical devices, electromagnetic radiation emitting devices (ERED), cosmetics, animal foods & feed and veterinary products.

- Cosmetics are not a modern invention. Humans have used various substances to alter their appearance or accentuate their features for at least 10,000 years, and possibly a lot longer.
- Women in Ancient Egypt used kohl, a substance containing powdered galena (lead sulphide— PbS) to darken their eyelids.
- By 3000 B.C. men and women in China had begun to stain their fingernails with colours according to their social class.
- Greek women used poisonous lead carbonate (PbCO_3) to achieve a pale complexion.
- Clays were ground into pastes for cosmetic use in traditional African societies, and indigenous Australians still use a wide range of crushed rocks and minerals to create body paint for ceremonies and initiations.

2. Прочитайте текст о химии в косметике и пищевой промышленности и будьте готовы рассказать о роли химии в этих сферах.



*The idea of human beauty changes over time. At the beginning of the 20th century, Lillian Russel, a Hollywood star, weighed over **200 pounds (91 kilos)**.*

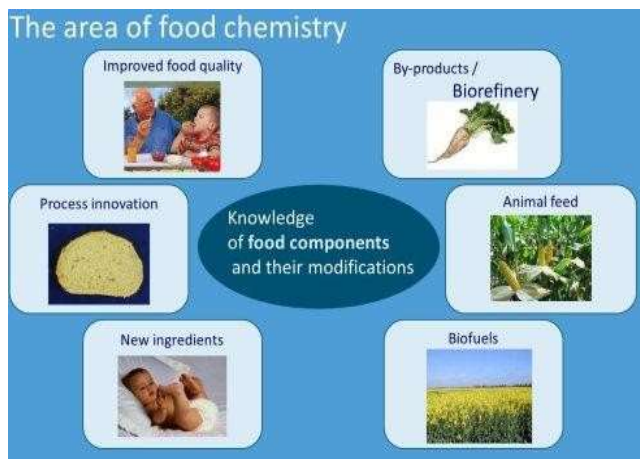
Reading

Food chemistry

Food science deals with the three biological components of food – **carbohydrates**, **lipids** and **proteins**.

Carbohydrates are sugars and **starches**, the chemical **fuels** needed for our cells to function.

Lipids are fats and oils and are essential parts of cell membranes and to lubricate and protect organs within the body. Because fats have 2.25 times the energy per gram than either carbohydrates or proteins, many people try to limit their intake to avoid becoming overweight. Proteins are complex molecules composed of from 100 to 500 or more **amino acids**. Our bodies can synthesize some of the amino acids; however, eight of them, the essential amino acids, must be **taken in** as part of our food. Food scientists are also concerned with the inorganic components of food such as its water, minerals, vitamins and **enzymes**.



Food chemists improve the quality, **safety**, **storage** and **taste** of our food. Food chemists may work for private industry to develop new products or improve **processing**. They may also work for government agencies such as the Food and Drug Administration (FDA) in the USA to inspect food products and manufacturers to protect us from **contamination** or harmful practices.

Food chemists test products to supply information used for the **nutrition** labels or to determine how packaging and storage affects the safety and quality of the food. Flavorists work with chemicals to change the taste of food. Chemists may also work on improving color, odor or texture.

The Chemistry of Cosmetics

Cosmetics are an excellent example of how discoveries in chemistry are part of our day-to-day lives. In fact, just reading the **composition** of any common cosmetic can become a chemistry class: water, **emulsifiers**, **thickeners**, pH stabilizers, **dyes** and **fragrances**, combined in different ratios, for different purposes.

In many cases, these different cosmetic products have a strong component of scientific innovation, developed in modern research laboratories. The cosmetics industry was among the first to adapt the new features of nanotechnology through the use of nanoparticles to improve the quality of their products and satisfy the desires of its customers.

Nanoparticles are particles of intermediate size on the scale between atoms and macroscopic materials. Something like a thousand times greater than the diameter of an atom or thousands of times smaller than the thickness of a hair.

This gives them the unique properties, which can be modulated by changing its size.

Typical examples of the application of nanotechnology in cosmetics are dioxide titanium nanoparticles in sunscreens (that give complete protection without the effect of a white layer on the skin), the use of solid lipid nanoparticles for slow release of fragrance in perfumes, or creating nanovesicles as carriers to provide a better penetration of the active ingredients on the skin.

Vocabulary Practice

3. Объясните значение выделенных слов из текста на предыдущей странице.

4. Найдите определения для данных слов:

1. contamination	a. the parts or elements of which sth is made
2. enzymes	b. any of the chemical substances found in plants and animals that combine to make protein
3. amino acids	c. any of numerous complex proteins which catalyze biochemical reactions
4. safety	d. a white carbohydrate food substance found in rice, potatoes, flour, etc.
5. starch	e. the condition of not being in danger
6. composition	f. process of making sth impure (not clean) by adding substances that are dangerous or carry disease
7. take in	g. to absorb sth into the body by breathing or swallowing

5. Подберите антонимы к данным словам:

1. harmful	a. usual
2. overweight	b. make thinner
3. unique	c. harmless, useful
4. useful	d. useless
5. thicken	e. underweight

6. Заполните пробелы словами из таблицы:

decomposition	enzymes x 2	take in
composition	safety	starches
contamination	amino acids x 2	

5. Louis Pasteur (1822-1895) proved that fermentation depended on living microbes. He showed that fermentation, putrefaction and infection were all due to _____ by microbes.

6. The chemical properties of _____ of protein determine the biological activity of the protein.

7. _____ speed up chemical reactions in the cell. Without them, these reactions would occur very slowly, and the cell could not function normally.

8. _____ and sugars must be broken down to simple compounds called monosaccharide; proteins must be broken down to their simplest elements, _____; and fats must be broken down to fatty acids and glycerol.

9. Polluted air and pure air differ in _____.

10. _____ Without bacterial _____, the elements would remain in dead organisms and animal wastes, and the earth would be covered with dead matter and life would stop.

11. _____ Avoid contact with chemicals. Wear _____ glasses whenever necessary.

12. _____ Without oxygen the food that all living things _____ would be useless to them and they would die.

13. _____ The human body contains more than 1,000 types of _____, each kind of which performs one specific job. Without them, a person could not breathe, see, digest food, nor move any part of his body.

5. Соотнесите начало предложения с его окончанием:

1. Food chemistry is the study of	a. studies the effect of food in the body
2. The biggest classes of organic compounds are	b. found in meat, eggs, fish, which we need in order to grow
3. Fragrance is	d. starch
4. A white tasteless odourless powder that is insoluble in cold water is	a. chemical processes and interactions of all biological and non-biological components of foods
5. Protein is natural substance	b. carbohydrates, lipids and proteins.
6. A nutritionist is a person who	c. a sweet or pleasant smell

Language Development

1. Просмотрите текст о роли химии в нутрициологии и косметологии еще раз и ответьте на вопросы.

13. Characterize the main biological components of food:
Carbohydrates are _____

Proteins are _____

Lipids are _____

14. What do food chemists do?

8. Which substances may be included into a composition of a cosmetic product?

9. Why does the cosmetic industry use nanotechnology?

10. What is the size of nanoparticles?

11. Where can nanoparticles be applied in cosmetics?

2. Сравните химический состав и назначение дезодоранта и антиперспиранта и будьте готовы рассказать об основных различиях между ними:

DEODORANTS VS. ANTIPERSPIRANTS

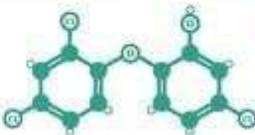
Deodorants and antiperspirants both help fight body odour – but they both do so in different ways. This graphic takes a look at what each of them do to prevent body odour, how they do it, and some of the different chemical compounds that they employ to keep you from smelling terrible!

DEODORANTS

Deodorants help to reduce body odour by targeting the bacteria under your arms that produce the various bad-smelling compounds. Some do this using anti-bacterial compounds such as triclosan. Both deodorants and antiperspirants often use cyclomethicones, which are fast-drying silicone compounds, as solvents.

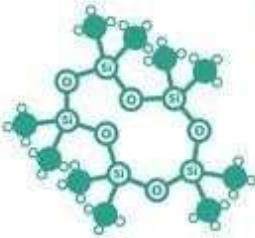
TRICLOSAN


Antibacterial compound. Another commonly used antimicrobial compound is chlorhexidine.



CYCLOMETHICONES

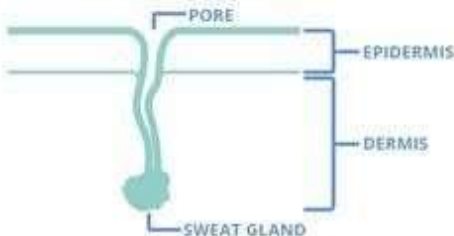
Solvent compounds e.g. cyclopentasiloxane. More common than alcohol solvents, which can also be used. Compounds such as sodium benzoate are also present to act as a preservative and help to extend the shelf life of the product.





ANTIPERSPIRANTS

Antiperspirants fight body odour by cutting down on sweating. They do this by including aluminium or zirconium-based compounds that form a polymeric plug that physically blocks perspiration from being able to escape sweat glands. This plug slowly breaks down over time, so reapplication can be required.




$\text{Al}_n\text{Cl}_{(3n-m)}(\text{OH})_m$
ALUMINIUM CHLOROHYDRATE

$\text{Al}(\text{HCOO})_3$
ALUMINIUM FORMATE

$\text{Al}_4\text{Zr}(\text{OH})_{12}\text{Cl}_4\text{Gly} \cdot n\text{H}_2\text{O}$
ALUMINIUM ZIRCONIUM TETRACHLOROHYDRATE GLYCINE

(solid filled atoms represent carbon; smaller outlined atoms represent hydrogen)

© COMPOUND INTEREST 2015 - WWW.COMPOUNDCHEM.COM | Twitter: @compoundchem | Facebook: www.facebook.com/compoundchem
This graphic is shared under a Creative Commons Attribution-NonCommercial-NoDerivatives International 4.0 licence.



Grammar Point

Времена Past Passive

1. Повторите грамматический материал по теме занятия:

https://www.englisch-hilfen.de/en/grammar/active_passive.htm

2. Выполните грамматические упражнения по следующим ссылкам:

https://www.englisch-hilfen.de/en/exercises/active_passive/form_sentences_simple_past.htm

https://www.englisch-hilfen.de/en/exercises/active_passive/passive_tenses_sentences.htm

https://www.englisch-hilfen.de/en/exercises/active_passive/questions2.htm

4. Проект.

Make a project on the role of chemistry either in

- a) Cosmetics, or
- b) Nutrition

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I can talk about the main tasks of food chemistry
- I can describe the role of innovative technology in cosmetic chemistry
- I can use *Past Passive Tenses*

Key Words

amino acid / əˈmiːnəʊ ˈæsɪd / n

carbohydrate / kɑːbəˈhaɪdreɪt / n

composition / kəmˈpəʊzɪʃ(ə)n / n

contamination / kənˈtæmɪˈneɪʃ(ə)n / n

dye /daɪ/ n

emulsifier / ɪˈmʌlsɪfaɪə / n

enzyme / ˈenzʌɪm / n

fragrance / ˈfreɪgr(ə)ns / adj

fuel / fjuː(ə)l / n

lipids / ˈlɪpɪdz / n

nutrition / njuˈtrɪʃ(ə)n / n

processing / ˈprəʊsəsi / n

proteins / ˈprəʊtiːnz / n

safety / ˈseɪfti / n

starch / stɑːtʃ / n

storage / ˈstɔːrɪdʒ / n

take in /teɪk ɪn/ v

taste / teɪst / n

thickener / ˈθɪkənə / n

Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT VI. THE PERIODIC TABLE

In this unit

- talking about history of creation of the Periodic Table
- describing chemical elements according to their properties
- *Future Passive Tenses*

Lead-in

1. Интересные факты:

Daddy. The “father” of the periodic table is Dmitri Mendeleev. He created the periodic table of elements essentially as a giant *cheat sheet*. Working as a professor at St. Petersburg State University, he had to submit a description for all chemical elements but was pressed for time, so he simply slapped together a large data set of atomic weights. This is why the table is ordered by atomic weight.

Human Makeup. There are 94 naturally occurring chemical elements in the world, and our bodies are made up over 60 of them. These are essential to our makeup, but only six of them make up for 99% of us: oxygen, carbon, hydrogen, nitrogen, calcium, and phosphorus.


Metal Table. Metal makes up the most widespread type of element on the periodic table. Interestingly enough, the only two non-silvery metals are gold and copper.

Copper Filter. The only metal which is also naturally antibacterial is copper. So, yes, there is some science behind the copper water bottle that your friend carries everywhere.

How Light Can You Go. The lightest element consisting of solely radioactive isotopes is Technetium, which is also the first artificially made element. However, technetium does not even have one stable isotope. As it was the first mostly artificial element to be added to the periodic table, its name is derived from the Greek word for “artificial.”

Heavy Does It Get. The heaviest element in the world is Oganesson. First conceived of in 1979 and given the placeholder name of Ununoctium, this synthetic element was finally developed and recognized in 2016. Upon its synthesis, it was renamed after the important nuclear physicist Yuri Oganessian.

Dried Up. Dry ice is...well, actually what is dry ice? It is carbon dioxide in its solid state.



Group →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Period ↓	1 1 H																	2 He
2	3 Li	4 Be																10 Ne
3	11 Na	12 Mg																18 Ar
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	55 Cs	56 Ba	57 La	*	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At
7	87 Fr	88 Ra	89 Ac	*	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	118 Og
				*	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu
				*	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr

Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Образуйте слова, используя указанные суффиксы и приставки:

- ic - period, atom, organic, metal, acid, icon
- ion - interact, isolate, combine, react, create
- able - predict, change, remark, understand
- ist - physics, ecology, biology
- ultra- - modern, hard, light, short, new
- ment - arrange, rearrange, agree

3. Заполните пробелы словами из таблицы:

spaces	predicted	rearrangements
isolated	symbols	melting points
density	created	atomic mass
		recognized 1

1. The Periodic Table of the elements has undergone several adjustments and _____ since Mendeleev's original discovery.

2. Gallium was discovered in 1875 but its existence had already been _____ six years earlier by D. Mendeleev.

3. There were several vacant _____ in Mendeleev's Periodic Table.

4. It is difficult to produce the metals themselves because they have high _____ and are easily oxidized.

5. The _____ of the elements have been established by international agreement and are used throughout the world.

6. Although aluminium was predicted by Lavoisier as early as 1782 when he was investigating the properties of aluminum oxide (alumina), the metal was not _____ until 1825.

7. Elements differ in _____ because their atoms differ in composition.

8. By mixing different metals alloys can be _____.

9. Titanium, when pure, is a lustrous, white metal. It has a low _____ good strength, and has excellent corrosion resistance.

10. Among the 21 mineral elements which have been reported to have been found in the human body there are at least 14 which are now _____ as doubtless essential.

4. Определите три газа, используя следующие описания.

1. The gas which makes up 4/5 of the Earth's atmosphere is _____.

2. The gas which occupies the first position in the Periodic Table _____.

3. The gas which is necessary for the existence of all forms of life _____.

5. Закончите предложения, заменив русские слова и словосочетания на английские эквиваленты.

Chemical _____ (элементы) which _____ (образуют) the basis of all living systems are _____ (кислород, водород, углерод, азот). The common _____ (свойства) of these elements is their remarkable _____ (способность) to _____ (взаимодействовать) with other _____ (веществами). It is really remarkable that _____ (взаимодействие) of these four elements could _____ (создать) a fantastic number of complex _____ (соединений) which are found on Earth. Among _____ (многочисленных органических) substances the most important for life are _____ (белки, нуклеиновые кислоты, жиры и углеводы).

6. Прочитайте текст и ответьте на вопрос:

What problem did D. Mendeleev have with element beryllium in the Periodic Table?

The similarity of beryllium and aluminium caused quite a bit of trouble to the author of the periodic law D. Mendeleev. The fact is that precisely of this similarity, in the middle of the 19th century beryllium was considered to be a trivalent metal with an atomic weight of 13.5. Mendeleev asserted that atomic weight of beryllium had been incorrectly determined, that the element was not trivalent but divalent and possessed the properties of magnesium. On the basis of this he placed beryllium in the second group, having corrected its atomic weight to 9.

Language Development

1. Просмотрите текст о периодической таблице химических элементов еще раз и ответьте на вопросы.

15. Who created the Periodic table? When did it happen?

16. Why did the UN (United Nations) proclaim 2019 to be the International year of the Periodic Table?

17. What scientists contributed to the development of the Periodic table before Dmitri Mendeleev?

18. What did Mendeleev manage to predict?

19. Which characteristics of the unknown element could Mendeleev predict?

20. Why is the Periodic table being constantly changed?

21. What chemical elements have been discovered recently?

2. а. Прочитайте текст и выполните упражнения по тексту.

Carbon

Perhaps it should not have been so surprising to carbon-based life forms (such as human beings) that the sixth element in the Periodic Table has such remarkable properties. After all, carbon, one of the most **ubiquitous** kinds of atoms on Earth has long been known to exist as a solid in two very different forms: soft, black graphite (pencil lead); and ultrahard, **transparent** diamond. It was also known that carbon forms more than a million compounds in combination with other elements – more than all other elements combined. A few carbon-based compounds are gases in air (such as carbon dioxide), several more are solids in rocks (such as calcium carbonate that is limestone) and tens of thousands are in living cells (as carbohydrates, proteins, fats and DNA).

And yet carbon is **astounding** chemists and physicists all over again as they continue to discover more **astonishing** properties of the element when it is linked to other carbon atoms to create molecules never seen before. The newest such molecules – first found several years ago – are microscopic carbon tubes that may be the strongest fibers known. As the research has shown they promise a new class of very strong ultralight fibers that can be used to reinforce all kinds of materials, perhaps outperforming graphite fibers now used in golf clubs, bicycle frames and aircraft fuselages.

б. Подберите термины из текста к следующим определениям:

1. to surprise or shock someone very much

2. you can see through it very clearly

3. seeming to be in all places

с. Ответьте на вопросы:

What carbon-based compounds are named in the text?

What are the main carbon-based compounds of living cells?

What can you say about the newest carbon molecules discovered recently? Where may this new class of carbon fibers be used?

Grammar Point

Времена Future Passive

1. Повторите грамматический материал по теме занятия:

https://www.englisch-hilfen.de/en/grammar/active_passive.htm

2. Выполните грамматические упражнения по следующим ссылкам:

https://www.englisch-hilfen.de/en/exercises/active_passive/sentences_will_future.htm

https://www.englisch-hilfen.de/en/exercises/active_passive/objects_tenses.htm

https://www.englisch-hilfen.de/en/exercises/active_passive/passive_tenses_phrases.htm

3. Проект

Speak about new elements in the Periodic Table which have been discovered recently and what their properties are.

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I can talk about the main tasks of food chemistry
- I can describe the role of innovative technology in cosmetic chemistry
- I can use *Future Passive Tenses*

Key Words

Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

arrange / ə'reɪn(d)ɜ / *v*
atomic mass
behavior / bɪ'heɪvjə / *n*
brand new
chemical / 'kɛmɪk(ə)l / *adj*
column / 'kɒləm / *n*
create / kri:'eɪt / *v*
density / 'densɪti / *n*
isolate / 'aɪsəleɪt / *v*
melting point
miss /mɪs/ *v*
periodic / ,pɪərɪ'ɒdɪk / *table*
predict / prɪ'dɪkt / *v*
property / 'prɒpəti / *n*
recognize / 'rɛkəɡnɪz / *v*
respectively / rɪ'spektɪvli / *adv*
row / rəʊ / *n*
significant / sɪɡ'nɪfɪk(ə)nt / *adj*
space / speɪs / *n*
sorting / 'sɔ:tɪŋ / *n*
symbol / 'sɪmb(ə)l / *n*

Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT VII. CHEMICAL LABORATORY

In this unit

- explaining the laboratory requirements
- describing different types of the laboratory equipment
- talking about chemicals used at laboratory
- *Modal Verbs in the First Meaning*

Lead-in

The students of the pharmaceutical department usually have practical classes in Chemistry in chemical laboratory. There they carry out various scientific or technological experiments and measurement, they work with different chemical substances.

