

МИНИСТЕРСТВО СЕЛЬСКОГО ХОЗЯЙСТВА РОССИЙСКОЙ ФЕДЕРАЦИИ
ДЕПАРТАМЕНТ НАУЧНО-ТЕХНОЛОГИЧЕСКОЙ ПОЛИТИКИ И ОБРАЗОВАНИЯ
ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ БЮДЖЕТНОЕ ОБРАЗОВАТЕЛЬНОЕ
УЧРЕЖДЕНИЕ
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АЗОВО-ЧЕРНОМОРСКИЙ ИНЖЕНЕРНЫЙ ИНСТИТУТ – ФИЛИАЛ
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и иностранных языков

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Famous scientists

**Сборник текстов для развития навыков чтения
для студентов 1 курса обучения в бакалавриате**

Учебно-методическое пособие

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Целью пособия является обеспечение развития навыков чтения, формирование умений и навыков изучающего и информативного чтения текстов на английском языке для извлечения из нее необходимой информации; приобретение общей, коммуникативной и профессиональной компетенций; повышение качества обучения иностранному языку и развитие навыков говорения на базе тщательно отобранного англоязычного материала.

Пособие может рассматриваться в качестве перспективного дополнительного ресурса для овладения разговорной речью. Структура данного пособия и логика изложения материала в нем позволит проводить занятия в форме диалога, дискуссии, что позволяет формировать речевые навыки языка. Пособие может быть рекомендовано для использования в подготовке бакалавров по всем направлениям по дисциплине «Иностранный язык».

Рассмотрено и одобрено на заседании
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СОДЕРЖАНИЕ

ВВЕДЕНИЕ	4
1. ISAAC NEWTON.....	5
2. MIKHAIL LOMONOSOV.....	8
3. BENJAMIN FRANKLIN.....	11
4. JAMES CLERK MAXWELL.....	14
5. MARIE CURIE AND THE DISCOVERY OF RADIUM.....	17
6. MADAME TUSSAUD.....	22
7. ERNEST RUTHERFORD.....	25
8. ALFRED NOBEL – A MAN OF CONTRASTS.....	28
9. ALEXANDER GRAHAM BELL.....	32
10. CHARLES DARWIN.....	36
11. K.A. TIMIRYAZEV.....	41
12. I.V. MICHURIN.....	44
13. NIKOLAY VAVILOV – FATHER OF RUSSIAN GENETICS AND SELECTION OF PLANTS.....	47
ЛИТЕРАТУРА	50

ВВЕДЕНИЕ

Чтение является неотъемлемым инструментом для улучшения владения языком. Английские тексты для чтения полезны на любом уровне изучения английского языка. Читая, выполняя лексико-грамматические упражнения, заучивая или переводя английский текст, легче понять структуру языка, а также эффективно пополнить свой словарный запас.

Предлагаемое учебное пособие предназначено для студентов-бакалавров 1 курса по всем направлениям подготовки и соответствует программе подготовки бакалавров по дисциплине «Иностранный язык».

Целью пособия является обеспечение развития навыков чтения, формирование умений и навыков изучающего и информативного чтения текстов на английском языке для извлечения из нее необходимой информации; приобретение общей, коммуникативной и профессиональной компетенций; повышение качества обучения иностранному языку и развитие навыков говорения на базе тщательно отобранного англоязычного материала.

Пособие может рассматриваться в качестве перспективного дополнительного ресурса для овладения разговорной речью. Структура данного пособия и логика изложения материала в нем позволит проводить занятия в форме диалога, дискуссии, что позволяет формировать речевые навыки языка.

Пособие представлено 13 темами о всемирно известных великих ученых. Помимо развития и совершенствования навыков устной речи и чтения, расширения лексического словаря данный сборник текстов углубит языковые знания студентов, а также проверит широту их кругозора.

Кроме того, тематическая направленность отобранных текстов вызывает у студентов познавательный интерес и создаёт мотивацию для их обсуждения, условия для активной коммуникативной практики в английском языке.

Каждый текст снабжен словарем и разнообразными послетекстовыми упражнениями репродуктивного и продуктивного характера. Задания направлены на активизацию лексики и грамматических конструкций, с выходом на практику перевода с русского на английский язык. Задания подобного характера стимулируют студентов к развитию переводческих навыков и дискуссии на иностранном языке.

Настоящее пособие содержит компоненты, необходимые для учебно-методического обеспечения овладения студентами английским языком, а также способствует такой организации учебного процесса, которая гарантирует эффективную аудиторную и самостоятельную работу студента.

FAMOUS SCIENTISTS

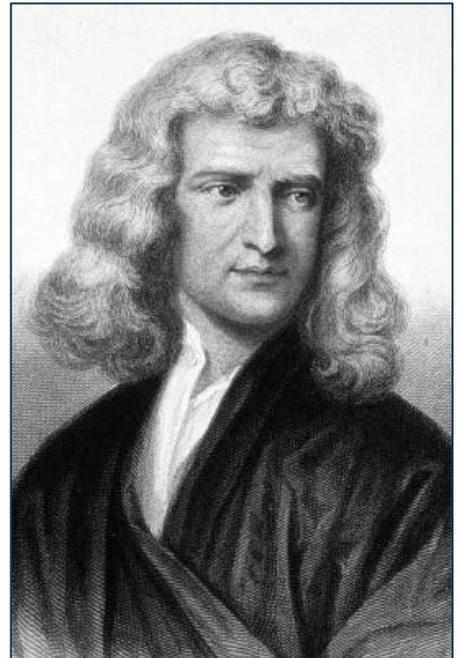
ISAAC NEWTON

Vocabulary:

1. curiosity – любопытство
2. diligence – усердие
3. fundamental law of the Universe – фундаментальный закон вселенной
4. conclusion – вывод
5. force – сила
6. the force of gravity – сила гравитации
7. extend – распространять
8. bound – связанный
9. spectroscopy – спектроскопия
10. spectrum – спектр
11. surpassed – превзойденный

Read and translate the text.

Isaac Newton, one of the greatest men in the history of science, was born in a small village of Woolsthorpe in England. His father was a poor farmer. Isaac was known as a silent thinking boy. He played little with other children, giving all his time to Mathematics, Mechanics and Physics. When the boy was fourteen, his father died. Isaac left school and helped his mother on the farm. But the boy didn't like farming. He was fond of poetry and sciences. So Isaac was sent back to school to be prepared for college. At the age of eighteen Newton entered the University of Cambridge, where he became one of the best students, and where later he lectured on mathematics for more than 30 years.



Newton's curiosity and diligence resulted in his greatest discovery of the most fundamental law of the Universe – the law of gravity. Observing the fall of an apple from a tree, he came to the conclusion that the force, keeping the planets in their orbits around the sun, was the same force that caused the apple to fall,

namely, the force of gravity. His law states that every particle of matter in the universe attracts every other particle with a force proportional to the product of their masses and inversely proportional to the square of the distance between them. Newton, extended the law of gravity to the whole universe.

He suggested that it was gravity which bound the Moon to the Earth, and the Earth and the other planets to the Sun. Newton's contribution to many sciences is so great that he may be considered the founder of modern mathematics, physics and spectroscopy. It was Newton who said that light is a combination of different rays of different colours, known to us as the spectrum, and that white light is a mixture of all these.

Newton lived a long life and was buried in Westminster Abbey. There is a monument to Newton in Trinity College in Cambridge with the inscription: Newton, Who Surpassed all Men of Science.

Tasks

I. Answer the questions.

1. When and where was I. Newton born?
2. What kind of a boy was Newton in his childhood?
3. Why did he leave school?
4. What University did he study at and what did he lecture there?
5. What was Newton's greatest discovery?
6. How did he come to that discovery?
7. What does the law of gravitation state?
8. What fields of science did Newton make contribution to?
9. To what conclusion did he come studying the nature of light?
10. What inscription is made on the monument to Newton in Cambridge and why?

II. Translate into Russian.

1. He played little with other children, giving all his time to Mathematics, Mechanics and Physics.
2. At the age of eighteen Newton entered the University of Cambridge, where he became one of the best students, and where later he lectured on Mathematics for more than 30 years.
3. Newton lived a long life and was buried in Westminster Abbey.
4. Newton's curiosity and diligence resulted in his greatest discovery of the most fundamental law of the Universe – the law of gravity.

III. Insert the adequate prepositions: the, of, in, on.

1. Isaac Newton, one ... the greatest men .. the history ...science, was born ... a small village ... Woolsthorpe ... England.
2. At the age ... eighteen Newton entered ... University ...Cambridge, where he became one best students, and where later he lectured ... mathematics for more than 30 years.
3. When ... boy was fourteen, his father died.
4. He was fond ... poetry and sciences.

IV. Complete the sentences using the following words and expressions:

a poor farmer, for college, the Moon to the Earth, in Westminster Abbey.

1. Newton lived a long life and was buried....
2. His father was ...
3. He suggested that it was gravity which bound... , and the Earth and the other planets to the Sun.
4. So Isaac was sent back to school to be prepared ...

V. Translate into English.

1. Любопытство и усердие Ньютона привели к его величайшему открытию самого фундаментального закона Вселенной – закона гравитации.
2. Исаак был известен как молчаливый думающий мальчик.
3. В Тринити-колледже в Кембридже установлен памятник Ньютону с надписью: Ньютон, превзошедший всех людей науки.
4. Он предположил, что именно гравитация связывает Луну с Землей, а Землю и другие планеты с Солнцем.

VI. Make up a plan and retell the text.

MIKHAIL LOMONOSOV

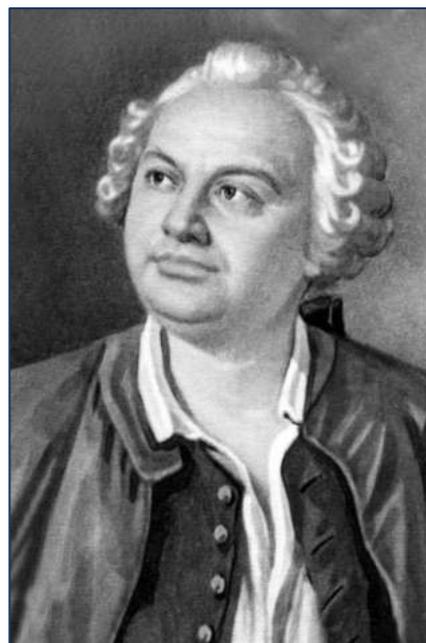
Vocabulary:

1. fisherman – рыбак
2. observe – наблюдать
3. diligently – старательно
4. refuse admission – отказать в приёме
5. concealing – скрытый
6. gain admission – получить допуск
7. rapid progress – быстрый прогресс
8. metallurgy – металлургия
9. mining – горный
10. equal – равный
11. eliminating distortions – устранение искажений

Read and translate the text.

Mikhail Lomonosov was born in the family of a fisherman in the northern coastal village of Denisovka not far from Archangelsk. When he was ten years of age his father began to take him sea fishing. The dangerous life of a fisherman taught him to observe the natural phenomena. During the long winter nights young Lomonosov studied his letters, grammar and arithmetic diligently.

As he was the son of a peasant, he was refused admission to the local school. Some years later, through concealing his peasant origin, Lomonosov gained admission to the Slavonic-Greek-Latin Academy and for five years lived a hand-to-mouth existence on three kopecks a day. The noblemen's



sons studying with him made fun of the twenty-year-old giant who, in spite of the gears and his own poverty, made rapid progress.

Lomonosov's ability and diligence attracted attention of the professors and as one of the best students he was sent abroad. He spent all the time there studying the works of leading European scientists in Chemistry, metallurgy, mining and Mathematics.

On his return to Russia in 1745 he was made a professor and was the first Russian scientist to become a member of the Academy of Sciences.

For the number of discoveries Lomonosov has no equal in Russian science. Many of his ideas and inventions only won recognition in the 19th century. As a poet and scientist he played a great role in the formation of the Russian literary language, eliminating distortions and unnecessary foreign words. He died in 1765. His living memorial is the Moscow University, which he founded in 1755.

Tasks

I. Answer the questions.

1. What kind of family was Lomonosov born in?
2. What taught him to observe natural phenomena?
3. How did he gain admission to the Slavonic-Greek-Latin Academy?
4. What kind of existence did he live during his studies in Moscow?
5. How did he manage to study abroad?
6. What sciences did he study there?
7. What was he made on his return to Russia?
8. What role did Lomonosov play in science?
9. What is considered his living memorial?
10. What discoveries of Lomonosov are known to you?

II. Translate into Russian.

1. When he was ten years of age his father began to take him sea fishing.
2. During the long winter nights young Lomonosov studied his letters, grammar and arithmetic diligently.
3. Many of his ideas and inventions only won recognition in the 19th century.
4. On his return to Russia in 1745 he was made a professor and was the first Russian scientist to become a member of the Academy of Sciences.

III. Insert the adequate prepositions: in, the, to, of.

1. He spent all ... time there studying ... works of leading European scientists ... Chemistry, metallurgy, mining and Mathematics.
2. His living memorial is ... Moscow University, which he founded ... 1755.
3. Lomonosov`s ability and diligence attracted attention professors and as one best students he was sent abroad.
4. As he was the son ... a peasant, he was refused admission ... the local school.

IV. Complete the sentences using the following words and expressions:

in 1745, in the 19th, in 1755, of the Academy of Sciences, in 1765.

1. Many of his ideas and inventions only won recognition ... centurs.
2. On his return to Russia ... he was made a professor and was the first Russian scientist to become a member ...
3. His living memorial is the Moscow University, which he founded ...
4. He died ...

V. Translate into English.

1. Когда ему исполнилось десять лет, отец начал брать его на морскую рыбалку.
2. Как поэт и ученый он сыграл большую роль в становлении русского литературного языка, устранив искажения и ненужные иностранные слова.
3. Сыновья дворян, учившиеся вместе с ним, высмеивали двадцатилетнего великана, который, несмотря на шестеренки и собственную бедность, быстро прогрессировал.
4. Способности и трудолюбие Ломоносова привлекли внимание профессоров, и как одного из лучших студентов его отправили за границу.

VI. Make up a plan and retell the text.

BENJAMIN FRANKLIN

Vocabulary:

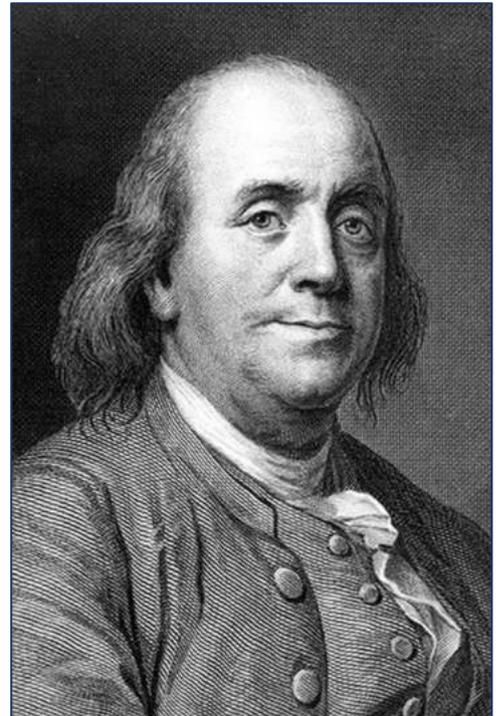
1. statesman – государственный деятель
2. accomplishments – достижения
3. open stove – открытая печь
4. pair of bifocal – пара бифокальных
5. glass harmonica – стеклянная гармоника
6. the stepladder chair – стул стремянки
7. lightning rod – молниеотвод
8. usefulness – полезность
9. generous – щедрый
10. slavery – неволя
11. negotiations – переговоры
12. surrendered – переданный

Read and translate the text.

Benjamin Franklin lived a long life. He was journalist and inventor, scientist and statesman, politician and writer. His accomplishments, his talents and interests have caused him to be called both «the first American» and «the last universal man».

Benjamin liked to make things with his own hands. He made a lot of experiments and invented an open stove, which gave more heat and wasted less fuel than a fireplace. He also made the first pair of bifocal glasses and invented a musical instrument called the glass harmonica and the stepladder chair.

Franklin is especially famous for his contributions in the field of electricity. He proved that the electric charge can be taken from a passing cloud and conducted harmlessly to earth. The lightning rod was Franklin's greatest discovery. This invention and his studies of electricity brought Franklin universal fame. He turned the subject of electricity into a science. His theory was expressed in simple physical terms and showed the usefulness of electricity in many ways.



Franklin studied the origin of storms, medicine, natural history, political economy and mathematics. He spoke several languages. He had broad, generous and progressive political ideas. He defended American Negroes. He said that slavery was a crime from the moral point of view and proved that it was against the interests of the United States of America. He worked much for the cause of independence and helped Jefferson in writing the Declaration of Independence. Later he rendered great assistance in making up a constitution for a democratic federal government.

Franklin was a talented diplomat. At the age of 77 he made negotiations on the peace treaty with England after the British had surrendered. In 1783 the treaty was signed.

Tasks

I. Answer the questions.

1. Who was Benjamin Franklin?
2. What did Benjamin invent?
3. What field did Benjamin make his contributions?
4. What sciences did he study?
5. How many languages did he speak?
6. Whose rights he defended?
7. Franklin was a talented diplomat, didn't he?

II. Translate into Russian.

1. The lightning rod was Franklins greatest discovery.
2. Franklin was a talented diplomat. At the age of 77 he made negotiations on the peace treaty with England after the British had surrendered.
3. His accomplishments, his talents and interests have caused him to be called both «the first American» and «the last universal man».
4. His theory was expressed in simple physical terms and showed the usefulness of electricity in many ways.

III. Insert the adequate prepositions: after, for, a, of, in, the, on.

1. He also made ... first pair of bifocal glasses and invented ... musical instrument called ... glass harmonica and ... stepladder chair.
2. This invention and his studies ... electricity brought Franklin universal fame.

3. At ... age of 77 he made negotiations peace treaty with England ... the British had surrendered.
4. He worked much... the cause ... independence and helped Jefferson ... writing the Declaration ... Independence.

IV. Complete the sentences using the following words and expressions:

«the first American», American Negroes, In 1783, of the United States of America, «the last universal man».

1. ... the treaty was signed.
2. His accomplishments, his talents and interests have caused him to be called both ... and ...
3. He defended ...
4. He said that slavery was a crime from the moral point of view and proved that it was against the interests ...

V. Translate into English.

1. У него были огромные, щедрые и прогрессивные политические идеи.
2. Его теория была выражена в простых физических терминах и показала полезность электричества во многих отношениях.
3. Он заявил, что рабство является преступлением с моральной точки зрения, и доказал, что оно противоречит интересам Соединенных Штатов Америки.
4. Франклин был талантливым дипломатом.