The chemical laboratory consists of several rooms: those for storing the necessary substances, for recording the obtained

findings and for washing laboratory vessels. As a rule a chemical laboratory is equipped with different apparatuses and instruments.



2. Прочитайте названия видов лабораторного оборудование общего назначения и найдите их на картинке. Будьте готовы объяснить их назначение.



3. Beaker
4. Bunsen Burner
5. Crucible
6. Dropper
7. Erlenmeyer Flask
8. Evaporating Dish
9. Funnel
10. Graduated Cylinder
11. Mortar and pestle
12. Pipestem Triangle
13. Pipet
14. Ring
15. Ring Stand
16. Safety goggles
17. Scoopula
18. Spatula
19. Test Tube
20. Test Tube Brush
21. Test Tube Clamp
22. Test Tube Holder
23. Test Tube Rack
24. Thermometer
25. Tongs
26. Wash Bottle
27. Watch Glass
28. Wire Gauze

Engineering, too, owes its most useful materials to the achievements of chemists in identifying, separating, and transforming materials: structural steel for the framework of bridges and buildings, portland cement for roadways

and aqueducts, pure copper for the electrical industries, aluminum alloys for automobiles and airplanes.... The triumphs of engineering skill rest on a chemical foundation.

— Horace G. Deming

Reading

Chemical Laboratory

Laboratory Requirements

The laboratory is defined as a workplace where various scientific experiments as well as quality or process controls in physics, chemistry, biology or pharmacy are performed. Depending on the **application** area, there are different **requirements** for a laboratory and the **appropriate** laboratory **equipment**. Laboratory equipment is the term for the apparatus and supplies used in a laboratory, for example **tools** and **measuring** instruments, laboratory **glassware** and instruments, chemicals and reagents.

Basic Chemistry Apparatus

In most labs, you'll **encounter** the same basic apparatus. Here, you will find an explanation for how to use some pieces of this equipment.

Beakers



A beaker is a common container in most labs. It is used for mixing, **stirring**, and heating chemicals. Beakers come in a wide range of sizes.

Test tubes



A **test tube** is a glass tube with one end open and the other end closed. Test tubes are used for qualitative **assessment** and **comparison** of small samples. They can be capped with a rubber or glass **stopper** and are generally held in a test tube **rack**.

Tongs and forceps



Tongs and **forceps** are for **grabbing** things that should not be touched by hand. Some tongs are specially made to hold beakers, others to hold test tubes, and so on. There are also general tongs.

Forceps are used to grab small things like solid chemicals that are broken into pieces, so they can be safely handled and added to containers.

Classical Lab Chemicals

Though a number of chemicals and reagents used at labs is huge, there are certain groups of substances which can be found in every laboratory. These include:

solvents dissolving other substances;

salts, acids, caustics/bases and

metals/oxides used for the experiments proper;

cleaning agents to keep the equipment dirt-free;

drying agents to remove extra liquid from solids;

absorbents and **filters**;

indicators showing the **appearance** or disappearance of a chemical by a characteristic change especially of a colour.

Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Определите вид химического оборудования, используемого для выполнения следующих заданий:

1. Heating contents in a test tube _____
2. Holding many test tubes filled with chemicals _____
3. Transport of hot beaker _____
4. Protects the eyes from flying objects or chemical splashes _____
5. Used to clean the inside of test tubes or graduated cylinders _____
6. Used to grind chemicals to powder _____
7. Used to pour liquids into containers with small openings or to hold filter paper _____
8. Used for stirring _____
9. Accurately measures the volume of liquids in mL _____
10. Supports beaker when heating, and spreads flame for even heating _____
11. Measures temperature _____
12. Used to grab small solid chemicals _____

Используйте слова из таблицы при выполнении упр. 2:

Tongs and forceps	Safety goggles
Beaker	Test Tube Rack
Tongs	Graduated Cylinder
Funnel	Wire brush
Wire Gauze	Thermometer
Mortar and pestle	Bunsen Burner

3. Ответьте на вопросы:

Which One Do I Choose?

1. What do I use to most accurately measure 21 mL of acetic acid?

2. Where do I place a hot test tube while it cools?

3. How can I tell how hot the water is?

4. What do I wear to protect my eyes?

5. How can I heat a beaker (without using any gas)? _____
6. What can I use to transfer a small amount of

☐ a solid chemical to another container?

7. What can I use to pick up a hot test tube?

8. What can I use to scrub and clean the test tube? _____

9. What can I attach the iron ring (ring clamp) on? _____

10. What do I place under a beaker (on top of the iron ring) while heating?

11. What can I use to grind up a solid chemical into a powder? _____

12. What can I use to dispense solid chemicals from their containers? _____

4. Заполните пробелы словами из таблицы, обозначающими химические вещества и реагенты:

acids	bases	solvents
indicator x 2	oxides	absorbent
cleaning agents	drying agents	

1. The ability of bromine to dissolve both in many common organic _____ and in inorganic bromide solutions permits early control of the reactions

2. With carbon and hydrogen, oxygen forms the chemical _____ of much organic material.

3. A stable balance between _____ and bases in the body is essential to life.

4. Oxygen is reactive and will form _____ with all other elements, except the noble gases.

5. A blotting paper is a good _____.

6. Litmus _____ solution turns red in acidic solutions and blue in alkaline solutions. You can prepare homemade _____ from red cabbage or beetroot juice - these will help you see if a solution is acidic or alkaline.

7. _____ are usually such substances as liquids, powders, sprays, or granules which are used to remove dirt, dust, stains, bad smells.

8. The _____ are added to the solution of a compound that needs to be dried.

Language Development

1. Просмотрите текст об оборудовании и реактивах химической лаборатории еще раз и ответьте на вопросы.

1. What is a laboratory?

2. What does laboratory equipment include?

3. Describe the main features of the following tools:

Beakers

Test tubes

Tongs

Forceps

4. What is the action of the following chemical compounds?

Solvents

Cleaning agents

Drying agents

Indicators

2. Прочитайте текст о правилах ухода за лабораторным оборудованием.

Top Three Ways to Maintain Chemical Laboratory Equipment

Proper maintenance is very important for successful use of chemical laboratory equipment. What are the best practices to maintain a clean workspace in the lab?

Thorough Cleaning with the Proper Materials

Although over 80% of labs in the U.S count paper towels as one of their most used cleaning supplies, it's important to remember that certain cleaning agents are not actually so good. Paper towels, for example, may deposit microscopic fibers in the tubes. It is recommended to use ultrasonic cleaners, glassware washers, and specially designed wiping cloths instead.

Regular Calibration of Equipment

Periodical calibration of equipment is critical for chemical applications. Calibrated equipment not only ensures accuracy of measurements and testing, it can improve safety in the lab when hazardous chemicals are involved. In most labs, calibration should be carried out every three months, if not more often.

Record Keeping and Testing of Processing Equipment

In chemical labs that deal often with particularly volatile reactions (i.e. pressurized gas, electrical reactions, etc.) regular inspection of operational components is essential. Remember that well-maintained lab equipment lasts longer, operates more efficiently, and produces more reliable results. Most importantly, it's safer to work with.

3. Соотнесите изображения со способами ухода за оборудованием. Будьте готовы описать каждый способ.



1. _____



2. _____



3. _____

Grammar Point

Modal Verbs in the First Meaning

1. Повторите грамматический материал по теме занятия:

<https://www.english-hilfen.de/en/grammar/hilfsverben2.htm>

2. Выполните грамматические упражнения по следующим ссылкам:

<https://www.english-hilfen.de/en/exercises/modals/form.htm>

https://www.english-hilfen.de/en/exercises/modals/must_not_need_not.htm

https://www.english-hilfen.de/en/exercises/modals/must_not.htm

3. Проект.

You are going to arrange a chemical laboratory at a pharmaceutical company.
What equipment are you going to supply to the lab?
What chemicals will you provide the laboratory with?
Make an essay.

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I can explain the laboratory requirements
- I can describe different types of the laboratory equipment
- I can talk about chemicals used at laboratory
- I can use Modal Verbs

Key Words

acid / 'asɪd / n
appearance / ə'piər(ə)ns / n
application / ˌaplɪ'keɪʃ(ə)n / n
appropriate / ə'prəʊpriət / *adj*
assessment / ə'sesmənt / n
base / beɪs / n
beaker / 'bi:kə / n
caustic / 'kɔ:stɪk / n
comparison / kəm'parɪs(ə)n / n
encounter / ɪn'kaʊntə / *v*
equipment / ɪ'kwɪpm(ə)nt / n
forceps / 'fɔ:sɛps / n *pl.*
glassware / 'glɑ:swɛ: / n
grab / grab / *v*
rack / rak / n
requirement / rɪ'kwɪəmənt(ə)nt / n
stir / stɜ: / *v*
stopper / 'stɒpə / n
test tube / test tju:b / n
tongs / tɒŋz / n *pl.*
tool / tu:l / n









Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT VIII. LABORATORY RULES AND SAFETY

In this unit

- explaining the safety rules at laboratory
- describing guidelines for safe handling of chemicals
- *Indirect Speech*

Lead-in

Symbol	Class Description	Symbol means that the material:
	Compressed Gas (Class A)	<ul style="list-style-type: none"> ▪ <u>poses</u> an explosion danger because the gas is being held in a cylinder under pressure ▪ <u>may</u> cause its container to explode if heated ▪ <u>may</u> cause its container to explode if dropped
	Combustible and Flammable Material (Class B)	<ul style="list-style-type: none"> ▪ <u>is</u> one that will burn and is consequently a fire hazard (<i>i.e.</i>, is combustible) ▪ <u>may</u> catch fire at relatively low temperatures (<i>i.e.</i>, is flammable) ▪ <u>may</u> ignite spontaneously in air or release a flammable gas on contact with water
	Oxidizing Material (Class C)	<ul style="list-style-type: none"> ▪ <u>may</u> react violently or cause an explosion when it comes into contact with combustible materials ▪ <u>may</u> burn skin and eyes upon contact
	Poisonous Material: Immediate Toxic Effects (Class D1)	<ul style="list-style-type: none"> ▪ <u>is</u> a potentially fatal poisoning substance ▪ <u>may</u> be immediately fatal or cause permanent damage if it is inhaled or swallowed or enters the body through skin contact
	Poisonous Material: Other Toxic Effects (Class D2)	<ul style="list-style-type: none"> ▪ <u>is</u> a poisonous substance that is not immediately hazardous to health ▪ <u>may</u> cause death or permanent damage as a result of repeated exposure over time (<i>e.g.</i>, cancer, birth defects or sterility) ▪ <u>may</u> be an irritant
	<u>Biohazardous</u> Infectious Material (Class D3)	<ul style="list-style-type: none"> ▪ <u>may</u> cause a serious disease resulting in illness or death ▪ <u>may</u> produce a toxin that is harmful to humans
	Corrosive Material (Class E)	<ul style="list-style-type: none"> ▪ <u>causes</u> severe eye and skin irritation upon contact ▪ <u>causes</u> severe tissue damage with prolonged contact ▪ <u>may</u> be harmful if inhaled
	Dangerously Reactive Material (Class F)	<ul style="list-style-type: none"> ▪ <u>is</u> very unstable ▪ <u>may</u> react with water to release a toxic or flammable gas ▪ <u>may</u> explode as a result of shock, friction, or increase in temperature ▪ <u>may</u> explode if heated in a closed container

When students come to work to the laboratory, they should put on white gowns and wash their hands with running water before work and after it.

Reading

Laboratory Rules and Safety

Chemistry wet laboratories contain certain **dangers** and **hazards**. As a chemistry student working in a laboratory, you must learn how to work safely with these hazards in order to **prevent** injury to yourself and others around you. The following guidelines are here to help you. Ultimately, your own **safety** is your own responsibility.

Safety Rules

- **Make sure** you know all the safety information about each **experiment** before starting the experiment.
- Always **wear** safety glasses. Contact lenses are **forbidden**.
- You must wear a lab **coat** in all Chemistry labs.
- **Footwear** must completely cover the foot and heel (no sandals, open-toed footwear, etc.).
- You must wear long trousers (no shorts, capris, skirts, or dresses).
- **Loose** hair must be tied back so as to be out of the way. Dangling jewellery must be **removed**.
- Do not eat or drink in the lab.
- Please keep your work area clean. Also, please make sure the safety showers, eyewash stations and doorways are **unobstructed**.
- Please clean up **spills** immediately. Use spill mix to absorb solvent or caustic liquids.
- Please **dispose of** waste properly and according to the instructions.
- Wash your hands before you leave the lab.
- Do not remove chemicals or equipment from the lab except when required to do so for analysis.
- Do not wear earbuds or earphones while in the lab.



Chemical Safety

- The **vapours** of many organic solvents are **flammable** or **combustible**. Do not **expose** electric sparks, open flames and heating elements to organic solvent vapours.
- Many chemicals are **poisonous**. Do not taste chemicals. If it is necessary to **smell** a chemical, do so by fanning the vapours towards your nose.
- Be extremely careful when transferring or distilling **volatile** liquids.
- Do not return used chemicals back to the stock container.
- Do not heat, measure or mix any chemicals in front of your face.
- Never **heat** a closed system – it will act as a bomb!
- Never **pour** water into concentrated acid. Pour acid slowly into water, **stirring** constantly.
- Make sure test tubes containing reactions are pointed away from people, especially when they are being heated.

Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Образуйте существительные от следующих глаголов.

Verb	Noun
to dispose	disposal
to prevent	prevention
to obstruct	obstruction
to remove	removal
to expose	exposure
to combust	combustion

3. Подберите синонимы к данным словам:

1. to dispose of	a. readily vaporizable
2. to obstruct	b. to start to burn
3. to forbid	c. to take away
4 to remove	d. to prohibit/not to allow
5. to combust	e. to block sth
6. hazard	f. burnable
7. volatile	g. to get rid of
8. flammable	h. danger

4. Заполните пробелы словами из таблицы:

to dispose	remove x 2	obstructed
dangers	volatile	combustion
flammable		

1. This detergent will _____ even old stains.
2. Surely there must be a better way _____ of nuclear waste?
3. After the earthquake many roads were _____ by collapsed buildings.
4. Water is a liquid which neither burns nor supports _____.
5. The water is filtered to _____ any impurities.
6. The _____ of radium were apparent from the start.
7. Alcohols in free form are not common in nature; they are found mainly in the essential or _____ oils obtained from the flowers, leaves, and stems of plants.
8. Amorphous boron oxidizes slowly in the air _____ even at room temperature, and is spontaneously _____ at about 800°C

5. Закончите следующий текст, заполнив пропуски глаголами в повелительном наклонении из таблицы. Некоторые глаголы могут быть использованы не один раз.

try	bathe	dip	take	wash
keep	wipe up	burn	wash up	drink

ACCIDENTS WITH LIQUIDS

Sometimes specimens are spilled in the laboratory. If this happens, quickly

_____ a piece of cotton-wool, _____ it in an antiseptic and _____ every drop carefully. _____ the cotton-wool afterwards and _____ your hands.

If an acid splashes into the eye, _____ calm. _____ it with water from a wash- bottle and _____ it using an eyebath with a 5% solution of sodium carbonate. Then _____ any other drops of acid from the bench.

If a strong acid or alkali is swallowed by mistake, there is a danger of poisoning. First _____ the mouth immediately and then _____ several glasses of water. If an acid has been swallowed, also _____ some milk of Magnesia. If an alkali has been swallowed, _____ some very weak acetic acid. In either case, do not _____ to vomit.

6. Прочитайте текст и ответьте на вопросы:

What safety rules were violated by Lyn? What did it result in?

Meet Lyn

A few years ago Lyn was participating in an activity in her science class. She was instructed to blow out her candle and return it to the lab supply bench by walking around the outside of the student tables. After removing her goggles, Lyn blew out her candle (which was still hot) and walked directly through the student tables toward the supply bench. Her hot candle passed over the container of alcohol, dripped hot wax into the alcohol and caused an alcohol explosion. Lyn's hair was burned and her long sleeve caught on fire burning her arm.

Language Development

1. Просмотрите текст о химии и ее разделах еще раз и ответьте на вопросы.

1. Why is it important to know safety rules?

2. What clothes/devices must you wear at a chemical laboratory?

3. What items of clothes/footwear/jewelry are forbidden at a lab?

4. What are the instructions concerning spills? waste?

5. Are you allowed to taste or smell chemicals? If so, how to do it correctly?

6. Which classes of chemicals require particular attention? What should you remember about using them at a lab?

7. How do you mix acid and water correctly?

2. Опишите кратко, что следует делать в следующих ситуациях:
Safety Practices

1) Food and drink in the lab

2) Proper clothes during a laboratory work

3) People with contacts

4) People with long hair

5) Disposing of chemicals

6) Heating a test tube with a Bunsen burner

7) Smelling chemicals

8) Mixing acid and water

9) You have completed your experiment

10) Testing hot objects

3. Назовите по крайней мере 7 правил поведения, которые нарушают изображенные на рисунке студенты:



Grammar Point

Indirect Speech

1. Повторите грамматический материал по теме занятия:

<https://www.englisch-hilfen.de/en/grammar/reported.htm>

2. Выполните грамматические упражнения по следующим ссылкам:

https://www.englisch-hilfen.de/en/exercises/reported_speech/time_phrase_s.htm

https://www.englisch-hilfen.de/en/exercises/reported_speech/statements.htm

https://www.englisch-hilfen.de/en/exercises/reported_speech/sentences.htm

3. Проект.

Work at a chemical laboratory requires observing a number of safety rules and instructions. What are they? Why is their observation so important? What safety rules do you follow at practical classes in chemistry?

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I can explain the safety rules at laboratory
- I can describe guidelines for safe handling of chemicals
- I can use *Indirect Speech*

Key Words

coat / kəʊt / n
combustible / kəm'blʌstɪb(ə)l / adj
danger / 'deɪn(d)ʒə / n
dispose of / dɪ'spəʊz / v
experiment / ɪk'sperɪm(ə)nt / n
expose / ɪk'spəʊz / v
flammable / 'flaməb(ə)l / adj
footwear / 'fʊtwɛː / n
forbid / fə'bɪd / v
hazard / 'hazəd / n
heat / hi:t / n
loose / lu:s / adj
make sure
poisonous / 'pɔɪzənəs / adj
pour / pɔː / v
prevent / prɪ'vent / v
remove / rɪ'mu:v / v
safety / 'seɪfti / n
smell / smel / n
spill / spɪl / n
stir / stɜː / v
unobstructed / ʌnəb'strʌktɪd / adj
vapour / 'veɪpə / n
volatile / 'vɒlətaɪl / adj
wear / wɛː / v

Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT IX. METHODS OF CHEMICAL ANALYSIS

In this unit

- talking about chemical analysis and its types
- describing stages of development of chemical analysis
- *Sequence of Tenses*

Lead-in



Analytical chemistry studies and uses instruments and methods used to separate, identify, and quantify matter. Analytical chemistry consists of classical, wet chemical methods and modern, instrumental methods.