VI. Make up a plan and retell the text.

JAMES CLERK MAXWELL

Vocabulary:

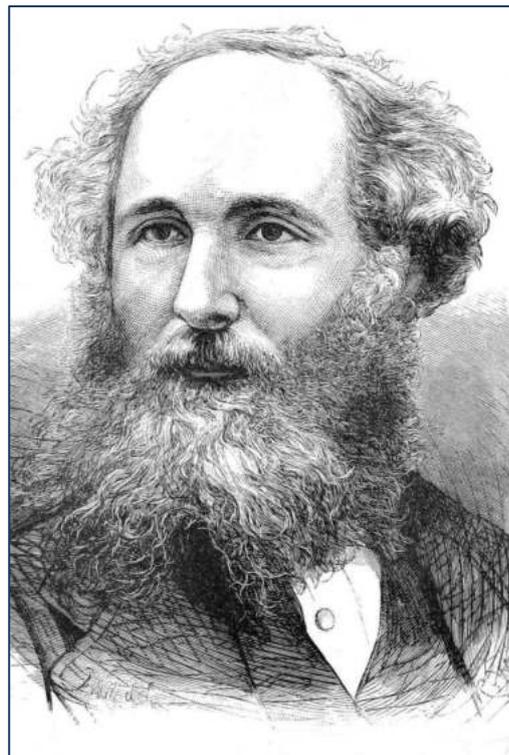
1. physicist – физик
2. mathematician – математик
3. optics – оптика
4. get acquainted with – познакомиться с ...
5. fruitful – плодотворный
6. the theory of electricity – теория электричества
7. magnetism – магнетизм
8. equip – оборудовать
9. apparatus – устройство
10. indeed – в самом деле
11. comprehensive theory of electricity – всеобъемлющая теория электричества
12. blaze – полыхать

Read and translate the text.

James Clerk Maxwell, a great physicist and mathematician, was born in Edinburgh, Scotland, on November 13, 1831.

After school he entered the University of that city. Then he attended the University of Cambridge and graduated from it in 1854. When at the University Maxwell took great interest in Mathematics and optics. For two years after the University he lectured, made experiments in Optics at Trinity College and studied much himself.

In 1856 he became a professor of natural philosophy and in some years – professor of Physics and Astronomy at Kings College, in London. He lived in London for five years, and here he got acquainted with Faraday. This was a very fruitful period of Maxwells life. He continued his work on gases, but his main work was in the theory of electricity. In 1871 he became a professor of experimental Physics at Cambridge. At that time students could not even have such subjects as electricity or magnetism, as there was no laboratory for the study of these subjects.



Maxwell organized such a laboratory but he had to equip it with his own apparatus. He wanted to make it the best institution of this kind. And indeed, his laboratory made Cambridge world known in the field of experimental Physics.

During these years he wrote his classic *Matter and Motion*, a small book on a great subject, and some articles on various subjects (Atoms, Attraction, Faraday and others). The results of Maxwells comprehensive theory of electricity and light are wireless telegraphy and the modern doctrine of relativity.

Maxwells works on the kinetic theory of gases, the theory of heat, dynamics and the mathematical theory of electricity and magnetism are monuments to his great genius. His discoveries blazed the trail for future investigations on these and related matters.

Tasks

I. Answer the questions.

1. When was James Clerk Maxwell born?
2. What University did James Clerk Maxwell graduate from?
3. In 1871 he became a professor of experimental Physics at Cambridge, didn't he?
4. Is the laboratory in Cambridge world known in the field of experimental Physics?
5. What book did James Clerk Maxwell write?
6. What was the main work of James Clerk Maxwell related to?

II. Translate into Russian.

1. In 1856 he became a professor of natural Philosophy and in some years – professor of Physics and Astronomy at Kings College, in London.
2. Maxwell organized such a laboratory but he had to equip it with his own apparatus. He wanted to make it the best institution of this kind.
3. He lived in London for five years, and here he got acquainted with Faraday.
4. And indeed, his laboratory made Cambridge world known in the field of experimental Physics.

III. Insert the adequate prepositions: a, with, for, at, In, of

1. ... 1856 he became ... professor ... natural Philosophy and ... some years – professor ... Physics and Astronomy ... Kings College, ... London.
2. This was ... very fruitful period ... Maxwells life.
3. ... 1871 he became ... professor ... experimental Physics ... Cambridge.
4. He lived ... London... five years, and here he got acquainted... Faraday.

IV. Complete the sentences using the following words and expressions:

In 1871, 1831, for future investigations on these and related matters, in 1854.

1. Then he attended the University of Cambridge and graduated from it ...
2. ... he became a professor of experimental Physics at Cambridge.
3. James Clerk Maxwell, a great physicist and mathematician, was born in Edinburgh, Scotland, on November 13, ...
4. His discoveries blazed the trail

V. Translate into English.

1. В 1856 году он стал профессором философии, а через несколько лет – профессором физики и астрономии в Кингс-колледже в Лондоне.
2. Максвелл организовал такую лабораторию, но ему пришлось оборудовать её своей собственной аппаратурой.
3. Результатами всеобъемлющей теории электричества и света Максвелла являются беспроводный телеграф и современная теория относительности.
4. Учась в университете, Максвелл проявлял большой интерес к математике и оптике.

VI. Make up a plan and retell the text.

MARIE CURIE AND THE DISCOVERY OF RADIUM

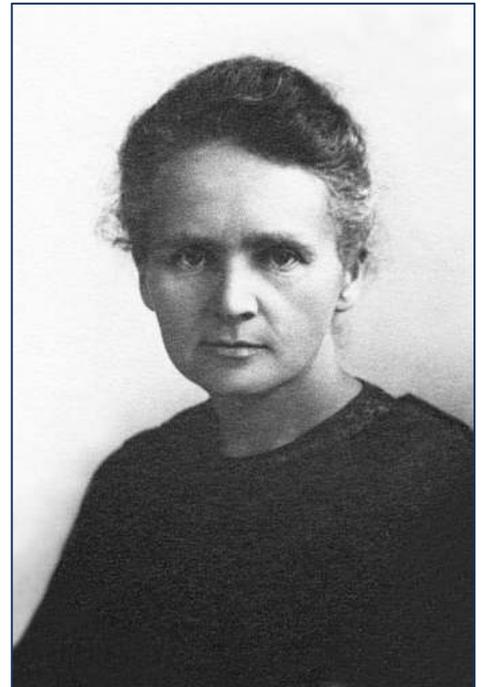
Vocabulary:

1. determine – определить
2. fascinate – восхищать, очаровывать
3. reward – награда
4. refuse – отказываться
5. constantly – постоянный
6. partnerships – партнерство
7. obtain – получать
8. thesis – диссертация
9. X-rays – рентгеновские лучи
10. substance – вещество
11. pitchblende – уранит (урановая смолка)
12. emitted – излучаемый, излучённый
13. radiology – радиология; рентгенология
14. artificial radioactivity – искусственная радиоактивность
15. completion – завершение, окончание; заключение, конец, финал

Read and translate the text.

Marie Curie was born in Warsaw on 7 November, 1867. Her father was a teacher of science and Mathematics in a school in the town, and from him little Maria Sklodowska – which was her Polish name – learned her first lessons in science. Maria's wish was to study at the Sorbonne in Paris, and after many years of waiting she finally left her native land in 1891.

In Paris Maria began a course of hard study and simple living. She determined to work for two Master's degrees – one in Physics, the other in Mathematics. Thus she had to work twice as hard as the ordinary student. Yet she had scarcely enough money to live on. She lived in the poorest quarter of Paris. Night after night, after her hard day's work at the University, she got to her poorly furnished room and worked at her books steadily for hours. Sometimes she had no more than a bag of cherries.



Though she was often weak and ill, she worked in this way for four years. She had chosen her course and nothing could turn her from it.

Among the many scientists Maria met and worked with in Paris was Pierre Curie. Pierre Curie, born in 1859 in Paris, was the son of a doctor, and from early childhood he had been fascinated by science.

At sixteen he was a Bachelor of Science, and he took his Master's degree in Physics when he was eighteen. When he met Maria Sklodowska he was thirty-five years old and was famous throughout Europe for his discoveries in magnetism. But in spite of the honour he had brought to France by his discoveries, the French Government could only give him a very small salary as a reward, and the University of Paris refused him a laboratory of his own for his research.

Pierre Curie and Maria Sklodowska, both of whom loved science more than anything else, very soon became the closest friends. They worked together constantly and discussed many problems of their researches. After little more than a year they fell in love with each other, and in 1895 Maria Sklodowska became Mme. Curie. Theirs was not only to be a very happy marriage but also one of the greatest scientific partnerships.

Marie had been the greatest woman-scientist of her day but she was a mother too, a very loving one. There were their two little girls, Irene and Eve.

By this time Mme. Curie had obtained her Master's degree in Physics and Mathematics, and was busy with researches on steel. She now wished to obtain a Doctor's degree. For this it was necessary to offer to the examiners a special study, called a thesis.

For some time Pierre Curie had been interested in the work of a French scientist named Becquerel. There is a rare metal called uranium which, as Becquerel discovered, emits rays very much like X-rays. These rays made marks on a photographic plate when it was wrapped in black paper. The Curies got interested in these rays of uranium. What caused them? How strong were they? There were many such questions that puzzled Marie Curie and her husband. Here, they decided, was the very subject for Marie's Doctor's thesis.

The research was carried out under great difficulty. Mme. Curie had to use an old store-room at the University as her laboratory – she was refused a better room. It was cold, there was no proper apparatus and very little space for research work. Soon she discovered that the rays of uranium were like no other known rays.

Marie Curie wanted to find out if other chemical substances might emit similar rays. So she began to examine every known chemical substance. Once after repeating her experiments time after time she found that a mineral called pitchblende emitted much more powerful rays than any she had already found.

Now, an element is a chemical substance which so far as is known cannot be split up into other substances. As Mme. Curie had examined every known chemical element and none of them had emitted such powerful rays as pitchblende she could only decide that this mineral must contain some new element.

Scientists had declared that every element was already known to them. But all Mme. Curie's experiments pointed out that it was not so. Pitchblende must contain some new and unknown element. There was no other explanation for the powerful rays which it emitted. At that moment Pierre Curie stopped his own investigations on the physics of crystals and joined his wife in her effort to find those more active unknown chemical elements.

Scientists call the property of giving out such rays «radioactivity», and Mme. Curie decided to call the new element «radium», because it was more strongly radioactive than any known metal.

In 1903 Marie and Pierre together with Henry Becquerel were awarded the Nobel Prize in Physics.

In 1911 Marie received the Nobel Prize in Chemistry. But the second prize went to her alone for in 1906 Pierre had died tragically in a traffic accident.

Mme. Sklodowska-Curie, the leading woman-scientist, the greatest woman of her generation, has become the first person to receive a Nobel Prize twice.

Marie lived to see her story repeated. Her daughter Irene grew into a woman with the same interests as her mother's and she was deeply interested in her mother's work. From Marie she learned all about radiology and chose science for her career. At twenty-nine she married Frederic Joliot, a brilliant scientist at the Institute of Radium, which her parents had founded.

Together the Joliot-Curies carried on the research work that Irene's mother had begun. In 1935 Irene and her husband won the Nobel Prize for their discovery of artificial radioactivity.

So, Marie lived to see the completion of the great work, but she died on the eve of the award.

Tasks

I. Answer the questions.

1. What was Mary's wish?
2. What Master's degree did she determine to work?
3. Whom Mary worked together?
4. How many children did she have?
5. What main researches did she make?
6. In 1911 Marie received the Nobel Prize in Chemistry, didn't she?

II. Translate into Russian.

1. At that moment Pierre Curie stopped his own investigations on the Physics of crystals and joined his wife in her effort to find those more active unknown chemical elements.
2. Her daughter Irene grew into a woman with the same interests as her mother's and she was deeply interested in her mother's work.
3. There is a rare metal called uranium which, as Becquerel discovered, emits rays very much like X-rays.
4. In Paris Maria began a course of hard study and simple living. She determined to work for two Master's degrees – one in Physics, the other in Mathematics.
5. For this it was necessary to offer to the examiners a special study, called a thesis.

III. Insert the adequate prepositions: to, but, for, in, of.

1. ... the second prize went ... her alone 1906 Pierre had died tragically ... a traffic accident.
2. She lived ... the poorest quarter ... Paris.
3. Marie Curie wanted ... find out if other chemical substances might emit similar rays.
4. ... 1903 Marie and Pierre together with Henry Becquerel were awarded the Nobel Prize ... Physics.

IV. Complete the sentences using the following words and expressions:

in 1903, Pierre Curie, Marie, in 1911, Maria Sklodowska.

1. ... lived to see her story repeated.
2. ... and ... , both of whom loved science more than anything else, very soon became the closest friends.
3. ... Marie and Pierre together with Henry Becquerel were awarded the Nobel Prize in Physics.
4. ... Marie received the Nobel Prize in Chemistry.

V. Translate into English.

1. Мария Кюри хотела выяснить, могут ли другие химические вещества испускать подобные лучи.
2. Было много таких вопросов, которые озадачивали Марию Кюри и её мужа.
3. В двадцать девять лет она вышла замуж за Фредерика Жолио, блестящего ученого из Института радия, основанного её родителями.
4. Она решила получить две степени магистра – одну по физике, другую по математике.
5. В 1903 году Мари и Пьер вместе с Анри Беккерелем были удостоены Нобелевской премии по физике.

VI. Make up a plan and retell the text.

MADAME TUSSAUD

Vocabulary:

1. exhibition – выставка
2. constantly – постоянно
3. impact – удар, толчок;
4. turmoil – шум, суматоха; беспорядок
5. commerce – торговля
6. observation – наблюдение
7. scientific approach – научный подход
8. patronize – заботиться; опекать, покровительствовать
9. survive – выживать
10. permanent – постоянный
11. disasters – беда, бедствие, несчастье

Read and translate the text.

For over 200 years, Madame Tussaud's exhibition of wax figures has been one of Britain's most popular attractions. The exhibition has constantly developed and now visitors can see the world's public figures, including men and women who have made a lasting impact on our lives, Kings and Queens, great statesmen, religious leaders, superstars past and present who have become legends.

But the story of Madame Tussaud is as impressive as her exhibition. Two things about her are especially interesting. First, she spent her early years in the turmoil of the French Revolution and came to meet many of its characters, and perhaps more unusually, she succeeded in business at a time when women were seldom involved in the world of commerce.

Madame Tussaud whose first name is Marie was born in France in 1761. Her father, a soldier, was killed in battle two months before her birth. She lived with the mother who worked as a housekeeper for the doctor who had a wonderful skill of modelling anatomical subjects in wax. Soon Marie and her mother with the doctor Curtius moved to Paris.



France was approaching the Revolution. Dr. Curtius's house became a meeting place of philosophers, writers and revolutionaries. Marie soon discovered she had a talent for observation and remembering the details of faces.

Dr. Curtius acted as a teacher to Marie, schooling her in the techniques of wax portraits. Thanks to him she used a scientific approach in wax portraiture. She was soon allowed to model the great figures of the time. Among them were Francois Voltaire and the American statesman Benjamin Franklin. Dr. Curtius's exhibition was patronized by the French Royal family and Marie was invited to the Royal Court.

At the time of the revolution Marie and her mother were imprisoned for some time. Later Marie was asked to prepare the death masks of French aristocrats who had been executed – among them the King and the Queen.

The time of terror came to an end. In 1794 the doctor died and Marie inherited the business which had grown under her influence.

In the following years she married a French engineer, Francois Tussaud and by 1800 had given birth to three children: a daughter who died and two sons. It was difficult for the exhibition to survive in France and in 1802 Marie Tussaud made a monumental decision. She would leave her husband and baby son in Paris while she and her elder son would tour the exhibition round the British Isles.

Marie was to see neither France nor her husband again. She spent the next 33 years travelling in Great Britain. Later her other son joined her. Both of her sons were interested in the business. The travels ended in 1835 when Madame Tussaud's exhibition found a permanent home in London. Since that there have been fires and disasters but many new figures have been added to the collection. This unusual woman died in 1884 at the age of 89.

You can see her remarkable self-portrait in Museum as well.

Tasks

I. Answer the questions.

1. How impressive is Madame Tussauds' story?
2. When and where was Madame Tussauds born?
3. Whose experience did Mary follow?
4. Who Madame Tussauds married?
5. How many children did Madame Tussauds have?
6. What is Madame Tussauds famous for?

II. Translate into Russian.

1. Madame Tussaud whose first name is Marie was born in France in 1761.
2. She spent the next 33 years travelling in Great Britain.
3. In the following years she married a French engineer, Francois Tussaud and by 1800 had given birth to three children: a daughter who died and two sons.
4. The travels ended in 1835 when Madame Tussaud's exhibition found a permanent home in London.

III. Insert the adequate prepositions: of, to, by, for, in, the

1. Both ... her sons were interested business.
2. At ... time revolution Marie and her mother were imprisoned ... some time.
3. First, she spent her early years turmoil French Revolution and came ... meet many ... its characters, and perhaps more unusually, she succeeded ... business at a time when women were seldom involved world ... commerce.
4. Dr. Curtius's exhibition was patronized... the French Royal family and Marie was invited ... the Royal Court.

IV. Complete the sentences using the following words and expressions:

in 1802, in 1884, in 1835, in 1761.

1. Madame Tussaud whose first name is Marie was born in France ...
2. It was difficult for the exhibition to survive in France and ... Marie Tussaud made a monumental decision.
3. The travels ended ... when Madame Tussaud's exhibition found a permanent home in London.
4. This unusual woman died ... at the age of 89.

V. Translate into English.

1. Выставку доктора Кертиса покровительствовала французская королевская семья, и Мари была приглашена к королевскому двору.
2. Она оставит мужа и маленького сына в Париже, а сама со старшим сыном отправится на экскурсию по Британским островам.
3. Позже Мари попросили подготовить посмертные маски казненных французских аристократов, среди которых были король и королева.
4. Путешествия закончились в 1835 году, когда выставка мадам Тюссо обрела постоянный дом в Лондоне.

VI. Make up a plan and retell the text.

ERNEST RUTHERFORD**Vocabulary:**

1. foreigner – иностранец
2. increase – увеличить
3. bridge-building – строительство мостов
4. require – требовать
5. small-scale farming – маленькое крестьянское хозяйство
6. secondary school – средняя школа
7. research – достижение
8. scattering – распространение
9. nucleus – ядро
10. splitting – расщепление
11. obtained – полученный
12. application – применение, использование, употребление, приложение

Read and translate the text.