Classical methods

29. **A qualitative analysis** determines the presence or absence of a particular compound, but not the mass or concentration. By definition, qualitative analyses do not measure quantity.

30. **A quantitative analysis** is the measurement of the quantities of particular chemical constituents present in a substance.



Instrumental methods

- **Spectroscopy** measures the interaction of the molecules with electromagnetic radiation.
- **Electrochemical analysis** measures the potential (volts) and/or current (amps) in an electrochemical cell containing the analyte.
- **Thermal analysis:** Calorimetry and thermogravimetric analysis measure the interaction of a material and heat.
- **Separation** processes are used to decrease the complexity of material mixtures. Chromatography, electrophoresis and Field Flow Fractionation are representative of this field.
- **Microscopy.** The visualization of single molecules, single cells, biological tissues and nanomaterials is an important and attractive approach in analytical science. Microscopy can be categorized into three different fields: optical microscopy, electron microscopy, and scanning probe microscopy. Recently, this field is rapidly progressing because of the rapid development of the computer and camera industries.



Hard work alone won't guarantee success, but without hard work, I'll guarantee you won't have success.

Bruce Pearl

Reading

Chemical Analysis

Chemical analysis is **determination** of the physical **properties** or chemical **composition** of **samples** of **matter**.

Most of the materials that **occur** on Earth, such as wood, coal, minerals, or air, are mixtures of many different and **distinct** chemical substances.

Chemical analysis, which **relies on** the use of measurements, is divided into two categories depending on the **manner** in which the **assays** are performed.

Classical Analysis

Classical analysis, also termed **wet chemical analysis**, consists of those analytical techniques that use no mechanical or electronic instruments other than a **balance**. The method usually relies on chemical reactions between the material being analysed (the **analyte**) and a **reagent** that is added to the analyte. Wet techniques often depend on the formation of a product of the chemical reaction that is easily **detected** and measured. For example, the product could be coloured or could be a solid that **precipitates** from a solution.



Instrumental Analysis

Most chemical analysis falls into the second category, which is **instrumental analysis**. It **involves** the use of an instrument, other than a balance, to perform the analysis.

A wide **range** of instrumentation is **available** to the analyst. In some cases, the instrument is used to characterize a chemical reaction between the analyte and an added reagent; in others, it is used to measure a property of the analyte. Instrumental analysis is subdivided into categories on the basis of the type of instrumentation **employed**.



History of Chemical Analysis

Since the advent of chemistry, investigators have needed to know the **identity** and quantity of the materials with which they are working.

Consequently, the development of chemical analysis parallels the development of chemistry. The 18th-century Swedish scientist Torbern Bergman is usually regarded as the **founder** of inorganic qualitative and quantitative chemical analysis.

Prior to the 20th century nearly all assays were performed by classical methods. **Although** simple instruments (such as photometers and electrogravimetric analysis apparatus) were available at the end of the 19th century, instrumental analysis did not flourish until well into the 20th century. The development of electronics during World War II and the subsequent widespread availability of digital computers have hastened the change from classical to instrumental analysis in most laboratories.

Although most assays **currently** are performed instrumentally, there remains a need for some classical analyses.

Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Найдите определения для данных слов:

1. reagent	a. the parts or elements of which sth is made
2. identity	b. a substance that acts on another in a chemical reaction
3. balance	c. the substance being measured in an analytical procedure
4. available	d. a state where things are of equal weight or force
5. sample	e. able to be obtained, used, or reached
6. composition	f. the substance that you wish to investigate
7. property	g. a particular physical or chemical characteristic of a substance
8. analyte	h. a close similarity

3. Образуйте существительные от следующих глаголов:

Verb	Noun (activity)	Noun (person)
to analyze		
to found		
to detect		
to employ		
to investigate		

4. Подберите синонимы к данным словам:

1. assay	a. set
2. distinct	b. clearly noticeable
3. involve	c. be dependent on sth
4. range	d. analysis
5. rely on	e. include
6. consequently	f. at the present time
7. matter	g. substance
8. currently	h. as a result

5. Заполните пробелы в предложениях, используя активную лексику урока:

- Lithium undergoes a large number of reactions with both organic, and inorganic, _____.
- R. Boyle introduced many new methods of determining the _____ and chemical composition of substances.
- In combination with other minerals in the body, potassium forms salts that play an essential role in maintenance of the acid-base and water _____ in the body.
- Sulfur was known in ancient times. The Greek poet Homer mentioned "pest-averting sulfur" nearly 2,800 years ago! Sulfur is pale yellow in appearance non-metal, soft, light, with a _____ odor of rotten egg.
- The atoms of most elements have the _____ of binding to other atoms of the same or different elements and forming new combinations.
- Boyle (1662) observed that at constant temperature the volume of a _____ of gas varies inversely with pressure but Boyle did not explain why this was so.
- Cooling the beaker helps _____ the compound.
- Photosynthesis involves the uptake of carbon dioxide, water and other nutrients by plants to form organic _____ and oxygen.
- Drugs produce harmful as well as beneficial effects, and decisions about when and how to use them therapeutically always _____ the balancing of benefits and risks.
- One of the proposed methods of detection is an antibody _____ utilizing fluorescently labelled antibodies.

Language Development

1. Просмотрите текст о химии и ее разделах еще раз и ответьте на вопросы.

1. What is chemical analysis?

2. What two categories is chemical analysis divided into?

3. What is another name for classical analysis? What are its characteristic features

4. What does instrumental analysis involve?

5. Who is usually regarded as the founder of inorganic qualitative and quantitative chemical analysis?

6. Which types of analysis were used in the 19th century?

7. Which events hastened the change from classical to instrumental analysis?

2a. Прочитайте текст о классическом качественном анализе:

Classical qualitative analysis is performed by adding one or a series of chemical reagents to the analyte. By observing the chemical reactions and their products, one can deduce the identity of the analyte. The added reagents are chosen so that they selectively react with one or a single class of chemical compounds to form a distinctive reaction product.

Normally the reaction product is a precipitate or a gas, or it is coloured.

Take for example copper (II), which reacts with ammonia to form a copper-ammonia complex that is characteristically deep blue. The reaction between carbonates and strong acids to form bubbles of carbon dioxide gas is another example.

Prior to the qualitative analysis of any given compound, the analyte generally has been identified as either organic or inorganic. Consequently, qualitative analysis is divided into organic and inorganic categories. Sugar (C₁₂H₂₂O₁₁) is an example of an organic compound, while table salt (NaCl) is inorganic.

Classical organic qualitative analysis usually involves chemical reactions between added chemical reagents and functional groups of the organic molecules.

Classical qualitative analyses can be complex owing to the large number of possible chemical species in the mixture. Fortunately, analytical schemes have been carefully worked out for all the common inorganic ions and organic functional groups. Detailed information about inorganic and organic qualitative analysis can be found in some of the texts listed in the Bibliography at the end of this article.

2b. Найдите в тексте слова или словосочетания, которые соответствуют следующим определениям:

_____ - any material or chemical substance subjected to analysis.

_____ - any of a class of sweet water-soluble carbohydrates, the monosaccharides and smaller oligosaccharides; often specifically sucrose.

_____ - sodium chloride.

_____ - a thin, usually spherical or hemispherical film of liquid filled with air or gas:

_____ - a substance that has separated from or settled out of a solution.

2c. Ответьте на вопросы по тексту:

1. How are reagents chosen for a classical qualitative analysis?
2. Why can classical qualitative analyses be complex?

Grammar Point

Sequence of Tenses

1. Повторите грамматический материал по теме занятия:

<https://www.englisch-hilfen.de/en/grammar/reported.htm>

2. Выполните грамматические упражнения по следующим ссылкам:

https://www.englisch-hilfen.de/en/exercises/reported_speech/backshift.htm

https://www.englisch-hilfen.de/en/exercises/reported_speech/time_phrase.htm

https://www.englisch-hilfen.de/en/exercises/reported_speech/sentences.htm

3. Проект

Explain, how the development of digital technologies have changed the chemical analysis in most laboratories.

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I can talk about chemical analysis and its types
- I can describe stages of development of chemical analysis
- I can use the rule of *Sequence of Tenses*

Key Words

although / ɔ:l'dəʊ / *adv*
analyte / 'anəlaɪt / *n*
assay / ə'seɪ / *n*
available / ə'veɪləb(ə)l / *adj*
balance / 'bal(ə)ns / *n*
classical analysis = wet chemical analysis
composition / kəm'pəʊzɪʃ(ə)n / *n*
consequently / 'kɒnsɪkw(ə)ntli / *adv*
currently / 'kʌrəntli / *adv*
detect / dɪ'tekt / *v*
determination / dɪ,tə'mɪ'neɪʃ(ə)n / *n*
distinct / dɪ'stɪŋ(k)t / *adj*
employ / ɪm'plɔɪ / *v*
founder / 'faʊndə / *n*
identity / ɪ'dentɪti / *n*
instrumental / ɪnstru'ment(ə)l / *adj*
involve / ɪn'vɒlv / *v*
manner / 'manə / *n*
matter / 'matə / *n*
occur / ə'kɜː / *v*
precipitate / prɪ'sɪpɪteɪt / *n, v*
property / 'prɒpəti / *n*
range / reɪn(d)ʒ / *n*
reagent / ri'eɪdʒ(ə)nt / *n*
rely on / ri'laɪ on/ *v*
sample / 'sɑːmp(ə)l / *n*

Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT X. CARDIOVASCULAR DISEASES

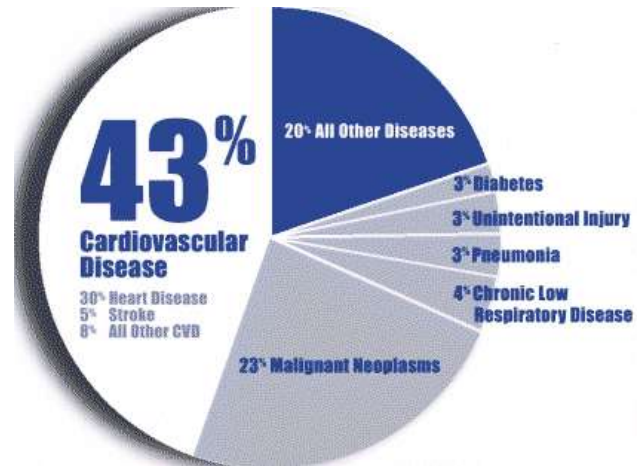
In this unit

- giving the definition of myocardial infarction
- talking about the causes and symptoms of myocardial infarction
- describing the course and treatment of the disease
- *Equivalents of Modals to express past and future*

Lead-in

1. Изучите диаграмму (справа) и ответьте на вопросы.

1. What disease is number-one killer in the developed countries?
2. Do most heart attacks occur in young or elderly people? What do you think?
3. Are heart attacks more frequent in men or women?
4. What will you do if heart attack occurs in your relative?
5. What in your opinion are the causes of heart attack?
6. What must one do to prevent heart diseases? What is the ABC of heart disease prevention? (See the diagram below).



2. Прочитайте текст об инфаркте миокарда. Озаглавьте каждую его часть.



Reading

Myocardial Infarction (Heart Attack)

Myocardial infarction (MI), commonly known as a **heart attack**, is a serious medical emergency in which the supply of blood to the heart is suddenly blocked, usually by a **blood clot**. Lack of blood to the heart can seriously **damage** the heart muscle.

1.

The typical symptoms of the disease can include:

- chest pain: the chest can feel like it is being pressed or **squeezed** by a heavy object, and pain can **radiate** from the chest to the jaw, neck, arms and back
- shortness of breath
- feeling weak and/or **light-headed/dizzy**
- overwhelming feeling of **anxiety**

It is important to stress that not everyone experiences **severe** chest pain; often the pain can be mild and mistaken for **indigestion**. It is the combination of symptoms that is important in determining whether a person is having a heart attack, and not the **severity** of chest pain.

Among the diagnostic tests available to detect heart muscle damage are an electrocardiogram (ECG), **echocardiography**, cardiac MRI and various blood tests.

2.

Coronary heart disease (CHD) is the leading cause of heart attacks. CHD is a condition in which coronary arteries (the major blood vessels that supply the heart with blood) get **clogged** up with deposits of cholesterol. These deposits are called **plaques**.

During a heart attack, one of the plaques ruptures (bursts), causing a blood clot to develop at the site of the rupture. The clot may then block the supply of blood running through the coronary artery, **triggering** a heart attack.



3.

The risk-factors of coronary heart disease are related to lifestyle, and sometimes, though not always, linked to a genetic **predisposition** to the disease. They are:

1. **high blood cholesterol**. This is acquired through diabetes and kidney disease, poor diet, obesity, and lack of physical activity.
2. **smoking**. This raises blood pressure and increases the tendency for blood to clot.
3. **high blood pressure**. This thickens the walls of the arteries and makes them narrower.
4. **type A personality**. This type of personality is characterized by **impatience**, competitiveness, and aggressiveness.

4.

Treatment for a heart attack will depend on how serious it is. When someone has a heart attack, medical treatment is **urgent**. They are given oxygen through a face mask, nitroglycerine to improve blood flow, morphine to kill the pain, and aspirin to **inhibit** blood clotting. They may then receive an emergency **angioplasty** which is a long thin tube passed into the artery at the tip of which is a balloon which is **inflated** when everything is in place. The balloon opens up the artery, allowing the blood to flow more freely. A small spring-like device called a **stent** is then inserted which holds the artery open. Most people can return to work after heart attack quite soon.

Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Соотнесите термины с их определениями:

1. stent	a. dizzy and slightly faint
2. shortness of breath	b. to prevent smth from happening
3. to radiate	c. a device placed inside a duct or blood vessel to relieve an obstruction
4. light-headed	d. pain or discomfort in the stomach associated with difficulty in digesting food
5. indigestion	e. a state of irritability or restlessness
6. impatience	f. to spread
7. to inhibit	g. a feeling of worry, nervousness
8. anxiety	h. breathlessness

3. Закончите предложения, употребив подходящие слова из упр. 2.

- The pain started in the chest and then _____ to the left arm and shoulder.
- An old woman attended her GP's surgery complaining of _____ on exertion.
- After overdose of the drug he began to feel _____.
- During the operation a coronary _____ was inserted into the coronary artery to provide good blood supply.
- Patients are given aspirin to _____ blood clotting.

4. Образуйте словосочетания, используя слова из таблицы. Каждое слово может быть использовано только один раз.

myocardial	genetic
typical	blood
medical	poor
various	physical
coronary	cardiogenic

- _____ shock
- _____ activity
- _____ diet
- _____ cholesterol
- _____ artery

- _____ blood tests
- _____ emergency
- _____ symptom
- _____ infarction
- _____ predisposition

5. Соотнесите названия препаратов, применяемых при лечении ИМ, и описание их действия.

1. nitroglycerine	a. Used to control pain, and as a mild anticoagulant for prophylaxis of coronary and cerebrovascular disease
2. morphine	b. Dilates main coronary arteries and arterioles, inhibits coronary artery spasm, increases oxygen delivery to heart.
3. aspirin	c. Produces a combination of depression and excitation in the central nervous system. Used as an analgesic, sedative, and anxiolytic.

6. Подберите синонимы к данным словам:

1. heart attack	a. dizzy
2. shortness of breath	b. blood clot
3. thrombus	c. critical
4. light-headed	d. activate
5. deposits	e. nervousness
6. urgent	f. increase
7. trigger	g. myocardial infarction
8. raise	h. dyspepsia
9. anxiety	i. dyspnea
10. indigestion	j. plaques

7. Подберите антонимы к данным словам:

1. impatience	a. mild
2. severe	b. gradually
3. thicken	c. acquired
4. genetic	d. strong
5. to trigger	e. patience
6. suddenly	f. to give
7. high	g. make narrower
8. to receive	h. to result from
9. weak	i. low

Language Development

1. Просмотрите текст об инфаркте миокарда еще раз и ответьте на вопросы.

1. What kind of disease is myocardial infarction (MI)?

2. What are the causes of MI?

3. What are the typical symptoms of MI?

4. What risk factors of heart diseases can you name? _____

5. What does the treatment for heart attack include?

6. What other heart diseases can you name? Surf the Internet.

2a. Прочитайте текст и выполните задания:

Thrombolytic therapy

Thrombolytic therapy is the use of drugs to break up or dissolve blood clots, which are the main cause of heart attacks.

Thrombolytic medicines are approved for the **emergency** treatment of heart attack. The most commonly used drug for thrombolytic therapy is tissue plasminogen activator (tPA), but other drugs can do the same thing.

Ideally, you should receive thrombolytic medicines within the first 30 minutes after arriving at the hospital for treatment.

Thrombolytics work by dissolving a major clot quickly. This helps restart blood flow to the heart and helps prevent damage to the heart muscle. Further therapy, such as cardiac catheterization with **angioplasty** and stenting, may be needed. Generally, thrombolytics may not be given if you have:

- A recent head injury
- Bleeding problems
- Bleeding **ulcers**
- **Pregnancy**
- Recent surgery
- Uncontrolled (severe) high blood pressure

Bleeding is the most common risk. It can be life threatening.

If thrombolytics are felt to be too dangerous, other possible treatments for clots causing a **stroke** or heart attack include:

Heart attacks are medical emergencies. The sooner treatment with thrombolytics begins, the better the chance for a good outcome.

b. Найдите слова и фразы в тексте, имеющие следующее значение.

a. a medical operation to remove a clot blocking an artery

b. a sudden change in the blood supply to a part of the brain, sometimes causing a loss of the ability to move particular parts of the body

c. a serious, unexpected, and often dangerous situation requiring immediate action

d. a state of having a child or young developing in the uterus.

e. a break in the skin, or on the surface of an organ inside the body, that does not heal naturally:

c. Составьте план к тексту.

1. _____
2. _____
3. _____

Grammar Point

Equivalents of Modals to Express Past and Future

1. Повторите грамматический материал по теме занятия:

<https://www.englisch-hilfen.de/en/grammar/hilfsverben2.htm>

2. Выполните грамматические упражнения по следующим ссылкам:

https://www.englisch-hilfen.de/en/exercises/modals/substitute_forms_tenses.htm

https://www.englisch-hilfen.de/en/exercises/modals/substitute_forms_tenses_2.htm

https://www.englisch-hilfen.de/en/exercises/modals/substitute_forms.htm

14. Проект.

Choose one of thrombolytic drugs used to treat myocardial infarction. Prepare a project describing its composition, indications, contraindications, side effects, and other important information

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I can give the definition of myocardial infarction
- I know the causes and symptoms of myocardial infarction
- I can describe the course and treatment of this disease.
- I can use *equivalents of modals* to express past and future

Key Words

angina pectoris / an'dʒɪnə 'pɛktərɪs / n
angioplasty / 'andʒɪə(ʊ)plasti / n
anxiety / æn'zɪəti / n
arrest / ə'rest / n, v
blood clot / blʌd klɒt /
clog / klɒg / v
clogged / klɒgd / adj
complication / kɒmplɪ'keɪʃ(ə)n / n
damage / 'damɪdʒ / n, v
dizzy / 'dɪzi / adj
echocardiography / ˌɛkəʊkɑːdɪ'ɒgrəfi / n
heart attack / hɑːt ə'tak /
impatience / ɪm'peɪəns / n
indigestion / ɪndɪ'dʒɛstʃ(ə)n / n
inflate / ɪn'fleɪt / v
inhibit / ɪn'hɪbɪt / v
light-headed / laɪt 'hɛdɪd / adj
myocardial infarction / ˌmɪə(ʊ)'kɑːdɪəl ɪn'fɑːkʃ(ə)n /
plaque / plæk / n
predisposition / priːdɪspə'zɪʃn / n
radiate / 'reɪdɪeɪt / v
severe / sɪ'vɪə / adj
squeeze / skwiːz / v
stent / stent / n
trigger / 'trɪɡə / n, v
urgent / 'ɜːdʒ(ə)nt / adj

Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT XI. RESPIRATORY DISEASES

In this unit

- describing the symptoms of influenza
- determining the sources of influenza
- speaking about prevention of flu
- *Modal Verbs in the Second Meaning*



Lead-in

1. Изучите список самых печально известных и смертоносных эпидемий и сравните их.