Ernest Rutherford was born on August 30, 1871, in New Zealand, in the family of English settlers.

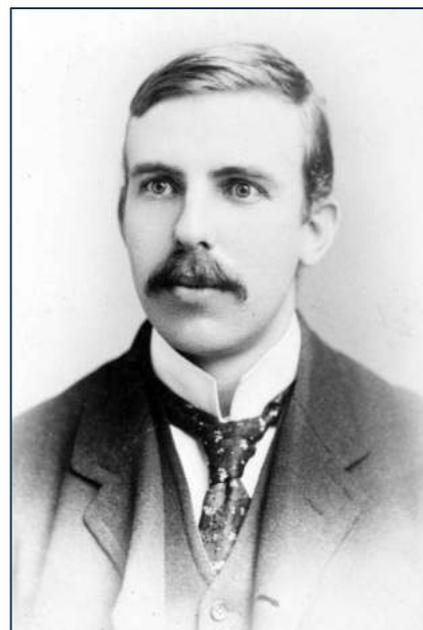
In 1861 gold was found in New Zealand and many foreigners came to live there. Industry began to develop, the country began to increase its export.

Ernest's father earned his living by bridge-building and other construction work required in the country at that period. At the same time he carried on small-scale farming.

Little Ernest was the fourth child in the family. When the boy was five he was sent to primary school. After finishing primary school he went to the secondary school. He liked to read at school very much. His favourite writer was Charles Dickens. He also liked to make models of different machines. He was particularly interested in watches and cameras, he even constructed a camera himself.

At school he was good at physics, mathematics, English, French and Latin. He paid much attention to chemistry too. Ernest became the best pupil at school. At the age of 19 he finished school and entered the New Zealand University.

At the University Ernest Rutherford was one of the most talented students. He worked hard and took an active part in the work of the Scientific Society of the



University. But he was also fond of sports and took part in the students' sport competitions.

At one of the meetings of the Scientific Society he made his scientific report «The Evolution of Elements». At the same time he began his research work. For his talented scientific research he got a prize. After graduation Rutherford went to Cambridge where he continued his investigations.

Some years later Rutherford moved to Canada to continue his research work at the University in Montreal. Besides his successful researches he also lectured a lot at the leading Universities of the United States and England.

Rutherford's famous work «The Scattering of Alpha and Beta Particles of Matter and the Structure of the Atom» proved that the atom could be bombarded so that the electrons could be thrown off, and the nucleus itself could be broken. In the process of splitting the nucleus matter was converted into energy, which for the scientists of the 19th century seemed unbelievable.

The splitting of the atom has opened to Man a new and enormous source of energy. The most important results have been obtained by splitting the atom of uranium.

At present we are only at the beginning of the application of atomic energy and all its possible uses for peaceful purposes in power engineering, medicine and agriculture.

Ernest Rutherford paid much attention to his young pupils. After 1920 he did not make great discoveries in science, but taught young scientists who worked in the field of atomic research work. Among his favourite pupils was Pyotr Kapitsa, a famous Soviet physicist.

Ernest Rutherford died in the autumn of 1937 at the age of 66, and was buried at Westminster Abbey not far from the graves of Isaac Newton, Charles Darwin and Michael Faraday.

Tasks

I. Answer the questions.

1. How did Ernest Rutherford's father earn his living?
2. In what activities did Rutherford take part when he was a student?
3. In what subjects did Ernest distinguish himself?
4. In what fields of economy can atomic energy find its peaceful application?
5. What did Rutherford do besides research work?

II. Translate into Russian.

1. Besides his successful researches he also lectured a lot at the leading Universities of the United States and England.

2. He liked to read at school very much.
3. The most important results have been obtained by splitting the atom of uranium.
4. Ernest's father earned his living by bridge-building and other construction work required in the country at that period.
5. At one of the meetings of the Scientific Society he made his scientific report «The Evolution of Elements».

III. Insert the adequate prepositions: at, on, of, the.

1. same time he carried ... small-scale farming.
2. Besides his successful researches he also lectured a lot leading Universities United States and England.
3. same time he began his research work.
4. ... most important results have been obtained by splitting ... atom ... uranium.

IV. Complete the sentences using the following words and expressions:

Michael Faraday, «The Evolution of Elements», Little Ernest, Westminster Abbey, Charles Darwin, Isaac Newton, «The Scattering of Alpha and Beta Particles of Matter and the Structure of the Atom», Ernest Rutherford.

1. ... died in the autumn of 1937 at the age of 66, and was buried at ... not far from the graves of ... , ... and
2. ... was the fourth child in the family. When the boy was five he was sent to primary school.
3. At one of the meetings of the Scientific Society he made his scientific report
4. Rutherford's famous work ... proved that the atom could be bombarded so that the electrons could be thrown off, and the nucleus itself could be broken.

V. Translate into English.

1. В 1861 году в Новой Зеландии было найдено золото, и многие иностранцы поселились там.
2. В школе он хорошо разбирался в физике, математике, английском, французском и латыни.
3. Но он также увлекался спортом и принимал участие в студенческих спортивных соревнованиях.
4. В процессе расщепления ядра вещество превращалось в энергию, что для ученых 19 века казалось невероятным.
5. Эрнест Резерфорд уделял много внимания своим юным ученикам.

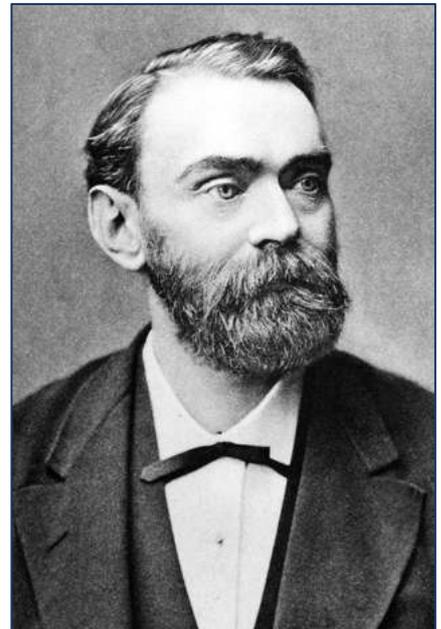
VI. Make up a plan and retell the text.

ALFRED NOBEL – A MAN OF CONTRASTS**Vocabulary:**

1. inventor – изобретатель
2. industrialist – промышленник
3. contrasts – контрасты
4. made a fortune – сколотил состояние
5. cheerful – веселый
6. mankind – человечество
7. explosive – взрывчатый
8. dynamite – динамит
9. peacetime – мирное время
10. injure – ранить
11. publicity – публичность
12. bankrupt – банкрот
13. skilful – умелый
14. outstanding ability – выдающиеся способности
15. forward-looking – дальновидность
16. justify – оправдание
17. landmine – мина, фугас
18. went bankrupt – обанкротился
19. interest – процент

Read and translate the text.

Alfred Nobel, the great Swedish inventor and industrialist, was a man of many contrasts. He was the son of a bankrupt, but became a millionaire, a scientist who cared for literature, an industrialist who managed to remain an idealist. He made a fortune but lived a simple life, and although cheerful in company he was often sad when remained alone. A lover of mankind, he never had a wife or family to love him; a patriotic son of his native land, he died alone in a foreign country. He invented a new explosive, dynamite, to improve the peacetime industries of mining and road building, but saw it used as a weapon of war to kill and injure people.



During his useful life he often felt he was useless. World-famous for his works, he was never personally well-known, for while he lived he avoided publicity. He never expected any reward for what he had done. He once said that he did not see that he had deserved any fame and that he had no taste for it. However, since his death, his name has brought fame and glory to others.

He was born in Stockholm on October 21, 1833 but moved to Russia with his parents in 1842, where his father, Emmanuel, made a strong position for himself in the engineering industry. Emmanuel Nobel invented the landmine and got plenty of money for it from government orders during the Crimean War, but then, quite suddenly went bankrupt. Most of the family went back to Sweden in 1859. Four years later Alfred returned there too, beginning his own study of explosives in his father's laboratory. It so occurred that he had never been to school or University but had studied privately and by the time he was twenty was a skilful chemist and excellent linguist having mastered Swedish, Russian, German, French and English. Like his father, Alfred Nobel was imaginative and inventive, but he had better luck in business and showed more financial sense. He was quick to see industrial openings for his scientific inventions and built up over 80 companies in 20 different countries. Indeed his greatness lay in his outstanding ability to combine the qualities of an original scientist with those of a forward-looking industrialist.

But Nobel was never really concerned about making money or even making scientific discoveries. Seldom happy, he was always searching for a meaning to life, and from his youth had taken a serious interest in literature and philosophy. Probably because he could not find ordinary human love – he never married – he began to care deeply about the whole mankind. He took every opportunity to help the poor: he used to say that he would rather take care of the stomachs of the living than the glory of the dead in the form of stone memorials. His greatest wish, however, was to see an end to wars, and thus peace between nations; and he spent much time and money working for the cause until his death in Italy in 1896. His famous will, in which he left money to provide prizes for outstanding work in physics, chemistry, physiology, medicine, economics, literature and promotion of world peace is a memorial to his interests and ideals. And so the man who often believed that he was useless and had done little to justify his life is remembered and respected long after his death. Nobel's ideals which he expressed long before the threat of nuclear war have become the ideals of all progressive people of the world.

According to Nobel's will the capital was to be safely invested to form a fund. The interest on this fund is to be distributed annually in the form of prizes to those who, during the previous year, did the work of the greatest use to mankind

within the fields of physics, chemistry, physiology or medicine, economics, literature and to the person who has done the most for brotherhood between nations, for the abolition or reduction of permanent armies and for the organization and encouragement of peace conferences.

In his will Nobel wrote that it was his firm wish that in choosing the prize winner no consideration should be given to the nationality of the candidates, but that the most worthy should receive the prize, whether Scandinavian or not. This will was written in Paris, on November 27th, 1895.

Since Nobel's death many outstanding scientists, writers and public figures from different countries have become Nobel prize winners.

Tasks

I. Answer the questions.

1. Who was Alfred Nobel?
2. What did Alfred Nobel invent?
3. When was Alfred Nobel born?
4. What did Alfred Nobel say?
5. Alfred Nobel's greatest wish was to end the wars, wasn't it?

II. Translate into Russian.

1. This will was written in Paris, on November 27th, 1895.
2. And so the man who often believed that he was useless and had done little to justify his life is remembered and respected long after his death.
3. He was born in Stockholm on October 21, 1833 but moved to Russia with his parents in 1842, where his father, Emmanuel, made a strong position for himself in the engineering industry.
4. But Nobel was never really concerned about making money or even making scientific discoveries.
5. He was quick to see industrial openings for his scientific inventions and built up over 80 companies in 20 different countries.

III. Insert the adequate prepositions: for, in, often, the, always

1. Heldom happy, he was ... searching ... a meaning to life, and from his youth had taken a serious interest ... literature and philosophy.
2. During his useful life he ... felt he was useless.

3. World-famous ... his works, he was never personally well-known, ... while he lived he avoided publicity.
4. Emmanuel Nobel invented ... landmine and got plenty of money ... it from government orders during ... Crimean War, but then, quite suddenly went bankrupt.

IV. Complete the sentences using the following words and expressions:

explosive, in 20, in 1859, the son of a bankrupt, road building, cared for literature, dynamite, over 80.

1. He was quick to see industrial openings for his scientific inventions and built up ... companies ... different countries.
2. He invented a new ... , ... , to improve the peacetime industries of mining and ... , but saw it used as a weapon of war to kill and injure people.
3. He was ... , but became a millionaire, a scientist who ... , an industrialist who managed to remain an idealist.
4. Most of the family went back to Sweden ...

V. Translate into English.

1. После смерти Нобеля многие выдающиеся ученые, писатели и общественные деятели из разных стран стали лауреатами Нобелевской премии.
2. Любящий человечество, он никогда не имел жены или семьи, которая любила бы его; патриотический сын своей родной земли, он умер в одиночестве в чужой стране.
3. Эммануэль Нобель изобрел мину и получил за нее много денег от правительственных заказов во время Крымской войны, но затем совершенно неожиданно обанкротился.
4. Редко бывая счастливым, он всегда искал смысл жизни и с юности серьезно интересовался литературой и философией.

VI. Make up a plan and retell the text.

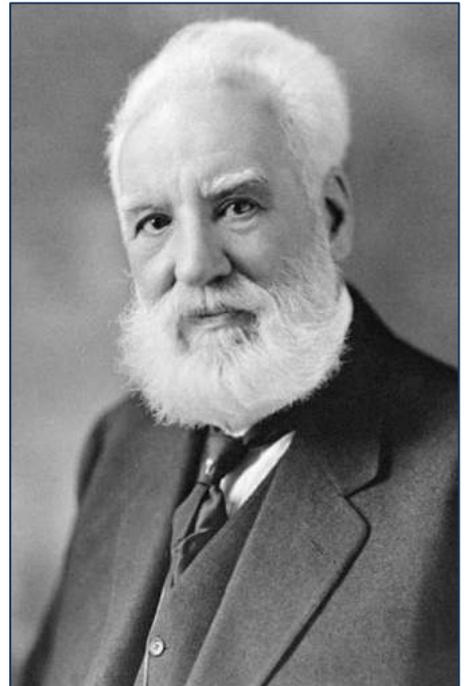
ALEXANDER GRAHAM BELL

Vocabulary:

1. deaf – глухой
2. tones – звуки
3. transmitter – микрофон
4. set – устанавливать
5. receiver – трубка
6. transcontinental – трансконтинентальный (межконтинентальный)
7. amusement – удовольствие
8. glad – рад

Read and translate the text.

Alexander Graham Bell was born in Edinburgh in 1847. His father was a world-famous teacher of speech and the inventor of a system which he called «Visible Speech». It helped deaf persons to pronounce words they could not hear. Alexander chose the same profession, and as his father became a teacher of the deaf, he moved to the United States and began to teach deaf children to speak. At the same time he worked at improving his father's invention.



In 1866, the nineteen-year-old Bell started thinking about sending tones by telegraph. It was then that there came to his mind the idea of the «harmonic telegraph», which would send musical tones electrically from one place to another. Bell was not a scientist. So he had to give all his energy and time to one thing only – knowledge of electricity. There was little time for rest and little time to eat. Hour after hour, day and night he and his friend Watson worked at testing and experimenting with the telephone. Sometimes it worked and sometimes it did not.

«We have to do something to make our telephone work better», Bell used to say again and again.

At last they decided to try a new kind of transmitter. The new transmitter was set in Bell's bedroom. Watson was sitting in the laboratory. He put his ear to

the receiver and was waiting. Suddenly he heard Bell's voice. And not the voice only but the words too.

«Mr. Watson, come here».

It was on the 10th of March, 1876. Alexander Graham Bell had invented the telephone.

In a few years there were telephones all over the world. In 1915, the first transcontinental telephone line was opened. Graham Bell, a very old man now, sat in New York at a desk with a telephone before him, while his friend Watson was listening more than three thousand miles away in San Francisco. People were interested what speech Bell had prepared for that great day, on which the telephone invented by him was to carry sound from the Atlantic coast to the Pacific.

Bell was sitting in a big hall; there were many people in it. Everyone expected to hear a serious, scientific speech. Suddenly everybody heard his clear voice as he spoke into his old transmitter, «Mr. Watson, come here. I want you». He repeated the words which he had said almost forty years ago. Much to the amusement of the people Watson answered, «I would be glad to come, but it would take me a week».

Tasks

I. Answer the questions.

1. What did Alexander Bell's father invent?
2. Whom and where did Alexander Bell teach?
3. What did Alexander Bell begin to work at when he was nineteen years old?
4. What device did A. Bell use which made his invention work well?
5. How many years later was the first transcontinental telephone line opened?
6. Who made the first test of the transcontinental telephone line between New York and San Francisco?
7. What did Bell say on the opening of this line and what impression did it make on the listeners?

II. Translate into Russian.

1. In 1866, the nineteen-year-old Bell started thinking about sending tones by telegraph.
2. It was on the 10th of March, 1876. Alexander Graham Bell had invented the telephone.

3. So he had to give all his energy and time to one thing only – knowledge of electricity.
4. Watson was sitting in the laboratory.
5. At the same time he worked at improving his father's invention.

III. Insert the adequate prepositions: in, to, for, the, it, of

1. ... new transmitter was set ... Bell's bedroom.
2. ... was then that there came ... his mind ... idea «harmonic telegraph», which would send musical tones electrically from one place ... another.
3. People were interested what speech Bell had prepared ... that great day, on which ... telephone invented by him was ... carry sound from ... Atlantic coast Pacific.
4. It was then that there came ... his mind ... idea ... «harmonic telegraph», which would send musical tones electrically from one place ... another.

IV. Complete the sentences using the following words and expressions.

1. Alexander Bell was
 - a) an engineer;
 - b) a teacher;
 - c) a doctor.
2. He worked at inventing
 - a) a radio-set;
 - b) a tape-recorder;
 - c) a telephone.
3. He worked at it
 - a) alone;
 - b) with his friend;
 - c) with a group of scientists.
4. The first transcontinental telephone line was opened between
 - a) New York and San Francisco;
 - b) Paris and London;
 - c) Rome and Berlin.
5. During the experiment Mr. Watson heard
 - a) Bell very badly;
 - b) Bell very well;
 - c) nothing.

V. Translate into English.

1. Он приложил ухо к трубке и стал ждать.
2. Белл сидел в большом зале; в нем было много людей. Все ожидали услышать серьезную научную речь.
3. В 1866 году девятнадцатилетний Белл начал подумывать о том, чтобы посылать сигналы по телеграфу.
4. К большому удивлению людей, Уотсон ответил: «Я был бы рад приехать, но это займет у меня неделю».
5. Это помогало глухим людям произносить слова, которые они не могли слышать.