What was the most famous and lethal outbreak of flu in the world? How many people did it kill?

What was the mortality rate in the least severe pandemic?

What type of virus caused flu pandemic in 2009? How is this virus strain commonly referred to?

What in your opinion helped reduce mortality of people in later pandemics?

2. Прочитайте текст о гриппе и подготовьтесь к обсуждению причин, симптомов и методов профилактики этого заболевания.

Known Flu Pandemics					
Name of pandemic	Date	Deaths	Case fatality rate	Subtype involved	Pandemic severity index
Asiatic (Russian) flu	1889-1890	1 million	0.15%	possibly H3N8	NA
1918 flu pandemic (Spanish flu)	1918-1920	20 to 100 million	2%	H1N1	5
Asian flu	1957-1958	1 to 1.5 million	0.13%	H2N2	2
Hong Kong flu	1968-1969	0.75 to 1 million	<0.1%	H3N2	2
2009 flu pandemic	2009-2010	18,000	0.03%	H1N1 swine flu	NA

A **pandemic** is an epidemic that spreads to many different countries.

A **pandemic** can start when the following three conditions are met:

- a new disease appears;
- the agent infects humans causing serious illness;
- the agent spreads easily among humans.



The first convincing record of an influenza pandemic was of an outbreak in 1580, which began in Russia and spread to Europe via Africa.

In Rome, over 8,000 people were killed, and several Spanish cities were almost wiped out.

Reading

Influenza

What is the flu?

Influenza, commonly known as “the **flu**”, is a **contagious** respiratory illness caused by influenza viruses. It can cause **mild** to **severe** illness, and at times can lead to death. Some people, such as older people, young children, and people with certain health conditions, are at high risk for serious flu **complications**.

How is the flu spread?

The flu is spread in droplets **released** by coughing and sneezing. It usually spreads from person to person, though occasionally people may be infected by touching something with virus on it and then touching their mouth or nose.

What are the symptoms of the flu?

The flu usually starts suddenly and may include these symptoms:

- Fever or feeling feverish/**chills**
- Cough
- Sore throat
- Runny or **stuffy** nose
- Muscle or body aches
- Headaches
- Fatigue (tiredness)

Some people may have vomiting and **diarrhea**, though this is more **common** in children than adults.

It's important to note that not everyone with flu will have a fever.

It can be difficult to **distinguish** between the common **cold** and influenza in the early stages of these infections, but a flu can be identified by a high fever with a sudden **onset** and extreme fatigue.

What are the complications associated with the flu?

Some of the complications caused by flu include **pneumonia**, dehydration, and **worsening** of chronic medical conditions, such as heart or lung disease, asthma or diabetes. Children may get sinus problems and ear infections.

How to protect oneself against the flu?

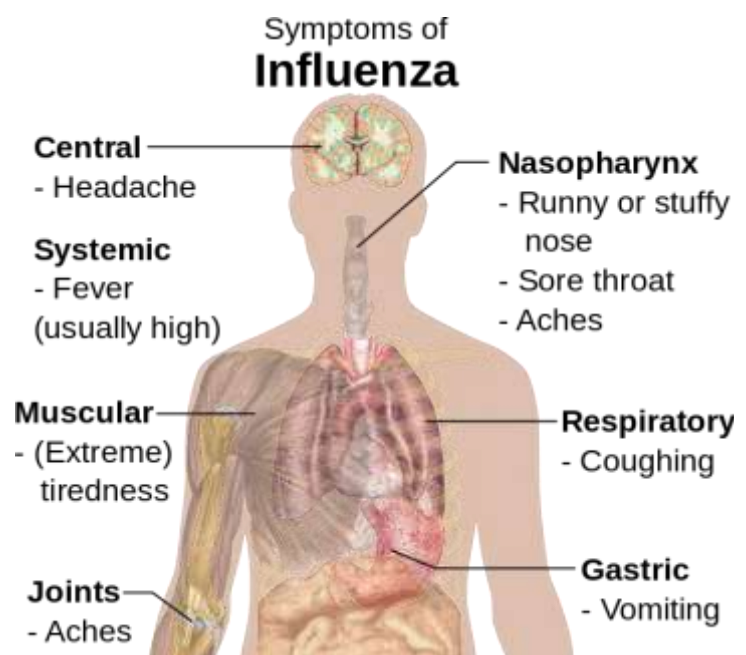
The influenza vaccine is recommended by the **WHO** for high-risk groups, such as children, the elderly, health care workers, and people who have chronic illnesses such as asthma, diabetes, heart disease.

Reasonably effective ways to reduce the **transmission** of influenza include good personal health and hygiene habits such as: not touching your eyes, nose or mouth; frequent hand washing (with soap and water, or with alcohol-based hand rubs); covering coughs and sneezes; **avoiding** close contact with sick people; and staying home yourself if you are sick.

Can the flu be treated?

People with the flu are advised to get plenty of rest, drink plenty of liquids, avoid using alcohol and tobacco and, if necessary, take medications such as paracetamol to **relieve** the fever and muscle aches associated with the flu.

Antiviral medication may be effective, but some **strains** of influenza can show resistance to the standard antiviral drugs and pharmaceutical companies have to develop new vaccines that will provide the best **immunity** against these strains.



Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Найдите определения для данных слов.

1. contagious (of a disease)	a. a type of plant, virus or bacterium whose characteristics are different from others of the same group
2. fever	b. rigors
3. chills	c. pyrexia
4. strain	d. spreading by direct or indirect contact
5. diarrhea	e. a large amount
6. to distinguish	f. an abnormally frequent discharge of fluid fecal matter from the bowel
7. plenty	g. to recognize the difference
8. complication	h. the beginning of a disease
9. onset	i. an unfavorable evolution of a disease

3. Заполните пробелы словами из таблицы в упражнении 2.

- Some diseases of the respiratory tract are hard to_____.
- Influenza is caused by a highly _____ virus that is spread by coughs and sneezes.
- Elderly people, pregnant women can develop serious_____due to influenza.
- The_____of the disease was marked by attacks of vomiting and _____.

5. Influenza pandemics have occurred four times in the past 100 years and caused _____of deaths.

6. Certain_____of bacteria are especially susceptible to particular classes of antibiotics.

4. Подберите синонимы к словам.

1. contagious	a. blocked
2. sore	b. shivering
3. chill	c. painful; aching; tender
4. stuffy	d. communicable
5. to distinguish	e. to make less

6. to reduce	f. to differentiate
7. ache	g. tiredness
8. fatigue	h. pain
9. to relieve	i. to connect
10. to associate	j. host
11. carrier	k. to free from pain or discomfort

5. Соотнесите слова в столбике А с их антонимами в столбике В.

A.	1. mild	B.	a. rare
	2. diarrhea		b. severe
	3. to distinguish		c. constipation
	4. worsening		d. to escape recognition
	5. common		e. improvement
	6. include		f. exclude

6. Просмотрите текст и иллюстрацию на предыдущей странице еще раз. Выпишите 5-7 примеров для каждой категории:

Symptoms	<i>vomiting,</i>
Health conditions (diseases)	<i>common cold,</i>
Methods of prevention	<i>hand washing,</i>
Systems and organs involved	<i>nasopharynx,</i>

Language Development

1. Просмотрите текст и ответьте на вопросы.

1. What kind of disease is influenza?

2. How is the flu spread?

3. What are the symptoms of the flu?

4. What are the complications associated with the flu?

5. What is the treatment of influenza?

6. What are methods of prevention of influenza?

2a. Прочитайте текст, будьте готовы его обсудить.

Pandemics and Tamiflu

When someone who has flu sneezes nearby, you take tiny droplets of their saliva into your lungs. The droplets contain viruses that are looking for a new home. They get into your lungs and then into your blood, and can quickly take over your whole body, using it as a factory in which they can reproduce.

At any time, a deadly bacterium or virus can become very successful and spread across the world, killing millions of human beings. When this happens, it is called a "pandemic".

There was a pandemic in 1918. An influenza virus called H1N1, or "Spanish flu", killed between 50 and 100 million people.

More people died from H1N1 than were killed in the First World War.

A letter from a doctor in a military camp in 1918 describes the situation:

"It is only a few hours until death comes. It is horrible. We have been averaging about 100 deaths per day. We have lost many nurses and doctors. Special trains carry away the dead. For several days there were no coffins and the bodies piled up".

Since 1918, the H1N1 virus has mutated. Now there is a mutation called H5N1. When this mutation first appeared in China in 1996, there was a desperate search for a medicine to deal with it. The pharmaceutical company Roche came up with the drug called Tamiflu. Tamiflu does not kill H5N1, but stops it making copies of itself. If given early enough, vaccinations of Tamiflu could perhaps save many lives. However, the virus will continue to mutate, and might become resistant to Tamiflu. The next mutation may already be with us by the time you're reading this!

2b. Прочитайте предложения и определите: какие предложения верны (Т), а где допущены ошибки (F)? Исправьте неверные утверждения.

1. A pandemic is a type of virus. _____
2. Viruses reproduce outside your body. _____
3. More people died from Spanish flu than were killed in the First World War. _____
4. H1N1 is the name of a pandemic. _____
5. H5N1 is an antiviral drug. _____
6. Tamiflu is made by Roche. _____
7. Tamiflu stops H5N1 spreading. _____

2c. Ответьте на вопросы.

8. Can you name any deadly infectious diseases that have spread around the world?
9. What is the latest news on bird flu?
10. How does infection get into your body?
11. What do you know about "Spanish flu"?
12. How did the military doctor describe the situation with the flu pandemic in 1918?
13. What medicine against flu was discovered in 1996? How does it act? Is it really effective?

Grammar Point

Modal Verbs in the Second Meaning

1. Повторите грамматический материал по теме занятия:

<https://test-english.com/explanation/b1/modal-verbs-deduction-must-might-cant/>

2. Выполните грамматические упражнения по следующим ссылкам:

https://www.elbase.com/quiz/200_02.htm

<https://www.ecenglish.com/learnenglish/lessons/modal-verb-have-past-participle>

<https://web2.uvcs.uvic.ca/courses/elc/studyzone/410/grammar/410-modals-of-possibility-and-probability-for-past-situations1.htm>

4. Проект.

Choose any of the respiratory diseases, determine its symptoms and administer treatment.

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I know the main infectious diseases
- I can describe the main symptoms of infectious diseases
- I know how to fight and prevent infectious diseases
- I can use *Modal Verbs*

Key Words

associate / ə'səʊʃieɪt / v
avoid / ə'vɔɪd / v
chill / tʃɪl / n
cold / kəʊld / n = common cold
common / 'kɒmən / adj
contagious / kən'teɪdʒəs / adj
diarrhea / ,daɪə'riə / n
distinguish / dɪ'stɪŋɡwɪʃ / v
immunity / ɪ'mju:nɪti / n
influenza / ɪnflu'enzə / n
mild / mɪld / adj
onset / 'ɒnsət / n
pneumonia /nju:'məʊniə / n
release / rɪ'li:s / v
relieve / rɪ'li:v / v
severe / sɪ'viə / adj
strain /streɪn/ n
stuffy / 'stʌfi / adj
transmission / trans'mɪʃ(ə)n / n
WHO = the World Health Organisation
worsen / 'wə:s(ə)n / v

Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT XII. THE NERVOUS DISEASES

In this unit

- describing the symptoms and risks of a stroke
- talking about the ways of prevention and treatment of a stroke
- *Conditional Sentences: Type I*

Lead-in

1. Интересные факты

The nervous system can transmit impulses as fast as 100 meters per second.

Potassium and sodium ions are vital to the proper functioning of the nervous system.

Neurons are the largest cells in the human body.

Neurons do not undergo mitosis.

There are about 13,500,00 neurons in the human spinal cord.

There are 100 billion neurons in your brain alone.

If we lined up all the neurons in our body it would be around 600 miles long.

A new born baby loses about half of their nerve cells before they are born.

Only four per cent of the brain's cells work while the remaining cells are kept in reserve.

2. Ответьте на вопросы:

What diseases of the nervous system have you heard about?

If someone in the street has an epileptic fit, what would you do first?

If a patient is violent, how should you react?

If a patient is suffering shock, what should you do?

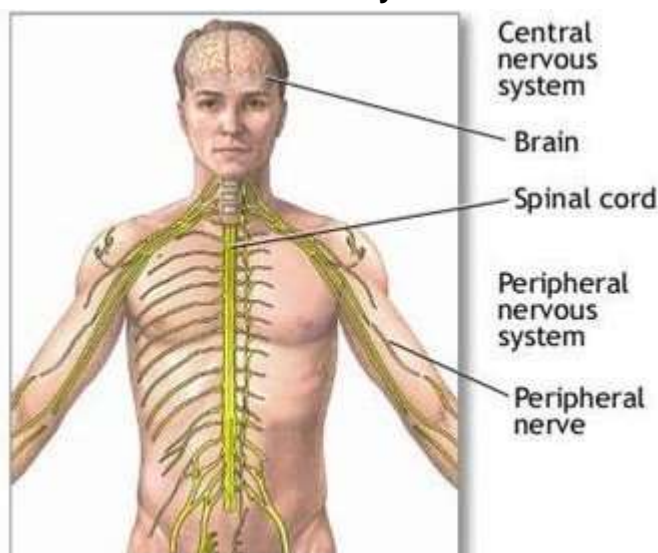
If someone is unconscious and you suspect a broken leg, what would be the first thing to do?

If a very ill patient wants to leave the hospital, what should you do?

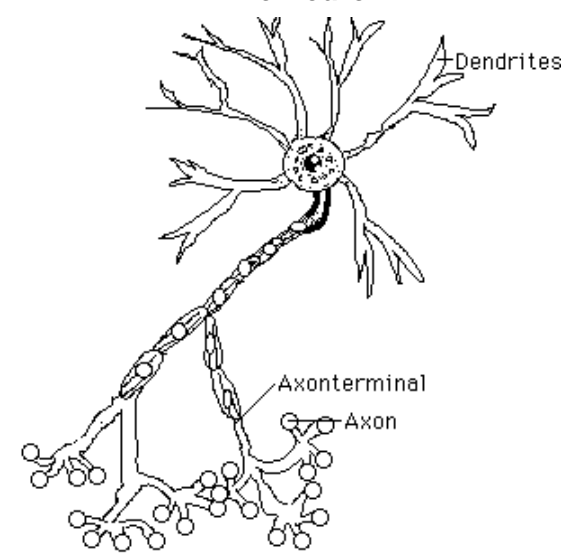
3. Read the text and choose from the list the statements A-H which best summarize each part (1-7) of the text. There is one extra statement which you do not need to use. There is an example at the beginning (1).

- Definition of a stroke.
- What are the risk factors for a stroke?
- What are the symptoms of a stroke?
- What can the results of a stroke be?
- How is a stroke diagnosed?
- How is stroke treated?
- How can a stroke be prevented?

The Nervous System



The Neuron



"We really don't realize how fragile our bodies are and that a stroke can happen so easily." Survivor.

Stroke

1. A

A **stroke** is a condition in which the brain cells suddenly die because of a **lack** of **oxygen**. This can be caused by an **obstruction** in the blood flow (**ischemic** stroke), or the **rupture** of an artery that feeds the brain (**hemorrhagic** stroke). The patient may suddenly lose the ability to speak, there may be memory problems, or one side of the body can become paralyzed.

2.

The **outcome** after a stroke depends on where the stroke occurs and how much of the brain is affected. Smaller strokes may result in minor problems, such as **weakness** in an arm or leg. Larger strokes may lead to paralysis or death.

3.

After a stroke, brain cells begin to die and symptoms can develop. It is important to **recognize** these symptoms, as early treatment is crucial to recovery. Common symptoms include: **dizziness**, trouble walking, loss of balance and coordination, speech problems, weakness, or paralysis on one side of the body, **vision** problems, sudden severe headache.

4.

Anyone can suffer from stroke. Many risk factors for stroke are out of our control, but several can be avoided through proper **nutrition** and medical care.

Risk factors for stroke include:

- Over age 55
- Male
- A **family history** of stroke
- High blood pressure
- High cholesterol
- Smoking cigarettes
- Diabetes
- **Obesity** and **overweight**
- Cardiovascular disease
- A previous stroke
- Hormone therapy
- Cocaine use
- Heavy use of alcohol





5.

A stroke is a medical **emergency**, and anyone with symptoms of a stroke should be taken to a hospital **immediately** so that tests can be made and the correct treatment can be **provided** as quickly as possible.

6.

The primary goal in treating stroke is to restore blood flow to the brain. This may be done using aspirin or tPA (tissue plasminogen activators) that must be administered within three hours of the stroke. Surgical procedures may be performed to open up or widen arteries.

When Stroke Strikes,
Act F.A.S.T.

			
FACE Smile.	ARMS Raise both arms.	SPEECH Repeat a sentence.	TIME Time is critical.
Does one side of the face droop?	Does one arm drift downward?	Are they able to speak clearly? Can they repeat the sentence?	Call 911. Get to the hospital immediately. Brain cells are dying. Every minute counts!

Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Найдите определения для данных слов

1. oxygen	a. rapid loss of brain function due to disturbance in the blood supply to the brain
2. weakness	b. something that blocks a passage
3. stroke	c. to break or burst suddenly
4. obstruction	d. the fact of being extremely fat, in a way that is dangerous for health
5. to rupture	e. the state of not being strong
6. dizziness	f. a result or effect of an action or situation
7. obesity	g. a gas with no smell or colour
8. emergency	h. a temporary feeling that your sense of balance is not good
9. outcome	i. the process of providing or obtaining the food necessary for health and growth
10. nutrition	j. something dangerous or serious, such as an accident, that happens suddenly or unexpectedly

3. Закончите предложения, используя слова из упражнения 2.

1. If an aneurysm _____, blood spills into the space between the surfaces of the brain and skull.

2. High blood pressure is the most important modifiable risk factor of _____.

3. The symptoms of stroke are altered movement coordination, weakness in tongue, altered hearing, vision, _____ and _____.

4. A diet that is high in fat and sugar can lead to _____.

5. You can land a plane on water in an _____.

6. Air is composed mainly of nitrogen and _____.

7. Good _____ is essential if patients want to make a quick recovery.

8. Serious _____ of flu infection can result in hospitalization or death.

4. Подберите синонимы к словам.

1. obstruction	a. result
2. rupture	b. overweight
3. outcome	c. deficiency
4. obesity	d. break
5. vision	e. lead to
6. lack	f. occlusion
7. smaller	g. to keep away from
8. result in	h. to make
9. to avoid	i. sight
10. to perform	k. minor

5. Подберите антонимы к данным словам:

1. weakness	a. sufficiency
2. obesity	b. death
3. lack	c. gradually
4. vision	d. slimness
5. high	e. female
6. birth	f. to restore
7. suddenly	g. strength
8. male	h. to gain
9. to affect	i. low
10. to lose	k. blindness

6. Подумайте, что объединяет все слова или словосочетания в каждой группе. Какое слово «лишнее»? Почему?