VI. Make up a plan and retell the text.

CHARLES DARWIN**Vocabulary:**

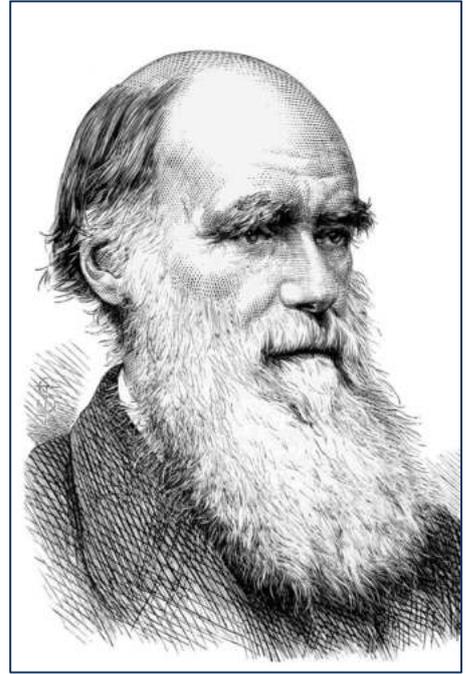
1. to lay the foundation – положить основание
2. slow- working process – замедленный процесс
3. major – важный
4. influence – влияние
5. sophisticated – образованный
6. maternal – материнский
7. china – фарфор
8. potter – глиняная посуда, керамика
9. entrepreneur – предприниматель
10. savant – ученый
11. clergyman – священнослужитель
12. stellar – звездный
13. meticulous – дотошный
14. painstaking – кропотливый
15. specimens – экземпляр, образец
16. fossils – остатки
17. upheaval – подъем, переворот, поднятие
18. convulsion – выпуклость
19. flood – наводнение
20. ark – ковчег
21. immutable – неизменный
22. supposedly – возможно
23. extinct – исчезнувший
24. finch – зяблик
25. survival – выживание
26. famine – голод
27. controversy – противоречие
28. expand – расширять, растягивать
29. contemporary – современный
30. honour – чтить, соблюдать, удостаивать

Read and translate the text.

Charles Darwin, British scientist who laid the foundation of modern evolutionary theory with his concept of the development of all forms of life through the slow-working process of natural selection. His work was of major influence on the life and earth sciences and on modern thought in general.

Born in Shrewsbury, Shropshire, England on February 12, 1809, Darwin was the fifth child of a wealthy and sophisticated English family. His maternal grandfather was the successful china and pottery entrepreneur Josiah Wedgwood his parental grandfather was well-known 18th century physician and savant Erasmus Darwin.

After graduating from the elite school at Shrewsbury in 1825, young Darwin went to the University of Edinburgh to study medicine. In 1827 he dropped out medical school and entered the University of Cambridge, in preparation for becoming a clergyman of the Church of England. There he met two stellar figures: Adam Sedgwick



and John Stevens Henslow. Henslow not only helped build Darwin's self-confidence but also taught his student to be a meticulous and painstaking observer of natural phenomena and collector of specimens. After graduating from Cambridge in 1831, the 22-year-old Darwin was taken aboard the English survey ship, HMS Beagle, largely on Henslow's recommendation, as an unpaid naturalist on a scientific expedition around the world.

Darwin joined the crew of HMS Beagle on December 27, 1831, the five-year expedition collected hydrographic, geologic and meteorological data from South America and many other regions around the world. Darwin's own observations on this voyage led to the theory of natural selection. Darwin's job as naturalist aboard the Beagle gave him the opportunity to observe the various geological formations found on different continents and islands along the way, as well as a huge variety of fossils and living organisms. In his geological observations, Darwin was most impressed with the effect that natural forces had on shaping the earth's surface.

At the time, most geologists adhered to the so-called catastrophist theory that the earth had experienced a succession of creations of animals and plant life, and that each creation has been destroyed by sudden catastrophe, such as an upheaval or convulsion of the earth's surface. According to this theory, the most recent catastrophe, Noah's flood, wiped away all life except those forms taken into the ark. The rest were visible only in the form of fossils. In the view of the catastrophists, species were individually created and immutable, that is unchangeable for all time.

The catastrophist viewpoint was challenged by the English geologist Sir Charles Lyell, who maintained that the earth's surface is undergoing constant change, the result of natural forces operating uniformly over long periods.

Aboard the *Beagle*, Darwin found himself fitting many of his observations into Lyell's general uniformitarian view. Beyond that, however, he realized that some of his own observations of fossils and living plants and animals cast doubt on the Lyell-supported view that species were specially created. He noted, for example, that certain fossils of supposedly extinct species closely resembled living species in the same geographical area. In the Galapagos Islands, off the coast of Ecuador, he also observed that each island supported its own form of tortoise, mockingbird, and finch; the various forms were closely related but different in structure and eating habits from island to island. Both observations raised the question, for Darwin, of possible links between distinct but similar species.

After returning to England in 1836, Darwin began recording his ideas about changeability of species. Darwin's explanation for how organisms evolved was brought into sharp focus after he read the works by the British economist Thomas Robert Malthus, who explained how human populations remain in balance. Malthus argued that any increase in the availability of food for basic human survival could not match the geometrical rate of population growth. The latter, therefore, had to be checked by natural limitations such as famine and disease, or by social action such as war.

Darwin immediately applied Malthus's argument to animals and plants, and by 1838 he had arrived at a sketch of a theory of evolution through natural selection. For the next two decades he worked on his theory and other natural history projects. In 1839, he married his cousin Emma Wedgwood, and soon after, moved to a small estate, Downe House, outside London. There he and his wife had ten children.

Darwin's theory was the first announced in 1859. His complete theory was published in 1859, in *On the Origin of Species*. Often referred to as the «book that shook the world», the *Origin* sold out on the first day of the publication and subsequently went through six editions.

This book explained the evolutionary process through the principles of natural selection and aroused bitter controversy because it disagreed with literal interpretation of the Book of Genesis in the Bible. Darwin's work marked a turning point in many of sciences, including physical anthropology and paleontology. It caused a revolution in biological science and greatly affected religious thoughts.

Darwin spent the rest of his life expanding on different aspects of problems raised in the *Origin*. His later books published in 1868–1872 were detailed expositions of topics that had been confined to small sections of the *Origin*. The

importance of his work was well recognized by his contemporaries; Darwin was elected to the Royal Society (1839) and the French Academy of Sciences (1878). He was also honoured by burial in Westminster Abbey after he died in Downe, Kent, on April 19, 1882.

Tasks

I. Answer the questions.

1. What did Darwin discover?
2. Who were Darwin's relatives?
3. What education did Darwin receive?
4. Who influenced Darwin?
5. What opportunities were opened before Darwin during his expedition on board the Beagle?
6. What did Darwin begin doing after returning to England?
7. Why did his book shake the world?
8. What did his book explain?

II. Translate into Russian.

1. His work was of major influence on the life and earth sciences and on modern thought in general.
2. His maternal grandfather was the successful china and pottery entrepreneur Josiah Wedgwood his parental grandfather was well-known 18th century physician and savant Erasmus Darwin.
3. Darwin's job as naturalist aboard the Beagle gave him the opportunity to observe the various geological formations found on different continents and islands along the way.
4. For the next two decades he worked on his theory and other natural history projects.
5. This book explained the evolutionary process through the principles of natural selection.

III. Insert the adequate prepositions: of, after, from, on, by.

1. Darwin was the fifth child ... a wealthy and sophisticated English family.
2. ...graduating ... Cambridge in 1831, the 22-year-old Darwin was taken aboard the English survey ship.
3. Darwin joined the crew ... HMS Beagle ... December 27, 1831.

4. Darwin's own observations ... this voyage led to the theory ... natural selection.
5. Darwin immediately applied Malthus's argument to animals and plants, and ...1838he had arrived at a sketch ... a theory ... evolution through natural selection.

IV. Complete the sentences using the following words and expressions:

was the first announced in 1859; who laid the foundation of modern evolutionary theory with his concept of the development of all forms of life; led to the theory of natural selection; went to the University of Edinburgh to study medicine; about changeability of species.

1. Charles Darwin, British scientist....
2. After graduating from the elite school at Shrewsbury in 1825, young Darwin....
3. Darwin's own observations on this voyage ...
4. After returning to England in 1836, Darwin began recording his ideas....
5. Darwin's theory....

V. Translate into English.

1. Дарвин был пятым ребенком богатой образованной семьи.
2. Работая натуралистом на борту «Гончей», Дарвин получил возможность наблюдать за различными геологическими видами на разных континентах.
3. После возвращения в Англию в 1836 году Дарвин начал записывать свои идеи об изменчивости видов.
4. Его полная теория «О происхождении видов» была опубликована в 1859 году.
5. Важность его работы была признана его современниками.

VI. Make up a plan and retell the text.

К.А. TIMIRYAZEV**Vocabulary:**

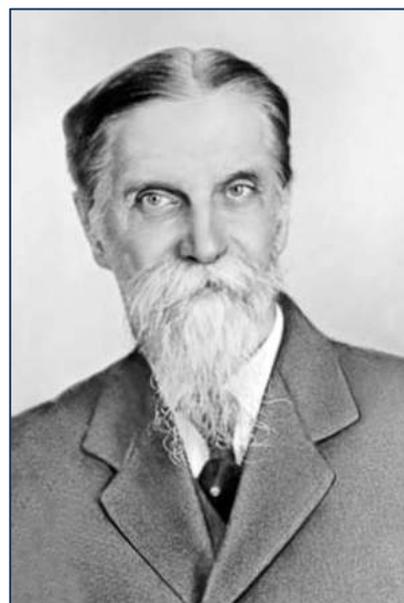
1. activity – деятельность
2. in the field – в области
3. well-known – известный
4. to solve – решать
5. intensity – интенсивность
6. light – свет
7. quality – качество
8. to take place – иметь место, происходить
9. an experimental plot – опытный участок, опытная делянка
10. an effect – влияние
11. to prove – доказывать
12. phosphate – фосфат, соль фосфорной кислоты
13. phosphate ammonia – фосфат аммония
14. to raise – увеличивать
15. ammonia – аммиак
16. a drought – засуха
17. a standard of living – уровень жизни

Read and translate the text.