1. high blood pressure, high cholesterol, vision, diabetes;

2. dizziness, weakness, cough, severe headache;

3. trouble walking, skin problems, speech problems, vision problems;

4. arms, legs, face, stomach;

5. Face, Arms, Speech, Space

Language Development

1. Просмотрите текст и ответьте на вопросы.

- What is a stroke?

- What can a stroke be caused by?

- What are the symptoms of a stroke?

- What are the risk factors for a stroke?

- What is a primary goal in treating a stroke?

- What do the letters F.A.S.T. stand for?

2. Пройдите тест:

Stroke Quiz: Test Your Medical IQ

- f. What is a stroke?

- Blocked blood vessel in the brain.
- Bleeding in the brain from a blood vessel.
- Loss of oxygen to part of the brain.
- All of the above.

- What is the major risk factor for stroke?
- Obesity
- Diabetes
- High blood pressure
- Family history of stroke

- Strokes rarely occur in people under 65.
- True.
- False

4. More women die from stroke than men. True or false?

- True.
- False

5. Stroke is the 5th leading cause of death in the United States.

- A. True.
- B. False

- A stroke is a medical emergency.

- True.
- False

7. What is the most common treatment for stroke?

- Shock therapy.
- Aerobic exercises.
- Potassium.
- Blood thinner medications.

8. _____ is another term for stroke.

- A. Brain attack.
- B. Complex migraine.
- C. Clot attack.
- D. All of the above.

9. Which one is NOT a stroke symptom?

- A. Problems with speaking and communicating.
- B. Sudden paralysis of an arm, leg or the face.
- C. Muscle aches
- D. Problems with vision in one or two eyes

10. What does the acronym F.A.S.T. stand for?

- A. Face, Arms, Spin, Trot;
- B. Face, Arms. Speech, Time;
- C. Femur, Arms, Spatial Recognition, Time;
- D. Falling, Ambulance, Speed, Trauma

3. Проект.

Choose one of tissue plasminogen activators used to treat a stroke. Prepare a project describing its composition, indications, contraindications, side effects, and other important information.

Grammar Point

Conditional Sentences: Type I

1. Повторите грамматический материал по теме занятия:

<https://www.englisch-hilfen.de/en/grammar/if.htm>

2. Выполните грамматические упражнения по следующим ссылкам:

https://www.englisch-hilfen.de/en/exercises/if_clauses/type_1_mix3.htm

https://www.englisch-hilfen.de/en/exercises/if_clauses/type_1_mix2.htm

https://www.englisch-hilfen.de/en/exercises/if_clauses/type_1_mix4.htm

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I can describe the symptoms of a stroke
- I can list the risks for a stroke
- I can talk about prevention of a stroke
- I can use *Conditional Sentences* of the I type

Key Words

dizziness / 'dɪzɪnəs / n
emergency / ɪ'mə:dʒ(ə)nsi / n
family history
hemorrhagic / ,hɛmə'radʒɪk / adj
immediately / ɪ'mi:diətli / adv
ischemic / ɪ'ski:mɪk / adj
lack / lak / n
nutrition / nju'trɪʃ(ə)n / n
obesity / ə(ʊ)'bi:sɪti / n
obstruction / əb'strʌkʃ(ə)n / n
outcome / 'aʊtkʌm / n
overweight / əʊvə'weɪt / n
oxygen / 'ɒksɪdʒ(ə)n / n
provide / prə'vaɪd / v
recognize / 'rɛkəɡnɪz / v
rupture / 'rʌptʃə / n
stroke / strəʊk / n
vision / 'vɪʒ(ə)n / n
weakness / 'wi:knəs / n
worsen / 'wə:s(ə)n / v

Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT XIII. GASTRITIS

In this unit

- describing the causes and symptoms of gastritis
- talking about the treatment and prognosis of gastritis
- *Conditional Sentences: Type II and III*

Lead-in

1. Прочитайте некоторые из рекомендаций *Gastritis Diet Guidelines* для профилактики или лечения гастрита. Каким из них вам было бы сложнее всего следовать?

- Try to avoid very hot food.
- Colas and sodas should not be used.
- Smoking should be avoided altogether.
- Do not eat chocolates.
- Use low fat dairy products.
- Avoid drinking coffee.
- Use fresh fruits and vegetables.
- Try to avoid food which produces gas in your stomach such as broccoli, cabbage, and onions.
- Drink fruit juices as they are very low in acidity.
- Take mild herbal teas as they are free of caffeine.
- Cottage cheese and butter can be used by gastritis patients.

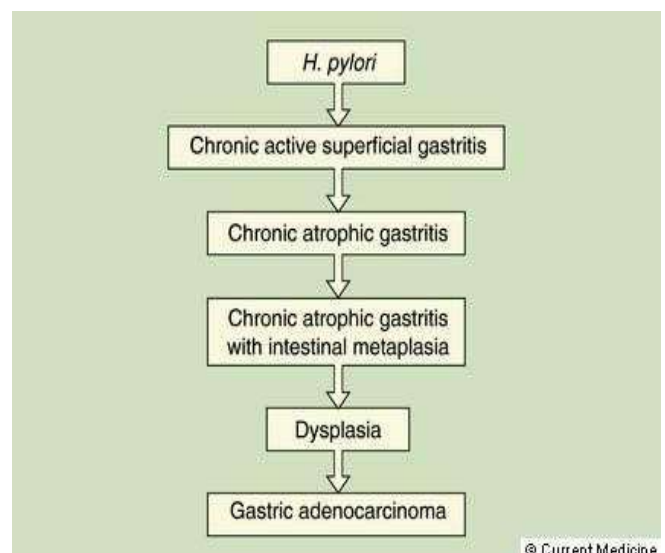
- The consumption of alcohol should be minimized.
- Over dose of antibiotic medicines should be avoided.
- Increase your milk intake as it will control the acidity of the stomach.
- Avoid spicy foods as in addition to gastritis, they may also cause ulcers.

2. Прочитайте текст о гастрите. Выберите из списка утверждений А-Е те, что лучше всего отражают содержание каждой части (1-5) текста. Здесь есть одно лишнее утверждение, которое вам не понадобится.

- A. Causes of gastritis.
- B. Prognosis for gastritis.
- C. Treatment for gastritis.
- D. Diagnosis of gastritis.
- E. Symptoms of gastritis.
- F. Symptoms of erosive gastritis.



Acute gastritis with superficial erosions



Relationship of *Helicobacter pylori* to gastric cancer

In the evaluation of chronic gastrointestinal complaints, a careful analysis and description of the symptoms, how they developed, the order in which they appeared and changed, are usually far more informative than the physical examination.

Howard M. Spiro (1924 -)

Illness isn't the only thing that spoils the appetite.

Ivan Turgenev (1818 – 1883)

Reading

Gastritis

Gastritis is an inflammation, **irritation**, or **erosion** of the lining of the stomach. Gastritis is classified as erosive and nonerosive, acute and chronic. Chronic gastritis means some degree of atrophy.

1.

Gastritis can be caused by irritation due to **excessive** alcohol use, chronic **vomiting**, stress, or the use of certain medications such as aspirin or other anti-inflammatory drugs. It may also be caused by any of the following:

- **Helicobacter pylori**: bacteria that live in the mucous lining of the stomach. Without treatment the infection can lead to **ulcer**, and in some people, stomach cancer.
- Bile reflux: a backflow of bile into the stomach from the bile tract.
- Infections caused by bacteria and viruses.

If gastritis is left untreated, it can lead to a severe loss in blood and may increase the risk of developing stomach cancer.

2.

Symptoms of gastritis vary among individuals, and in many people there are no symptoms. However, the most common symptoms include: nausea, or **recurrent upset** stomach, abdominal **bloating**, abdominal pain, vomiting, **indigestion**, **burning** feeling in the stomach between meals or at night, **hiccups**, loss of appetite.

3.

To diagnose gastritis, a doctor reviews a personal and family medical history, performs a physical examination, and may recommend upper **endoscopy** or blood tests to **confirm** the diagnosis.

4.

Treatment for gastritis usually involves:

- Taking **antacids** and other drugs to reduce stomach acid, which causes further irritation to **inflamed** area; avoiding hot and spicy foods.
- For gastritis caused by *H. pylori* infection, a doctor will **prescribe** a regimen of several antibiotics plus an acid blocking drug.
- If the gastritis is caused by pernicious anaemia, B₁₂ vitamin injections will be given.
- No irritating foods in the diet such as lactose in dairy products or gluten in bread.

As soon as the **underlying problem** disappears, the gastritis usually does, too. A patient should talk to the doctor before stopping any medicine or starting any gastritis treatment on his own.

5.

Most people with gastritis **improve** quickly after treatment has begun. As soon as a doctor identifies the cause of gastritis and begins treatment, the prognosis for a full **recovery** is very good.



Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Соотнесите термины в таблице с их определениями. Первое выражение сделано как образец.

<i>involve, recurrent, irritation, excessive, bloated, nausea, pernicious, indigestion, hiccup</i>
--

1. <u>burning pain</u>	an intense, extreme pain
2. _____	greater than what is normal
3. _____	happening often or regularly
4. _____	swollen with gas or liquid
5. _____	pain caused by difficulty in digesting
6. _____	include
7. _____	a sharp, often repeated sound in the throat caused by stop of breathing
8. _____	destructive, or fatal unless treated
9. _____	extreme initial inflammatory reaction of the body tissues to an injury
10. _____	an unpleasant sensation referred to the epigastrium and abdomen, with a tendency to vomit

3. Закончите предложения, используя термины, перечисленные выше.

1. The cause of gastritis may be chronic and the symptoms are _____.

2. If the patient complains of _____

_____ and vomiting, one must first of all consider a disease of the abdominal cavity.

3. _____ consumption of junk food in our country is horrifying!

4. The patient suffered from _____ and _____ stomach.

5. Often because you have been eating or drinking too quickly, you may have _____.

6. The procedure _____ inserting an endoscope into the stomach through the mouth.

4. Закончите следующие предложения.

1. The causes of gastritis are _____

2. The symptoms of gastritis are _____

3. Gastritis can be confirmed by _____

4. The treatment of gastritis includes _____

5. The prognosis for patients with gastritis is _____

5. Подберите синонимы к словам.

1. recurrent	a. upset stomach
2. indigestion	b. basic
3. to confirm	c. backflow
4. reflux	d. destruction
5. to prescribe	e. chronic
6. underlying	f. acid blocking drug
7. erosion	g. to recommend
8. antacid	h. to prove

6. Подберите антонимы к данным словам:

1. recovery	a. chronic
2. erosive	b. result
3. acute	c. starting
4. cause	d. disease
5. stopping	e. relaxation
6. to increase	f. to contradict
7. to confirm	g. to reduce
8. stress	h. non-erosive

Language Development

1. Просмотрите текст о гастрите и ответьте на вопросы.

1. What kind of disease is gastritis?

2. How is gastritis classified?

3. What are the causes of gastritis?

4. What are the most common symptoms of gastritis?

5. What helps the doctor to make the diagnosis of gastritis?

6. What does the treatment of gastritis include?

7. What is prognosis for patients with gastritis?

2a. Прочитайте текст и выполните задания:

Antacids

1.

Antacids are **over-the-counter (OTC) medications** that help neutralize stomach acid. They work differently from other acid reducers such as H₂ receptor blockers and proton pump inhibitors (PPIs). Those drugs work by reducing or preventing the secretion of stomach acid.

Antacids can be used to treat symptoms of **excess** stomach acid, such as:

- acid reflux, which can include regurgitation, bitter taste, persistent dry cough, pain when lying down, and trouble swallowing
- heartburn, which is a burning sensation in your chest or throat caused by acid reflux
- indigestion, which is pain in your upper gut that can feel like gas or bloating

2.

Antacids usually come in the following drug forms:

- liquid
- **chewable** gummy or tablet
- tablet that you **dissolve** in

water to drink Popular antacid brands include Alka-Seltzer, Maalox, Phosphalugel, Gastal.

3.

Side effects from antacids are rare. However, they can occur, even when you use them according to the **directions**.

Antacids can either cause constipation or have a laxative effect. Some people have had allergic reactions. Antacids might also increase the risk of developing sensitivities to certain foods.

b. Найдите слова и фразы в тексте, имеющие следующее значение.

- an amount that is more than acceptable, expected, or reasonable:

- that which can be masticated

- drugs that you can buy without doctor's prescription:

- to be absorbed by a liquid, especially when mixed

- instructions on how to use a medication:

c. Просмотрите текст еще раз и озаглавьте его части. Перескажите текст по плану.

Grammar Point

Conditional Sentences: Type II and III

1. Повторите грамматический материал по теме занятия:

<https://www.englisch-hilfen.de/en/grammar/if.htm>

2. Выполните грамматические упражнения по следующим ссылкам:

https://www.englisch-hilfen.de/en/exercises/if_clauses/type_2_mix3.htm

https://www.englisch-hilfen.de/en/exercises/if_clauses/type_3_mix3.htm

https://www.englisch-hilfen.de/en/exercises/if_clauses/multiple_choice3.htm

3. Проект.

Choose one of the medications used to treat gastritis caused by *Helicobacter pylori*. Which group does it belong to?

Prepare a project describing its composition, indications, contraindications, side effects, and other important information.

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I can describe the causes and symptoms of gastritis
- I can talk about the treatment and prognosis of gastritis
- I can use *Conditional Sentences* of the II and III type

Key Words

antacid / an'tasɪd / n
bloating / 'bləʊtɪŋ / n
burning feeling /
confirm / kən'fə:m / v
endoscopy / en'dɒskəpi / n
erosion / ɪ'rəʊʒ(ə)n / n
excessive / ɛk'sesɪv / adj
gastritis / ga'straɪtɪs / n
H. (*Helicobacter*) pylori / 'helɪkə(ʊ)baktə
pɪl'ɒ:rɪ /
hiccup / 'hɪkʌp / n
improve / ɪm'pru:v / v
indigestion / ɪndɪ'dʒestʃ(ə)n / n
inflammation / ɪn'fleɪm / v
irritation / ɪrɪ'teɪʃn / n
nausea / 'nɔ:sɪə / n
prescribe / prɪ'skrɪb / v
recovery / rɪ'kʌv(ə)rɪ / n
recurrent / rɪ'kʌr(ə)nt / adj
ulcer / 'ʌlsə / n
underlying problem / ʌndə'laɪɪŋ 'prɒbləm /
upset stomach / ʌp'set 'stʌmək /
vomiting / 'vɒmɪtɪŋ / n

Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT XIV. DIABETES

In this unit

- talking about the main factors causing diabetes
- describing the types of diabetes and their treatment
- *the Infinitive Constructions*

Lead-in

1. Интересные факты.

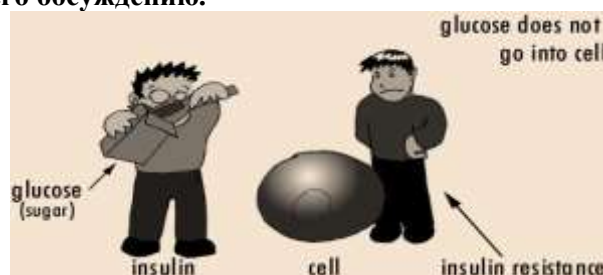
1. The term **diabetes** (Greek: διαβήτης) was coined by Aretaeus of Cappadocia. It is derived from the Greek word διαβαίνειν, that literally means "passing through," a reference to one of diabetes' major symptoms - excessive urine production.
2. In 1675 Thomas Willis added **mellitus** from the Latin word meaning a *sweet taste*. This had been noticed long before in ancient times by the Greeks, Chinese, Egyptians, and Indians.
3. In 1776 Matthew Dobson confirmed the sweet taste was because of an excess of a kind of sugar in the urine and blood of people with diabetes.
4. The ancient Indians tested for diabetes by observing whether ants were attracted to a person's urine, and called the ailment "sweet urine disease". The Korean, Chinese and Japanese words for diabetes all mean "sweet urine disease". Medieval European doctors tested for it by tasting the urine themselves.
5. While the term, *diabetes*, usually refers to diabetes mellitus, there are several other, rarer, conditions also named diabetes. The most common of these is *diabetes insipidus*, in which the urine is not sweet; it can be caused by either kidney or pituitary gland damage.
6. The term "**type 1 diabetes**" has universally replaced several former terms, including childhood onset diabetes, juvenile diabetes and insulin-dependent diabetes. "**Type 2 diabetes**" has also replaced several older terms, including adult-onset diabetes, obesity- related diabetes, and non-insulin dependent diabetes. Beyond these numbers, there is no standard, so a type 2 which has become insulin-dependent has sometimes been called **type 3**, while the same term is also used for gestational diabetes in some cases.



2. В парах обсудите следующие вопросы.

- Is diabetes a serious problem in Russia?
- What symptoms of diabetes have you heard about?
- What is your experience of dealing with patients having diabetes?

3. Прочитайте текст о диабете и подготовьтесь к его обсуждению.



Medical experts believe that African Americans, Latino Americans, Native Americans, and some Asian Americans and Native Hawaiians or other Pacific Islanders have an increased risk for type 2 diabetes.

According to the most recent estimates from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), 23.6 million people – over 7 % of the population – have diabetes.

Reading

DIABETES

Diabetes mellitus is the most common endocrine disorder that is marked by **elevated blood glucose** (commonly known as blood sugar). A large portion of the food that we eat is **converted** by the body into glucose. The blood **delivers** glucose throughout the body, but the hormone insulin is needed in order for it to be transported into most cells. Insulin comes from the **pancreas**. If the pancreas does not make enough insulin or cells are **resistant** to its activity, the blood glucose level becomes elevated.

There are two main forms of diabetes: *type 1*, *type 2*. Although they are similar in signs and symptoms, they have different causes and population distributions.

Type I diabetes

Type I diabetes, or **insulin-dependent** diabetes, represents about 5-10% of diabetic patients. It usually has a rapid **onset** and most often **manifest** in children and teenagers. It develops when the body's immune system destroys the cells in the body—called pancreatic beta cells—that produce insulin which regulates blood glucose levels (BGL).

The glucose level in the blood elevates and **excess** glucose is lost in the urine, causing weakness, weight loss, **thirst** and hunger. The treatment for type I diabetes is insulin **replacement**.

Type II diabetes

Type II diabetes, or **insulin-independent** diabetes is found in some 120 million adults (over 90% of people). In type 2 diabetes the pancreas produces insulin but the cells of the body become resistant or the amount of insulin is not enough. Glucose elevates in the blood stream (**hyperglycemia**) and the cells of the body are unable to function properly.

Some type II diabetics can be effectively treated with diet alone, but many need oral

medications. Historically, this has been thought of as **maturity** onset diabetes



stroke
eye damage
heart attack
kidney damage
impotence,
difficulty
passing urine
numbness and
reduced blood
supply

because it tends to occur after age 50, but there has been a dramatic **increase** in the number of adolescents with the disease. This is due to increased obesity and decreased physical activity in this age group.

Complications of Diabetes

Long-term complications of diabetes develop gradually. The longer you have diabetes — and the less controlled your blood sugar — the higher the risk of complications. Possible complications include:

- **Cardiovascular disease.** Diabetes dramatically increases the risk of various cardiovascular problems, including heart attack and stroke.
- **Kidney damage.** The kidneys contain millions of tiny blood vessel clusters (glomeruli) that filter **waste** from your blood. Diabetes can damage this delicate filtering system. Severe damage can lead to **kidney failure**.
- **Eye damage.** Diabetes can damage the blood vessels of the retina (diabetic **retinopathy**), potentially leading to **blindness**.

Skin conditions. Diabetes may cause various skin problems, including bacterial and fungal infections.

Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Соотнесите термины с их определениями.

1. pancreas	a. a person who suffers from diabetes
2. diabetes	b. a hormone produced in the cells of pancreas
3. hypoglycaemia	c. an amount of glucose in the blood
4. insulin	d. a low level of sugar in the blood
5. blood sugar level	e. the organ that produces insulin, which regulates blood sugar
6. diabetic	f. a disease characterized by high levels of sugar in the blood

3. Подберите синонимы к следующим словам.

1. to increase	a. to deliver
2. blood sugar	b. elevated sugar
3. to transform	c. to convert
4. to transport	d. obesity
5. excess	e. to elevate
6. hyperglycemia	f. dehydration
7. blindness	g. blood glucose
8. fatness	h. loss of sight
9. thirst	i. extra

4. Тест: Выберите правильный ответ, чтобы закончить следующие предложения.

- Insulin is used to
 - break down glucose
 - change food into glucose
 - make glucose
 - transport glucose into cells
- Insulin is made by the following organ
 - liver
 - brain
 - pancreas
 - heart
- When blood sugar levels are elevated, glucose is lost through the
 - urine
 - blood
 - pancreas
 - liver

The treatment for type I diabetes is

- controlling diet
- drinking lots of water
- increased exercise
- insulin replacement

4. The treatment for type II diabetes is

- controlling diet
- drinking lots of water
- increased exercise
- insulin replacement

5. Type II diabetes is increasing in adolescents because of

- increased obesity
- decreased physical activity
- both of these
- none of these

6. The major complication of diabetes is

- damage to the eyes.
- damage to the heart and blood vessels.
- nerve damage
- damage to the kidneys

7. What is the problem with insulin in type 2 diabetes?

- The pancreas stops producing insulin
- The body cells are resistant to insulin
- There is not enough insulin
- Both b and c

8. What populations are most likely to get type 2 diabetes?

- too fat people
- too tall people
- young people
- All of these

9. What causes retinopathy in diabetes patients?

- damage to retina capillaries
- damage to retina fluid
- damage to the kidneys
- metabolic syndrome

10. What causes kidney damage in diabetes patients?

- Damage to small vessels in the nephrons
- Damage to small vessels in the liver
- Damage to small vessels in the retina
- Damage to small vessels in the stomach

Language Development

1. Просмотрите текст о диабете и ответьте на вопросы.

1. What is diabetes mellitus?

2. What helps glucose to reach cells?

3. In what case does blood sugar level become elevated?

4. What types of diabetes are there?

5. What are different types of diabetes characterized by?

6. What groups of people does type II diabetes usually affect?

7. What is the treatment for diabetes?

8. What are complications of diabetes?

2. Прочитайте информацию о пациенте с диабетом и ответьте на вопрос «Какие простые, но важные изменения в своем образе жизни должен предпринять м-р Вильямс?»

Mr Harry Williams, a 68-year-old insulin-dependent diabetic, has lived on his own since his wife died five years ago. He is overweight and rarely does any exercise. He used to like walking along the beach with his wife but hardly ever goes to the beach now. He has become very careless about eating regular meals and, as a result, his blood sugar levels are not stable. He used to have one or two glasses of beer every night but recently his intake has increased. He also smokes about two packets of cigarettes a week. Mr Williams has come to the Diabetic Clinic to discuss lifestyle and nutritional changes.

Grammar References

The Infinitive Constructions

1. Повторите грамматический материал по теме занятия:

https://www.englisch-hilfen.de/en/grammar_list/gerund_infinitiv.htm

2. Выполните грамматические упражнения по следующим ссылкам:

<https://www.englisch-hilfen.de/en/exercises/infinitive1/index.php>

<https://www.perfect-english-grammar.com/infinitives-of-purpose-exercise-1.html>

<https://www.ego4u.com/en/cram-up/grammar/infinitive-gerund/exercises?11>

3. Проект.

Read and listen to the full version of Erica's story at:
http://kidshealth.org/teen/diseases_conditions/personal_stories/diabetes_erika

What are the main problems (physical, emotional, psychological, financial) diabetics are facing in the USA?

Find out how people with diabetes cope with the disease in Russia. Do they have similar problems? What seems to be the hardest in living with diabetes?

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I can talk about the main factors causing diabetes
- I can describe different types of diabetes and their treatment
- I can use infinitive constructions

Key Words

blindness / 'blʌɪndnəs / n

convert / kən'veɪt / v

deliver / dɪ'lɪvə / v

diabetes mellitus / dʌɪə'bi:tɪz `melɪtəs /

elevate / 'elɪveɪt / v

excess / ɪk'sɛs / n

hyperglycaemia / ,hʌɪpəglɪ'si:mɪə / n

increase / ɪn'kri:s / v

insulin-dependent diabetes

insulin-independent diabetes

kidney failure / 'kɪdni 'feɪljə /

manifest / 'mænɪfɛst / v

maturity / mə'tʃʊərəti / n

obesity / ə(ʊ)'bi:sɪti / n

onset / 'ɒnsɛt / n

replacement / rɪ'pleɪsm(ə)nt / n

resistant / rɪ'zɪstənt / adj

retina / 'retɪnə / n

retinopathy / ,retɪ'nɒpəθi / n

thirst / θɜːst / n

type I diabetes

type II diabetes

waste / weɪst / n

Просмотрите еще раз материал урока.

Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT XV. DERMATITIS

In this unit

- describing the structure of the skin
- talking about different types of dermatitis
- *Participle Constructions*

Lead-in

1. Интересные факты.

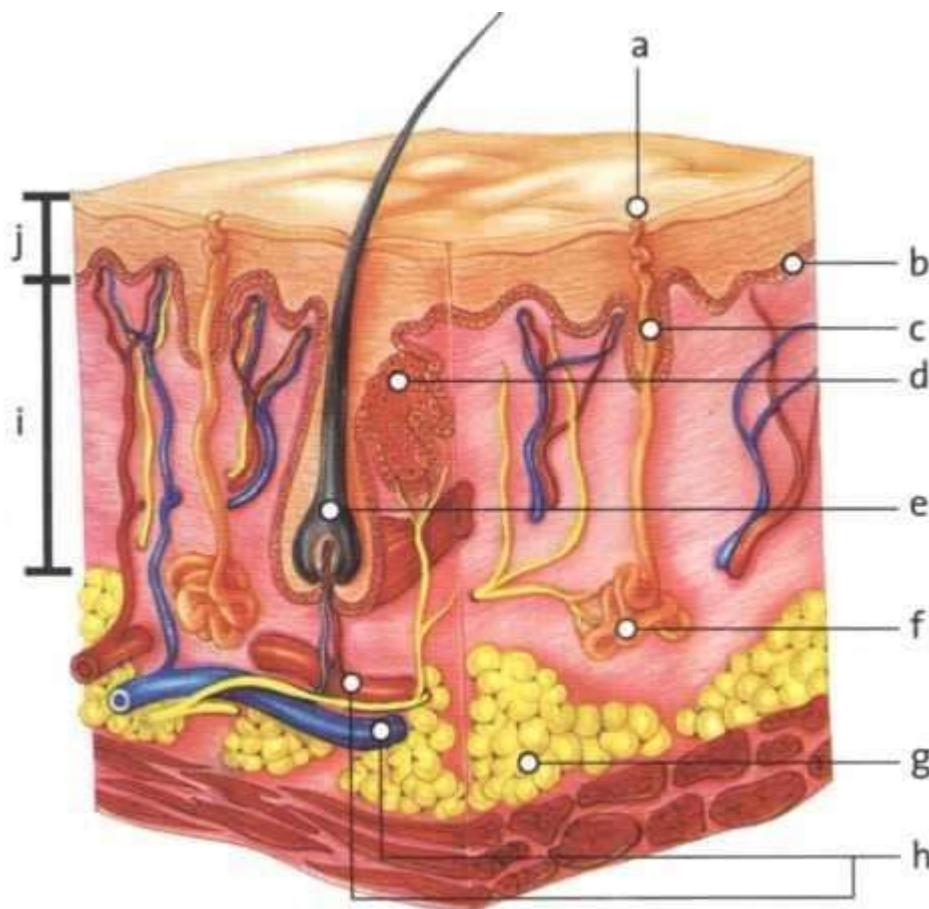
- Skin is the human body's largest organ
- The average human being has 640 cm² of skin and about 300 million skin cells
- The colour of human skin depends on the amount of pigment melanin that the body produces. Small amounts of melanin result in light skin while large amounts result in dark skin.

2. Ответьте на вопросы.

- Do you know any of the conditions in the picture on the right?
- What are the possible causes of each one or the risk factors for developing them?



3. Прочитайте текст о дерматитах, а затем обозначьте на рисунке структурные элементы и слои кожи.



The Human Body Skin

- a _____
b _____
c _____
d _____
e _____
f _____
g _____
h _____
i _____
j _____

In blind people, the brain's visual cortex is rewired to respond to stimuli received through touch and hearing, so they literally "see" the world by touch and sound.

The colour and texture of skin give information about your genes and its secretions generate a scent which is uniquely your own.

Reading

Dermatitis

Functions of the Skin

The skin and its associated structures make up the **integumentary system**. This body-covering system protects against infection, dehydration, ultraviolet radiation, and **injury**. Extensive damage to the skin can result in dangerous complications. The skin also serves in temperature regulation and sensory perception. The adjective **cutaneous** refers to the skin.

The Structure of the Skin

The thin outer layer of the skin is the **epidermis**, which is made of tough, flat cells. Dead cells at the surface form a scaly protective layer, and as these are lost, new skin cells are formed in the **basal cell layer** at the bottom of the epidermis. Also in this bottom layer are melanocytes, which produce the pigment melanin, giving the skin its colour and protecting it from UV light. The skin's inner layer, the **dermis**, is made of strong, elastic tissue. It contains nerve endings and small blood vessels. Sweat is produced in **sweat glands**, and comes up through sweat ducts to the surface of the skin from where it comes out through tiny **pores**. Body hairs grow in follicles in the dermis. Under the skin is a layer of subcutaneous fat. This keeps the body warm and absorbs shocks.

Skin Diseases

Many common skin conditions are characterized by **itchy**, red skin **eruptions** called **erythema** (redness). The study of the skin and diseases of the skin is dermatology, but careful observation of the skin, hair, and nails should be part of every physical examination.

Dermatitis

Dermatitis derives from Greek **derma** "skin" + **-itis** "inflammation". Dermatitis is a general term that describes an inflammation of the skin.

Dermatitis is also called **eczema**.

Although dermatitis can have many causes and **occurs** in many forms, this disorder usually involves an itchy **rash** on **swollen**, reddened skin. Skin affected by dermatitis may **ooze**, develop a **crust** or **flake off**.

There are several types of dermatitis. The most common types include:

- *Atopic dermatitis (eczema).*
- *Contact dermatitis.*
- *Seborrheic dermatitis.*

Treatment

Dermatitis is a common condition that usually is not life-threatening. Even so, it can make you feel uncomfortable.

Dermatitis treatment varies, depending on the cause. A combination of good skin care and medications can help you treat dermatitis. Using corticosteroid creams, **applying** compresses and avoiding **irritants** are the cornerstones of most dermatitis treatment plans.



Vocabulary Practice

1. Объясните значение выделенных слов из текста на предыдущей странице.

2. Найдите определения для данных слов.

1. rash	a. a small secretory cavity, sac, or gland.
2. crust	b. redness of the skin due to congestion of the capillaries
3. follicle	c. the surface epithelium of the skin, overlying the dermis.
4. erythema	d. trauma or wound
5. irritant	e. an area of redness and spots on a person's skin, appearing especially as a result of illness
6. dermis	f. A pad of lint or other absorbent material pressed on to part of the body to relieve inflammation or stop bleeding.
7. epidermis	g. an agent that produces inflammation or irritation
8. sweat gland	h. a hardened layer, coating, or deposit on the surface of something soft.
9. injury	i. a small gland that secretes sweat, situated in the dermis of the skin.
10. compress	k. the thick layer of living tissue below the epidermis which forms the true skin
3. Закончите предложения, употребляя слова из упражнения 2:	
1. He's got an itchy red _____ all over his chest.	

- The most important treatment is identifying and removing the _____ or allergen.
- A hair _____ is a sac from which a hair grows.
- Aluminum salts work to reduce the flow of sweat from the _____ to the skin surface.

- _____ is the medical term for redness of a specific area or organ of the body.
- He took some paracetamol and did cold

_____, but this really did not help much.

4. Словообразование. Образуйте прилагательные от следующих слов.

itch	
protect	
crust	
inflamm	
danger	
threaten	
swell	
comfort	
dermis	
redde	
dermatology	

5. Прочитайте информацию о контактном дерматите и поставьте все возможные вопросы к тексту.

The best treatment for contact dermatitis is to identify the allergen or irritating substance and avoid further contact with it. If the culprit (преступник) is, for instance, a cosmetic, avoidance is a simple matter but in some situations, such as an allergy to an essential workplace chemical, avoidance may be impossible. Barrier creams and protective clothing such as gloves, masks, and long-sleeved shirts are ways of coping with contact dermatitis when avoidance is impossible, though they are not always effective.

Language Development

1. Просмотрите текст о дерматите и ответьте на вопросы.

1. What are the functions of the skin?

2. What are the main layers of the skin?

3. What does epidermis contain?

4. What gives the colour to the skin?

5. What is dermis? What is it made of?

6. What glands are found to the skin? What is their role?

7. What skin diseases are there?

8. What branch of medicine deals with skin diseases?

9. What kind of disease is dermatitis? What types of dermatites are there?

7. What are the symptoms and treatment of dermatitis?

2. Выполните тест. Используйте онлайн ресурсы, если не сможете ответить на все вопросы самостоятельно.

1. Eczema is a general medical term for many types of skin inflammation.

a True **b** False

2. Eczema has no known cause.

a Yes **b** No

3. Is eczema contagious?

a Yes **b** No

4. Eczema can be triggered by

a sweat. **c** clothing.
b soap. **d** all of the above.

5. With eczema, the first symptom is usually

a swelling. **c** crusting.
b oozing **d** itching.

6. Pruritus is the medical term for

a itching. **c** flaking
b redness. **d** scratching.

7. In children and adults, eczema usually occurs on the scalp first.

a True **b** False

8. Eczema is best controlled by good skin care.

a True **b** False

9. Prescription treatments are available for severe eczema.

a True **b** False

10. How is eczema diagnosed?

a Blood test **c** Ultrasound
b CT scan **d** None of the above

11. Eczema can mimic other skin diseases and infections.

a True **b** False

12. _____ can irritate skin in people with eczema.

a Dairy **c** Sand
b Salt **d** Vitamin C

13. The skin itches. Scratching the itch is temporarily satisfying but actually leads to more itching. This describes

a itching. **c** the itch-scratch cycle.
b scratching. **d** none of the above.

14. People who have been diagnosed with eczema should avoid

a caffeine **c** the current smallpox vaccine.
b ibuprofen **d** salt.

Grammar Point

Participle Constructions

1. Повторите грамматический материал по теме занятия:

<https://www.english-hilfen.de/en/grammar/participien.htm>

2. Выполните грамматические упражнения по следующим ссылкам:

https://www.english-hilfen.de/en/exercises/structures/participles_sentences.htm

https://www.english-hilfen.de/en/exercises/structures/participles_phrases.htm

https://www.english-hilfen.de/en/exercises/structures/past_participle.htm

https://www.english-hilfen.de/en/exercises/structures/present_participle.htm

3. Проект.

Choose any of the diseases of the integumentary system and determine its treatment.

Checklist

Оцените, чему вы научились в этом уроке. Отметьте (✓) утверждения, которые справедливы для вас.

- I can describe the structure of the skin
- I know the causes of different types of dermatites
- I can describe the symptoms and treatment of dermatites
- I can use *Participle Constructions*

Key Words

apply / ə'plɪ / v
basal cell layer
crust / krʌst / n
cutaneous / kju:'teɪniəs / adj
dermatology / ,dɜ:mə'tɒlədʒi / n
dermis / 'dɜ:mɪs / n
eczema / /'ɛks(ɪ)mə/ / n
epidermis / ,ɛpɪ'dɜ:mɪs / n
eruption / ɪ'rʌpʃ(ə)n / n
erythema / ,ɛrɪ'θi:mə / n
flake off / fleɪk əf / v
follicle / 'fɒlɪk(ə)l / n
integumentary / ɪntə'gju:mənt(ə)ri / system
irritant / 'ɪrɪt(ə)nt / n
itchy / 'ɪtʃi / adj
occur / ə'kɜ:/ v
ooze / u:z / v
pore / pɔ:/ n
rash / rʌʃ / n
scratch / skretʃ / v
seborrheic / ,sebə'reɪk / adj
subcutaneous / ,sʌbkju:'teɪniəs / fat
sweat gland / swet gland /
swell / swel/ v

Просмотрите еще раз материал урока. Запишите другие слова и выражения, которые могут оказаться для вас полезными, и выучите их.

UNIT XVI. HEALTH AND MEDICINE

In this unit

- analyzing the structure of instruction for medical use
- verbs followed by –“ing” form (gerund or participle)

Lead-in

**1. Прочитайте отрывок из газеты об американских исследованиях в области медицины и ответьте на вопрос:
Аспекты какой проблемы поднимаются в статье?**

FRIENDS, MONEY ARE MEDICINE FOR HEART PATIENTS

*By Tim Friend
USA TODAY*

Anaheim, Calif. - Heart disease patients who have love, friends and money live longer than those who are poor and alone, new research shows.

"It's great to do all we can with technology, but people also should know just having someone to talk to is very powerful medicine", says Dr. Redford Williams, Duke University Medical Center, Durham, N.C.

His research shows that while money helps, the strongest predictor of heart patients' longevity was having a close relationship. Findings, presented at an American Heart Association meeting:

- 50% of unmarried patients had died five years after diagnosis. Married, 17%.
- 24% of people with family income of \$10,000 or less had died. Above \$40,000, 9%.

2. Прочитайте описание следующих клинических ситуаций и ответьте на вопросы:

CLINICAL SITUATIONS

1. A patient with high BP suffers from the acute onset of asthma. What drugs can be used for the prevention of the acute onset of asthma?

used for the prevention of the acute onset of asthma?

2. A patient with congestive heart failure and cirrhosis of the liver has been treated by digitalis. For three days he had been taking the therapeutic dose of the drug, so the therapeutic effects was positive and his condition improved. But in four days the toxic effects such as vomiting, nausea, bradycardia and extra systole appeared. Explain the course of the disease and the toxic effect of the drugs.
3. A patient with severe pain radiated to the left arm, fear of death and tachycardia was admitted into hospital. The doctor administered him the drug that decreased the level of BP but caused bronchoconstriction. What drug was given and why did that drug produce the spasm of bronchi?
4. A patient with high BP suffers from the acute onset of asthma. What drugs may be used? What antiasthmatic drugs are contraindicated in this case.
5. A patient with edema and congestive heart failure has been treated with diuretic drug. In five days the therapeutic effect of the drug stopped because the drug produced acidosis. Which diuretic was administered to the patient? Why does the effect of this diuretic depend on pH of blood?

3. а Прочитайте и переведите инструкцию для медицинского применения препарата Бетазерк.

Обратите внимание на структуру инструкции и составьте ее план.

BETASERC**INSTRUCTION FOR MEDICAL USE****Registration number:**

in Russia: n JIC-000268

in Kazakhstan: PK-JIC-5-N°007403.

Trade name: Betaserc®.

International nonproprietary name:

betahistine.

Dosage form: tablets.

Chemical name:

2-[2-(methylamino)ethyl]pvrindinedihydrochloride.

CompositionActive substance:

betahistine dihydrochloride, 24 mg.

Excipients:

microcrystalline cellulose, mannitol, citric acid monohydrate, colloidal silicon dioxide, talc.

Description

White or almost white biconvex tablets with beveled edges. On one side of the tablet: score imprinted and «289» on both sides around the score; on the other side - the symbol «S» above « ».

Pharmacological/therapeutic group

Histamine drug.

CodeATC:[N07CA01].

Pharmacological properties

Betaserc® (betahistine) acts mainly on H1 and H3-histamine receptors of the inner ear and central vestibular nuclei. Due to its directly agonistic action on the H1-histamine receptors of internal ear vessels and to its indirect action on H3-histamine receptors, the drug improves the microcirculation and permeability of the capillaries, normalizes endolymphatic pressure in the labyrinth and cochlea. At the same time Betahistine increases blood flow in the basilar artery. As an inhibitor of H3-histamine receptors of vestibular nerve nuclei, it shows a marked central effect. The drug normalizes vestibular nuclear neuronal conductivity at the level of the brain stem. The above mentioned clinical manifestation of the above properties is the decreased frequency and severity of vertigo episodes, alleviated tinnitus, and improved hearing in case of its deterioration.

Pharmacokinetics

The drug rapidly absorbs, its protein binding is low. The maximum blood concentration reaches in 3 hours. The half-life is 3-4 hours. It is virtually excreted by the kidneys as a metabolite (2-piridilacetic acid) within 24 hours.

Indications

- Treatment and prevention of vertigo of vestibular origin.
- Syndromes, including vertigo and headache, tinnitus, progressive hearing loss, nausea, and vomiting.
- Meniere's disease/syndrome.

Contraindications

Hypersensitivity to any component of the drug.

Precautions

The drug should be used with caution in patients with a history of peptic ulcer. Patients with pheochromocytoma and bronchial asthma should be regularly observed during the treatment.

Pregnancy and lactation

There are scarce data to evaluate the effect of the drug during pregnancy and lactation.

Dosage and administration

Orally, during a meal.

Betaserc 24 mg

Doses: 1 tablet; administrations - twice daily

An improvement is usually noted just within the first days of therapy; a steady-state clinical effect develops after two weeks of treatment and may increase during several months of treatment.

Treatment is long.

The duration of treatment should be determined on an individual basis.

Side effects

Gastrointestinal disturbances. There are rarely reports on skin hypersensitivity reactions (rash, itch, urticaria), Quincke's edema.

Overdosage

Symptoms: nausea, vomiting. Convulsions have been reported when a dose of 728 mg is used. Treatment: symptomatic therapy.

Drug interactions

Cases on interaction and incompatibility with other drugs are unknown.

Effect on the ability to drive a car and operate mechanisms

Betaserc® does not show any sedative effect or affect the ability to drive a car and operate machines and mechanisms.

Manufacturing form

- 24-mg tablets: 20 tablets in a PVC/PVDC/Al blister. 1, 2, 3 or 5 blisters (20, 40, 60 or 100 tablets) together with use instruction in a cardboard package.
- 24-mg tablets: 25 tablets in a PVC/PVDC/Al blister. 1, 2 or 4 blisters (25, 50 or 100 tablets) together with use instruction in a cardboard package.

Storage conditions

Store the drug in a dry place at a temperature not above 25°C. Keep out of reach of children.

Shelf-life

Shelf-life period is 5 years. Do not use the drug after the expiry date stated on the pack.

Dispensing terms

Prescription medicine.

Company name and manufacturer address

Solvay Pharmaceuticals B.V.,

36, C.J. van Houtenlaan,

NL-1381 CP Weesp, The Netherlands.

Tel.: +7 (095) 411 69 11.

Fax: +7(095)411 69 10, VavilovSt, 119991

Moscow

www.solvay-pharma.ru

Vocabulary Practice

1. Ответьте на вопросы по инструкции к медицинскому препарату (упр. 3).

1. What is a trade name?

2. What is a dosage form?

3. What is a pharmacological action?

4. What are indications for usage?

5. What are contraindications?

6. What is a dosage and administration?

7. What are drug interactions?

2. Завершите предложения:

1. Neuropharmacologic drugs _____ (воздействуют на) the nervous system.
2. The function of the sympathetic nerve network is _____ (способствовать) the flow of epinephrine from the adrenal gland, _____ (увеличивать) heart rate, _____ (сужать) blood vessels, _____ (расширять) air passages.
3. These drugs are the same _____ (химические вещества).
4. These drugs _____ (препятствуют) the actions of the adrenergic drugs.
5. Acetylcholine cannot _____ (быть назначен) to patients.
6. Drugs act _____ (расслабить) the muscles in the gastrointestinal tract and _____ (уменьшить) peristalsis.

Grammar Point

1. Повторите грамматический материал по теме занятия:

https://www.english-hilfen.de/en/grammar_list/gerund_infinitiv.htm

2. Выполните грамматические упражнения по следующим ссылкам:

https://www.english-hilfen.de/en/exercises/structures/gerund_pre_ogressive.htm

https://www.english-hilfen.de/en/exercises/structures/gerund_infinitive_verbs.htm

https://www.english-hilfen.de/en/exercises/structures/gerund_infinitive2.htm

3. Подготовка к зачету.

UNIT XVII. TEST

Test Questions

1. What is pharmacy? pharmacognozy? pharmacology?
2. What is it necessary to become a pharmacist? What are the duties of a pharmacist?
3. Why is the pharmaceutical industry so important in our life?
4. What do pharmaceutical companies deal with?
5. What departments do pharmaceutical companies usually have?
6. What specialists work in a pharmaceutical company and what are their job profiles?
7. What are pharmaceutical drugs produced for? How can you characterize the process of drug development?
8. What stages are included into the drug development?
9. What is the role of regulatory agencies?
10. What are the most common factors of drug packaging?
11. What does chemistry study?
12. What is the main task of analytical, physical, organic and inorganic chemistry?
13. What is the focus of study in biochemistry?
14. Characterize the main biological components of food.
15. What do food chemists do?
16. Which substances may be included into a composition of a cosmetic product?
17. Why does the cosmetic industry use nanotechnology?
18. Who created the Periodic table? When did it happen?
19. What did Mendeleev manage to predict?
20. Why is the Periodic table being constantly changed? What chemical elements have been discovered recently?
21. What is a laboratory?
22. What does laboratory equipment include? Describe some pieces of laboratory equipment.
23. What is the action of chemical compounds? Give examples.
24. Why is it important to know safety rules?
25. What clothes/devices must you wear at a chemical laboratory?
26. What items of clothes/footwear/jewelry are forbidden at a lab?
27. Which classes of chemicals require particular attention? What should you remember about using them at a lab?
28. What is chemical analysis? What two categories is chemical analysis divided into?
29. Describe classical and instrumental analysis.
30. Speak on the history of chemical analysis?
31. What kind of disease is myocardial infarction (MI) and what are its causes?
32. What are the typical symptoms and risk factors of heart diseases?
33. What does the treatment for heart attack include?
34. What kind of disease is influenza?
35. What are the symptoms and complications associated with the flu?
36. What is the treatment and methods of prevention of influenza?
37. What is a stroke and what can it be caused by?
39. What are the symptoms and risk factors of a stroke?
40. What is a primary goal in treating a stroke?
41. What kind of disease is gastritis and how is it classified?
42. What are the causes and the symptoms of gastritis?
43. What does the treatment of gastritis include?
44. What is diabetes mellitus?
45. What are different types of diabetes characterized by?
46. What is the treatment and complications for diabetes?
47. What are the functions and the structure of the skin?
48. What kind of disease is dermatitis? What types of dermatitis are there?
49. What are the symptoms and treatment of dermatitis?

VOCABULARY

adj = adjective /ˈxʃɪktɪv/ имя прилагательное

adv = adverb /ˈxɒvɜːb/ наречие

conj = conjunctive /kɒnˈdʒʌŋktɪv/ союз, союзное слово

irreg = irregular /ɪˈrɛɡjʊlə/ неправильный (о глаголах)

pl = plural /ˈplʊərl/ множественное число

prep = preposition /ˌprɛpəˈzɪʃən/ предлог

pron = pronoun /ˈprɒnəʊn/ местоимение

pp = past participle /pɹst ˈpɹtɪslpl/ причастие прошедшего времени

n = noun /naʊn/ имя существительное

v = verb /vɜːb/ глагол

A

acid *n* кислота (U 7)

adverse event побочное явление (U 2)

alleviate облегчить (боль, страдания, симптомы) (U 3)

although *prep* хотя (U 9)

amino acid *n* аминокислота (U 5)

analyte *n* аналит (U 9)

angina pectoris *n* стенокардия (U 10)

angioplasty *n* ангиопластика (U 10)

antacid *n* антацидное средство (U 13)

anxiety *n* тревога (U 10)

appearance *n* появление (U 7)

application *n* применение (U 7)

apply *v* применять; употреблять (U 15)

appropriate *adj* соответствующий (U 7)

arrange *v* организовывать, приводить в порядок (U 6)

arrest *n, v* остановить (кровотечение) (U 10)

assay *n* анализ (U 9)

assessment *n* оценивание, оценка (U 7)

associate *v* ассоциировать (U 11)

assurance – обеспечение, гарантия (U 3)

atomic mass атомный вес (U 6)

available *adj* доступный (U 9)

avoid *v* избегать (U 11)

B

balance *n* баланс (U 9)

basal cell layer слой базальных клеток (U 15)

base *n* химическое основание (U 7)

beaker *n* химический стакан, мензурка (U 7)

behavior *n* поведение (U 6)

blindness *n* слепота (U 14)

blister pack – блистерная упаковка (U 3)

bloating *n* вздутие (U 13)

blood clot – тромб (U 10)

branch *n* – отрасль (U 4)

brand new совершенно новый (U 6)

burning feeling чувство жжения (U 13)

C

carbohydrates *n* углеводы (U 5)

carbon *n* – углерод (U 4)

caustic *n* каустическая сода, каустик (U 7)

chemical *adj* химический (U 6)

chemical composition – химический состав (U 1)

chill *n* озноб (U 11)

classical analysis = wet chemical analysis

Clinical Affairs- клинический отдел (U 2)

clog *v* закупоривать; засорять (U 10)

clogged *adj* засорённый; засорённый (U 10)

cold *n* простуда (U 11)

column *n* колонка (U 6)

combustible *adj* горючий, воспламеняемый (U 8)

common *adj* распространённый (U 11)

common cold – простуда (U 11)

comparison *n* сравнение (U 7)

complication *n* осложнение (U 11)

composition *n* состав, структура (U 5)

compound *n* – соединение (U 4)

concept *n* понятие; идея (U 4)

confirm *v* подтверждать (U 13)

consequently *adv* следовательно (U 9)

contagious *adj* заразный (U 11)

contamination *n* загрязнение (U 5)

contribute *v* способствовать, делать вклад (U 4)

convert *v* превратить, преобразовать (U 14)

create *v* создавать (U 6)

crucial – крайне важный, существенный (U 3)

crust *n* струп; короста (U 15)

currently *adv* теперь (U 9)

cutaneous *adj* кожный (U 15)

D

damage *n, v* повреждение; ущерб (U 10)

danger *n* опасность; угроза; (U 8)

degradation – снижение качества (U 3)

deliver *v* доставлять (U 14)

delivery *n* снабжение, поставка (U 4)

density *n* плотность (U 6)

dermatology *n* дерматология (U 15)

dermis *n* дерма (U 15)

detect *v* обнаружить (U 9)

determination *n* определение (U 9)

diabetes mellitus сахарный диабет (U 14)

diarrhea *n* диарея (U 11)

dispense – готовить и распределять (лекарства) (U 1)

dispose of *v* утилизировать (U 8)

distinct *adj* отчётливый (U 9)

distinguish *v* различать (U 11)

dizziness *n* головокружение (U 12)

dizzy *n* страдающий от головокружения (U 10)

dye *n, v* краска, красить (U 5)

E

echocardiography *n* эхокардиография (U10)

eczema *n* экзема (U 15)

efficacy *n* эффективность (U 3)

elevate *v* повышать, поднимать (U 14)

emergency *n* неотложное состояние (U 12)

employ *v* применять (U 9)

emulsifier *n* эмульсификатор (U 5)

encounter *v* встретить,

endoscopy *n* эндоскопия (U 13)

ensure - обеспечивать; гарантировать (U 3)

environment *n* окружающая среда (U 4)

enzyme *n* энзим, фермент (U 5)

epidermis *n* эпидермис (U 15)

equipment *n* оборудование (U 7)

erosion *n* эрозия (U 13)

eruption *n* высыпание (на коже) (U 15)

erythema *n* покраснение кожи; эритема (U15)

excess *adj* избыточный (U 14)

excessive *adj* избыточный (U 13)

experiment *n* эксперимент

expose *v* подвергать воздействию (U 8)

F

family history семейный анамнез (U 12)

flake off *v* шелушиться (U 15)

flammable *adj* воспламеняемый (U 8)

follicle *n* фолликул (U 15)

footwear *n* обувь

forbid (forbade, forbidden) *v* запрещать (U 8)

forceps *n pl* щипцы (медицинские, лабораторные) (U 7)

formulation *n* состав, подбор состава, технология изготовления лекарственного препарата (U 2)

founder *n* основатель (U 9)

fragrance *n* аромат (U 5)

fuel *n* топливо (U 5)

G

gastritis *n* гастрит (U 13)

glassware *n* лабораторная посуда (U 7)

grab *v* схватить, ухватить (U 7)

H

H. (Helicobacter) pylori Хеликобактер пилори (U 13)

hazard *n* опасность (U 8)

health outcomes - результаты лечения (U1)

health regulations – правила охраны труда и здоровья (U 2)

heart attack - сердечный приступ (U 10)

heat *v* нагревать (U 8)

hemorrhagic *adj* кровоточивый (U 12)

hiccup *n* икота (U 13)

hyperglycaemia //гипергликемия (U 14)

I

identify *v* определять (U 4)

identity *n* идентичность (U 9)

immediately *adv* немедленно (U 12)

immunity *n* иммунитет (U 11)

impatience *n* нетерпение (U 10)

improve *v* улучшать **inflamm** *v* воспалиться (U 13)

increase *v* увеличивать (U 4)

indigestion *n* несварение желудка (U 10)

inflate *v* наполнять; надувать (U 10)

influenza *n* грипп (U 11)

inhibit *v* угнетать; приостановить (U 10)

instrumental *adj* инструментальный (U 9)

insulin-dependent diabetes

инсулинозависимый диабет (U 14)

insulin-independent diabetes

инсулинонезависимый диабет (U 14)

integumentary system покровная система (U 15)

interact *v* взаимодействовать (U 4)

International Pharmaceutical Federation

(FIP) - Международная фармацевтическая федерация (U 1)

intervene - вступать в действие, вмешиваться (U 3)

involve *v* включать, вовлекать (U 4)

irritant *n* раздражитель (U 15)

irritation *n* раздражение

ischemic *adj* ишемический (U 12)

isolate *v* выделять (U 6)

itchy *adj* зудящий (U 15)

J

job profile – должностные обязанности, профиль работы (U 2)

K

kidney failure почечная недостаточность (U 14)

L

lab coat *n* лабораторный халат (U 8)

lack *n* отсутствие (U 12)

light-headed *adj* чувствующий головокружение (U 10)

lipids *n* жиры (U 5)

loose *adj* распущенный (о волосах) (U 8)

M

make sure убеждаться (U 8)

makeup *n* компонентный состав (U 4)

manifest *v* проявлять (U 14)

manner *n* способ (U 9)

Marketing and Sales department – коммерческий отдел (U 2)

matter *n* вещество (U 4)

maturity *n* зрелость (организма) (U 14)

measure *v* измерять (U 4)

medicinal chemistry - лекарственная химия (U 1)

melting point температура плавления (U 6)

mild *adj* легкий (форма болезни) (U 11)
miss *v* отсутствовать (U 6)
mission – цель, назначение (U 1)
myocardial infarction - инфаркт миокарда (U 10)

N

nausea *n* тошнота
New Drug Application - заявка на регистрацию нового препарата (U 3)
nutrition *n* питание (U 5)
obesity *n* ожирение (U 12)
obstruction *n* закупорка, окклюзия (U 12)
occur *v* случаться; происходить (U 4)
online pharmacy - интернет-аптека (U 1)
onset *n* начало, приступ (U 11)
ooze *v* сочиться, выделять (U 15)
outcome *n* исход, результат лечения (U 12)
overall suitability – общая (всесторонняя) пригодность (U 1)
overweight *n* избыточный вес (U 12)
oxygen *n* кислород (U 12)

P

packaging – упаковка (U 3)
patent – патент (U 3)
periodic table периодическая таблица (U 6)
pharmaceutical – фармацевтический (U 3)
pharmaceutical industry – фармацевтическая отрасль (U 2)
Pharmaceutics – фармацевтика (U 1)
pharmacodynamics фармакодинамика (U 4)
pharmacognozy - фармакогнозия (U 1)
pharmacokinetics *n* фармакокинетика (U4)
pharmacopoeia - фармакопея (U 1)
pharmacopoeial – фармакопейный (U 1)
pharmacovigilance – фармакологический надзор (U 2)
pharmacy practice - фармацевтика (U 1)
plaque *n* бляшка (U 10)
pneumonia *n* пневмония (U 11)
poisonous / *adj* токсический (U 8)
pore *v* пора (U 15)
pour *v* наливать (U 8)
precipitate *v* осаждаться (U 9)
predict *v* предсказывать (U 6)
predisposition *n* склонность (U 10)
prescribe *v* прописывать, назначать (U 13)
prevent *v* предотвращать (U 8)
processing *n* обработка (U 5)
production lot – партия продукции (U 3)
property *n* свойство (U 4)
proteins *n* белки (U 5)
provide *v* снабжать, обеспечивать (U 12)
purity - чистота; беспримесность (U 1)

Q

qualitative *adj* качественный (U 4)
Quality Assurance (QA) - контроль качества (U 2)
quantitative *adj* количественный (U 4)

R

rack *n* подставка, штатив (U 7)
radiate *v* иррадиировать (U 10)
range *n* диапазон (U 9)
rash *n* сыпь (U 15)
reagent *n* реагент (U 9)
recognize *v* осознать; признавать (U 6)
recovery *n* выздоровление (U 13)
recurrent *adj* рецидивирующий (U 13)
Regulatory Affairs - отдел нормативно-правового регулирования (U 2)
regulatory agencies - орган государственного регулирования и контроля (U 3)
release *v* выделять (U 11)
relieve *v* облегчать (U 11)
rely on *v* полагаться на (U 9)
remove *v* снимать (U 8)
replacement *n* замещение (U 14)
requirement *n* требование (U 7)
Research and Development (R&D) – научно-исследовательский отдел (U 2)
resistant / *adj* устойчивый, резистентный (U14)
respectively *adv* соответственно (U 6)
retina *n* сетчатка (глаза) (U 14)
retinopathy *n* ретинопатия (U 14)
risk/benefit ratio - соотношение риска/пользы (U 1)
row *n* ряд (U 6)
rupture *n* перфорация; обрыв; вскрытие (U 12)

S

sachet - фильтр-пакет (U 3)
safety *n* безопасность (U 5)
sample *n* образец (U 9)
scratch *v* расчёсывать (U 15)
search *v* искать (U 4)
seborrhic *adj* себорейный (U 15)
separate *v* отделять, разделять (U 4)
severe *adj* тяжёлый (U 11)
shelf life – срок годности, срок хранения (U 3)
significant *adj* важный, значительный (U 6)
smell (smelt, smelt) *v* нюхать (U 8)
sorting *n* отбор, упорядочивание (U 6)
source *n* источник (U 4)
space *n* пространство (U 6)
spill *n* брызги (U 8)
squeeze *v* сжиматься (U 10)
Standard Operating Procedures – технологическая инструкция (U 2)
starch *n* крахмал (U 5)
stent *n* стент (U 10)
sticky label – стикер (U 3)
stir *v* перемешивать (U 7)
stopper пробка
storage *n* хранение (U 5)
strain *n* штамм (U 11)
stroke *n* приступ; инсульт (U 12)

stuffy *adj* заложенный (о носе) (U 11)
subcutaneous fat подкожно-жировая клетчатка (U 15)
subject to – подвергать (U 3)
substance //n вещество (U 4)
substandard - некачественное (лекарственное средство) (U 1)
sweat gland потовая железа (U 15)
swell (swelled, swollen) *v* распухать (U 15)
symbol *n* символ (U 6)

T

take in *v* принимать, поглощать (U 5)
taste *n* вкус (U 5)
test tube пробирка (U 7)
thickener *n* загуститель (U 5)
thirst *n* жажда (U 14)
tissue *n* ткань (U 4)
tongs *n pl.* щипцы (U 7)
tool *n* инструмент (U 7)
transmission *n* передача (U 11)
trial - исследование; проверка (U 3)
trigger *n, v* возбудитель, инициирующий фактор (U 10)

type I diabetes диабет 1 типа (U 14)
type II diabetes диабет 2 типа (U 14)

U

ulcer *n* язва (U 13)
underlying problem фундаментальная проблема (U 13)
unobstructed *adj* свободный (U 8)
upset stomach расстройство желудка
urgent *adj* неотложный (U 10)

V

vapour *n* пары (U 8)
vision *n* зрение (U 12)
volatile *adj* испаряющийся (U 8)
vomiting *n* рвота (U 13)

W

waste *n* waste, продукты распада (U 14)
weakness *n* слабость (U 12)
wear (wore, worn) носить (U 8)
WHO = the World Health Organization – Всемирная Организация Здравоохранения (ВОЗ) (U11)
worsen *v* ухудшаться (U 11)

TABLE OF TENSES

Active Voice

ASPECT		SIMPLE	PROGRESSIVE	PERFECT	PERFECT PROGRESSIVE
MEANING		a common aspect When?	a process At what time?	priority By what time?	priority + process Since what time? How long?
Period of time		usually, often, always, seldom, every day (week, month, year)	now, at the moment	ever, never, just, already, nor...yet, by 3p.m.	since 3p.m., for a long time, for a month...
Present	+	V, Vs	am is + Ving are	have + Ved, V3 has	have + been + Ving has
	?	do, does... V	inversion	inversion	inversion
	-	do, does + not + V	am, is, are + not + Ving	have, has + not + Ved, V3	have, has + not + been + Ving
Period of time		yesterday, last week (month, year), long ago	yesterday at 3p.m., yesterday from 6 till 7, when you came...	yesterday by 3p.m., before some time in the past...	yesterday since 3p.m., for some time in the past
Past	+	Ved, V2	was + Ving were	had + Ved, V3	had + been + Ving
	?	did... V	inversion	inversion	inversion
	-	did + not + V	was, were + not + Ving	had + not + Ved, V3	had + not + been + Ving
Period of time		tomorrow, next week (month, year)	tomorrow at 3p.m., tomorrow from 6 till 7, when you come	tomorrow by 3p.m., by some time in the future	tomorrow since 3p.m., for some time in the future
Future	+	will + V	will + be + Ving	will + have + Ved, V3	will + have + been + Ving
	?	did... V	inversion	inversion	inversion
	-	won't + V	won't + be + Ving	won't + have + Ved, V3	won't + have + been + Ving

Passive Voice

		SIMPLE	PROGRESSIVE (CONTINUOUS)	PERFECT
Present	+	am is + Ved, V ₃ are	am is + being + Ved, V ₃ are	have + been + Ved, V ₃ has
	?	inversion	inversion	inversion
	-	am is + not + Ved, V ₃ are	am is + not + being + Ved, V ₃ are	have + not + been + Ved, V ₃ has
Past	+	was + Ved, V ₃ were	was + being + Ved, V ₃ were	had + been + Ved, V ₃
	?	inversion	inversion	inversion
	-	was + not + Ved, V ₃ were	was + not + being + Ved, V ₃ were	had + not + been + Ved, V ₃
Future	+	will + be + Ved, V ₃	-	will + have + been + Ved, V ₃
	?	inversion		inversion
	-	won't + be + Ved, V ₃		won't + have + been + Ved, V ₃

Таблица наиболее употребительных неправильных глаголов английского языка

№	Перевод	I форма Infinitive	II форма Past Simple Active	III форма Past Participle
1	быть; находиться	be [bɪ]	was [wʌz] were [wɜː]	been [biːn]
2	носить; рождать (born)	bear [beɪə]	bore [boɪə]	borne [boɪn] born [bɔːn]
3	становиться, делаться	become [bɪ'kʌm]	became [bɪ'keɪm]	become [bɪ'kʌm]
4	начинать(ся); приступать (к)	begin [bɪ'ɡɪn]	began [bɪ'ɡæn]	begun [bɪ'ɡʌn]
5	гнуть(ся), сгибать(ся)	bend [bɛnd]	bent [bɛnt]	bent [bɛnt]
6	держаться, спорить	bet [bet]	bet [bet]	bet [bet]
7	кусать(ся)	bite [baɪt]	bit [bɪt]	bitten [bɪtn]
8	дуть, раздувать	blow [bləʊ]	blew [blɪʊ]	blown [blaʊn]
9	ломать(ся)	break [breɪk]	broke [brəʊk]	broken [brəʊkn]
10	приносить, привозить	bring [brɪŋ]	brought [brɒt]	brought [brɒt]
11	строить	build [bɪld]	built [bɪlt]	built [bɪlt]
12	жечь, обжигать; гореть	burn [bɜːn]	burnt [bɜːnt]	burnt [bɜːnt]
13	покупать	buy [baɪ]	bought [bɒt]	bought [bɒt]
14	ловить, поймать; схватить	catch [kætʃ]	caught [kɒt]	caught [kɒt]
15	выбирать; избирать	choose [tʃɔɪz]	chose [tʃəʊz]	chosen [tʃəʊzn]
16	приходить, приезжать	come [kʌm]	came [keɪm]	come [kʌm]
17	стоять	cost [kɒst]	cost [kɒst]	cost [kɒst]
18	резать; снижать	cut [kʌt]	cut [kʌt]	cut [kʌt]
19	рыть(ся), копать(ся)	dig [dɪɡ]	dug [dʌɡ]	dug [dʌɡ]
20	делать; вспом. глагол и др.	do [dʊ]	did [dɪd]	done [dʌn]
21	тянуть; рисовать, чертить	draw [draʊ]	drew [driː]	drawn [draʊn]
22	мечтать; видеть во сне	dream [driːm]	dreamt [dremt]	dreamt [dremt]
23	пить	drink [drɪŋk]	drank [dræŋk]	drunk [drʌŋk]
24	везти; вести (машину)	drive [draɪv]	drove [drouv]	driven [driːvn]
25	есть, питаться	eat [iːt]	ate [et]	eaten [iːtn]
26	падать	fall [fɔːl]	fell [fel]	fallen [fɛlən]
27	кормить(ся)	feed [fiːd]	fed [fed]	fed [fed]
28	чувствовать; ощущать	feel [fiːl]	felt [felt]	felt [felt]
29	бороться	fight [faɪt]	fought [fɒt]	fought [fɒt]
30	находить, обнаруживать	find [faɪnd]	found [faʊnd]	found [faʊnd]
31	лететь	fly [flaɪ]	flew [fluː]	flown [flaʊn]
32	забывать, не помнить	forget [fə'ɡet]	forgot [fə'ɡɒt]	forgotten [fə'ɡɒtn]

33	прощать	forgive [fɔ'gɪv]	forgave [fɔ'gɛlv]	forgiven [fɔ'gɪvn]
34	замерзать; замораживать	freeze [friːz]	froze [frouz]	frozen [frouzn]
35	получать; приобретать; понимать	get [gɛt]	got [gɒt]	got [gɒt]
36	давать, передавать	give [gɪv]	gave [gɛlv]	given [gɪvn]
37	идти; ехать; уходить, уезжать	go [gou]	went [wɛnt]	gone [gɒn]
38	расти; увеличиваться	grow [grou]	grew [grʊ]	grown [groun]
39	1) висеть, вешать; 2) вешать (казнить)	hang [hɒŋ]	1) hung [hʌŋ] 2) hanged [hɒŋd]	1) hung [hʌŋ] 2) hanged [hɒŋd]
40	иметь; быть должным	have [hɒv]	had [hɒd]	had [hɒd]
41	слышать; слушать	hear [hiə]	heard [hɜd]	heard [hɜd]
42	прятать(ся); скрывать(ся)	hide [haɪd]	hid [haɪd]	hidden [hɪdn]
43	держать; владеть; вмещать	hold [hould]	held [hɛld]	held [hɛld]
44	ушибить, причинять боль	hurt [hɜt]	hurt [hɜt]	hurt [hɜt]
45	содержать, хранить	keep [ki:p]	kept [kɛpt]	kept [kɛpt]
46	знать	know [nou]	knew [nju]	known[noun]
47	класть, положить	lay [leɪ]	laid [laɪd]	laid [laɪd]
48	вести, руководить	lead [li:d]	led [led]	led [led]
49	учить(ся), изучать; узнавать	learn [lɜ:n]	learnt [lɜ:nt]	learnt [lɜ:nt]
50	покидать, оставлять	leave [li:v]	left [left]	left [left]
51	позволять, разрешать	let [let]	let [let]	let [let]
52	1) лежать 2) лгать (прав. глагол)	lie [laɪ]	1) lay [leɪ] 2) lied [laɪd]	1) lain [leɪn] 2) lied [laɪd]
53	зажигать(ся), освещать(ся)	light [laɪt]	lit [lɪt]	lit [lɪt]
54	терять; проигрывать	lose [liːz]	lost [lɒst]	lost [lɒst]
55	делать, производить	make [meɪk]	made [meɪd]	made [meɪd]
56	значить	mean [mi:n]	meant [meɪnt]	meant [meɪnt]
57	встречать(ся); знакомиться	meet [mi:t]	met [met]	met [met]
58	платить	pay [peɪ]	paid [peɪd]	paid [peɪd]
59	класть, положить	put [put]	put [put]	put [put]
60	читать	read [ri:d]	read [red]	read [red]
61	звонить	ring [rɪŋ]	rang [rɒŋ]	rung [rʌŋ]
62	подниматься; возрастать	rise [raɪz]	rose [rouz]	risen [rlzn]
63	бежать; двигаться	run [rʌn]	ran [rɒn]	run [rʌn]
64	говорить, сказать	say [seɪ]	said [sed]	said [sed]
65	видеть; понимать	see [si:]	saw [sɔ:]	seen [si:n]
66	искать, разыскивать	seek [si:k]	sought [sɔ:t]	sought [sɔ:t]
67	продавать(ся)	sell [sel]	sold [sould]	sold [sould]
68	посылать, отправлять	send [send]	sent [sent]	sent [sent]

69	помещать, ставить	set [sɛt]	set [sɛt]	set[sɛt]
70	трясти(сь); качать	shake [ʃeɪk]	shook [ʃuk]	shaken ['ʃeɪkn]
71	стрелять; поражать	shoot [ʃʊt]	shot [ʃɒt]	shot [ʃɒt]
72	показывать	show [ʃəʊ]	showed ['ʃəʊd]	shown [ʃəʊn]
73	закрывать(ся); перекрывать	shut [ʃʌt]	shut [ʃʌt]	shut [ʃʌt]
74	петь	sing [sɪŋ]	sang [sɔŋ]	sung [sʌŋ]
75	тонуть; погружать(ся)	sink [sɪŋk]	sank [sɔŋk]	sunk [sʌŋk]
76	сидеть; заседать	sit [sɪt]	sat [sɔt]	sat [sɔt]
77	спать	sleep [sli:p]	slept [slept]	slept [slept]
78	говорить, разговаривать	speak [spi:k]	spoke [spouk]	spoken [spoukn]
79	тратить, расходовать	spend [spɛnd]	spent [spɛnt]	spent [spɛnt]
80	распространять (ся)	spread [sprɛd]	spread [sprɛd]	spread [sprɛd]
81	стоять; ставить	stand [stænd]	stood [stud]	stood [stud]
82	красть, воровать	steal [sti:l]	stole [stouɪ]	stolen [stouɪn]
83	1) ударять(ся); 2) бастовать	strike [straɪk]	struck [strʌɪk]	struck [strʌɪk]
84	клясться; ругать(ся)	swear [swɛə]	swore [swɔ]	sworn [swɔn]
85	плыть, плавать	swim [swɪm]	swam [swɔm]	swum [swʌm]
86	брать; принимать	take [teɪk]	took [tuk]	taken [teɪkn]
87	учить, преподавать	teach [ti:tʃ]	taught [tɔ:t]	taught [tɔ:t]
88	рвать(ся)	tear [tiə]	tore [tɔ]	torn [tɔn]
89	говорить; рассказывать	tell [tel]	told [tould]	told [tould]
90	думать; полагать	think [θɪŋk]	thought [tɔ:t]	thought [tɔ:t]
91	бросать, кидать	throw [θrou]	threw [tri:]	thrown [θroun]
92	понимать, постигать	understand ['ʌndə'stænd]	understood ['ʌndə'stʊd]	understood ['ʌndə'stʊd]
93	носить (одежду)	wear [wɛə]	wore [wɔ]	worn [wɔn]
94	выиграть, победить	win [wɪn]	won [wʌn]	won [wʌn]
95	писать	write [raɪt]	wrote [rɔut]	written ['rɪtn]

References

Paper-books

1. Марковина И.Ю. Учебник английского языка для медицинских вузов / Марковина И.Ю., Максимова З.К., Вайнштейн М.Б. - М.: ГЭОТАР-МЕД, 2013. - 368 с.
2. Маслова А.М. Английский язык для медицинских вузов: учебник / А.М. Маслова, З.И. Вайнштейн, Л.С. Плебейская. - М.: ГЭОТАР - Медиа, 2013. - 272 с.
3. Alexander L.G. Longman English Grammar Practice for Intermediate Students: Self-Study Edition with Key / by L.G. Alexander. - Longman, 1998. - 302 p.
4. Check Your English Vocabulary for Medicine. A&C Black Publishers Ltd, 2006. - 58 p.
5. Dooley J. Grammarway 3 with Answers / by J. Dooley, V. Evans. - Express Publishing, 1999. - 269 p.
6. Glendinning E.G. English in Medicine: A Course in Communication Skills / by E.G. Glendinning, B.A.S.Holmstorm. - Cambridge University Press, 2005. - 148 p.
7. Grice T. Oxford English for Careers. Nursing 1: Student's Book / by T.Grice. - Oxford University Press, 2009. - 136 p.
8. Grice T. Oxford English for Careers. Nursing 2: Student's Book / by T.Grice and J. Greenan. - Oxford University Press, 2011. - 136 p.
9. McCarte S. Oxford English for Careers. Medicine 1: Student's Book / by S. McCarter. - Oxford University Press, 2009. - 144 p.
10. Murphy R. English Grammar in Use / by R. Murphy. - Cambridge University Press, 2012. - 398 p.
11. Nguyen Quang. English for Medical Students 2: Workbook +Audio / by Nguyen Quang, MD.
12. Oxford Advanced Learner's Dictionary. - Oxford University Press, 1995 - 1430 p.
13. Oxford Wordpower Dictionary. - Oxford University Press, 1996 - 746 p.
14. Riley D. Test Your Vocabulary for Medicine: A Workbook for Users / by David Riley. - Peter Collin Publishing Ltd, 1995. - 46 p.
15. Stedman's Medical Dictionary for the Health Professions and Nursing. - Lippincott Williams & Wilkins, 2008. - 2030 p.

Internet Resources

1. 36 Interesting Facts about the Heart [Электронный ресурс]. [2014]. URL: <http://facts.randomhistory.com/human-heart-facts.html>
2. A Practical Guide to Clinical Medicine. Exam of the Abdomen [Электронный ресурс]. [2014]. URL: <http://meded.ucsd.edu/clinicalmed/abdomen.htm>
3. Communicable Diseases [Электронный ресурс]. [2014]. URL: <http://www.dhs.wisconsin.gov/Communicable/index.htm>
4. Digestion [Электронный ресурс]. [2014]. URL: <http://www.encyclopedia.com/topic/Digestion.aspx>
5. Endoscopy [Электронный ресурс]. [2014]. URL: <http://en.wikipedia.org/wiki/Endoscopy>
6. Flu Symptoms and Severity [Электронный ресурс]. [2014]. URL: <http://www.cdc.gov/flu/about/disease/symptoms.htm>
7. Heart Attack. NHS choices [Электронный ресурс]. [2014]. URL: <http://www.nhs.uk/Conditions/Heart-attack/Pages/Introduction.aspx>
8. Heart Physiology. Blood Pressure [Электронный ресурс]. [2009]. URL: <http://bmeng.blogspot.com/2009/03/blood-pressure-blood-pressure-is-force.html>
9. Helicobacter Pylori and Stomach Pain [Электронный ресурс]. [2014]. URL: <http://www.patient.co.uk/health/helicobacter-pylori-and-stomach-pain>
10. How the Heart Works [Электронный ресурс]. [2014]. URL: <http://www.nhlbi.nih.gov/health/health-topics/topics/holes/heartworks.html>
11. Human Physiology. The gastrointestinal System [Электронный ресурс]. [2014]. URL: http://en.wikibooks.org/wiki/Human_Physiology/The_gastrointestinal_system
12. I am Your Liver... [Электронный ресурс]. [2014]. URL: <http://www.lashgroup.org/hcvdoc.pdf>
13. Infections [Электронный ресурс]. [2014]. URL: <http://medtalk.up.seesaa.net/image/Infections.pdf>
14. Liver Diseases [Электронный ресурс]. [2014]. URL: <http://www.apollohealthcity.com/ApolloTransplant/?commonDisordersFAQs>
15. Loma Linda University Health. Glossary [Электронный ресурс]. [2014]. URL: <http://lomalindahealth.org/medical-center/for-patients-and-visitors/glossary.page>
16. The ABC's of the Heart Disease Prevention [Электронный ресурс]. [2014]. URL: http://www.sedhd.org/images/ABCs_of_heart_disease_for_web.pdf
17. The Cardiovascular System [Электронный ресурс]. [2014]. URL: <https://www.inkling.com/read/essential-clinical-anatomy-keith-moore-4th/introduction-to-clinical-anatomy/cardiovascular-system>
18. The Respiratory System in Humans [Электронный ресурс]. [2014]. URL: <http://www.scienceok.com/human-body/respiratory.php>
19. The Respiratory System. Cough. [Электронный ресурс]. [2014]. URL: http://medtalk.up.seesaa.net/image/The20Respiratory20System_.pdf
20. The Story of Influenza [Электронный ресурс]. [2014]. URL: <http://www.ncbi.nlm.nih.gov/books/NBK22148/>
21. U.S. Food and Drug Administration [Электронный ресурс]. [2016]. URL: <http://www.fda.gov/>
22. Wikipedia, the Free Encyclopaedia [Электронный ресурс]. [2016]. URL: <https://en.wikipedia.org>