Kliment Arkadievich Timiryazev (1843–1920) began his scientific activities in the field of agriculture in the town of Simbirsk. His teachers were D.I. Mendeleev, I.M. Sechenov, I.I. Mechnikov, and other well-known scientists.

K.A. Timiryazev was one of the greatest plant physiologists of the 19th and 20th century. In his experiments and theory he practically solved the problem of photosynthesis, showing that it depended on light intensity as well as light quality. He also wrote much on the importance of chlorophyll for photosynthesis process which takes place in all plants on the Earth.

K.A. Timiryazev also studied, on an experimental plot, the effect of various mineral fertilizers on grain yields and proved that the use of phosphates in black soil raised greatly crop yields. Yet some of the fertilizers, e.g. sulphate ammonia,



may have a harmful effect on a plant. Working on the same experimental plot, he discovered that deep ploughing was highly important in the fight against drought.

Later, Academician V.R. Williams and farm practitioner T.S. Maltzev developed Timiryazev's idea on deep ploughing: they introduced a new method of grain field cultivation. They used machines that could plough soil more 40–50 cm deep.

Thus, K.A. Timiryazev's work had great influence on modern research in agriculture.

Timiryazev's principal idea of agronomy was that plant is the central object of agronomist's work. According to his theory, this means that agriculturalists should concentrate on the studies of climate, soil, fertilizers, only in connection with plant's life.

K.A. Timiryazev was a great patriot and democrat. After the Great October Socialist Revolution he did much to help people. He helped farmers to increase crop yields and thus to raise their standard of living.

Today the Moscow Higher Agricultural School where K.A. Timiryazev was a lecturer on plant physiology is well-known Timiryazev Agricultural Academy.

Tasks

I. Answer the questions.

1. Which field were Timiryazev's activities in?
2. Who were his teachers?
3. Was he an ordinary plant physiologist?
4. Which problem did he solve in his experiments?
5. What did he show? What does the photosynthesis depend on?
6. What is important for photosynthesis?
7. Did he study the effect of fertilizers?
8. Do all fertilizers have a good effect on plants?
9. What did he discovered concerning plowing?
10. What was the center of his studies?

II. Translate into Russian.

1. Timiryazev showed that photosynthesis depended on light intensity as well as light quality.
2. Photosynthesis process takes place in all plants on the earth.
3. Chlorophyll is very important for photosynthesis process.
4. Various mineral fertilizers have good effect on grain yields.
5. The use of phosphates in black soils raises greatly crop yields.

III. Insert the adequate prepositions: for, on, in, of, against, according to.

1. Timiryazev began his scientific activities... the field...agriculture...the town ...Simbirsk.
2. Working... the same experimental plot, he discovered that deep plowing was highly important ... the fight...drought.
3. Some fertilizers may have harmful effect ...plants.
4. ... his theory agriculturalists should concentrate... the studies... climate, soil, fertilizers.
5. He wrote ...the importance of chlorophyll ... photosynthesis process.

IV. Complete the sentences using the following words and expressions:

well-known scientists; grain cultivation; the problem of photosynthesis; on grain yields; in agriculture.

1. In his experiments and theory he practically solved...
2. His teachers were D.I. Mendeleev, I.M. Sechenov, I.I. Mechnikov, and other...
3. K.A. Timiryazev also studied the effect of various mineral fertilizers...
4. They introduced a new method of...
5. Timiryazev's work had great influence on modern research....

V. Translate into English.

1. Некоторые удобрения оказывают вредное влияние на растения.
2. Глубокая вспашка очень важна в борьбе с засухой.
3. Работы Тимирязева очень повлияли на современные исследования в сельском хозяйстве.
4. Ученые-аграрии должны сосредотачиваться на изучении климата, почвы, удобрения только в связи с жизнью растения.

VI. Make up a plan and retell the text.

I.V. MICHURIN

Vocabulary:

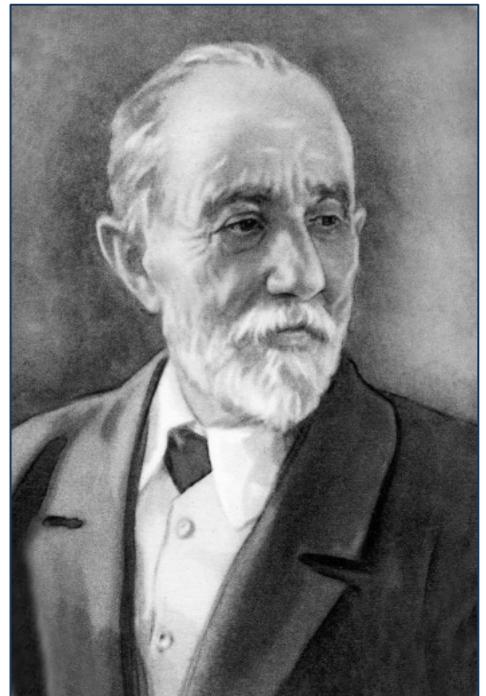
1. to improve – улучшать
2. to recognize – признавать
3. science – наука
4. frost-resisting – морозоустойчивый
5. northward – к северу
6. artificial – искусственный
7. fulfill – выполнять
8. to work out – разрабатывать
9. instead of – вместо
10. drawback – недостаток
11. to interfere – вмешиваться
12. to create – создавать
13. beyond – вне, по ту сторону
14. hybridization – скрещивание
15. fruitful – плодотворный
16. to exist – существовать, иметь место

Read and translate the text.

Michurin was born in the village of Dolgoye, near Kozlov, in 1855. All the Michurins had always been gardeners, and all of them had experimented in improving varieties of apples. The first period of Michurin's life was very hard but later he was recognized as a revolutionary in science.

The task which Michurin set himself when he was still a young man was to develop frost-resisting varieties of plants which could grow as far to the North as possible. He wanted to move the South northward.

If Michurin had used only the method of artificial selection, which his contemporaries were using at that time, he wouldn't have fulfilled this gigantic task. He had to work out new methods.



The selectionists did what nature did, only much quicker, using artificial selection instead of natural. Michurin, however, clearly saw the main drawback of selection, namely that it copied nature and its methods instead of interfering with nature and creating new methods.

Michurin did what nature never did. In his creative work he went beyond the stage of using selection and turned to hybridization that is, getting new forms by cross-breeding plants of different species and varieties. He developed completely new types of fruit and vegetables. He crossed not only different varieties of the same plant, but different plants, for instance, apples and pears.

In the course of his long and fruitful life Michurin developed about 350 varieties of plants that had not existed before, many of them of the frost-resisting type.

Michurin died in 1935 and was buried in Michurinsk, near Kozlov, where he had lived and worked for so many years.

Tasks

I. Answer the questions.

1. When and where was Michurin born?
2. Who were all the Michurins?
3. The first period of Michurin's life was very hard, wasn't it?
4. What task did Michurin set when he was still a young man?
5. What did he develop?
6. How many varieties of plants did he develop?

II. Translate into Russian.

1. All the Michurins had always been gardeners.
2. He wanted to move the South northward.
3. The selectionists did what nature did, only much quicker, using artificial selection instead of natural.
4. He crossed not only different varieties of the same plant, but different plants, for instance, apples and pears.
5. Michurin developed about 350 varieties of plants.

III. Insert the adequate prepositions: of, to, about, in, beyond.

1. Michurin was born ... the village ... Dolgoye, near Kozlov ...1855.
2. The first period ... Michurin's life was very hard but later he was recognized as a revolutionary ...science.
3. Michurin clearly saw the man drawback ...selection.
4. ... his creative work he went ... the stage ... using selection and turned ...hybridization.
5. Michurin developed ... 350 varieties ... plants.

IV. Complete the sentences using the following words and expressions:

to develop frost- resisting varieties of plants; in improving varieties of apples; fruit and vegetables; what nature never did; new methods.

1. All the Michurins had experimented in
2. The task which Michurin set himself when he was still a young man was....
3. He had to work out....
4. Michurin did
5. He developed completely new types of....

V. Translate into Russian.

1. Мичурин родился в деревне Долгое в 1855 году.
2. Ему пришлось разработать новые методы.
3. Мичурин сделал то, что природа никогда не делала.
4. Он получал новые формы, скрещивая растения различных видов и сортов.
5. Задачей Мичурина было развитие морозоустойчивых видов растений.

VI. Make up a plan and retell the text.

NIKOLAY VAVILOV – FATHER OF RUSSIAN GENETICS AND SELECTION OF PLANTS

Vocabulary:

1. adulthood – взросление
2. tremendous – огромный
3. cultivated plant – выращиваемое (культивируемое растение)
4. wild plant – дикорастущие растения
5. related – родственный
6. variability – изменчивость, вариабельность
7. appear – появляться
8. scholar – ученый
9. specimen – образец
10. variety – сорт, разновидность
11. species – вид, род
12. plant resources – растительные ресурсы
13. enable – давать возможность
14. incredible – неслыханный, потрясающий, невероятный
15. vision – проницательность, дальновидность
16. promote – способствовать, содействовать
17. extend – распространять, расширять
18. sound – правый, здравый, логичный

Read and translate the text.

The outstanding scientist Nikolay Vavilov was born on November 25, 1887.

During the years of his early adulthood, Vavilov became a scientist with tremendous potential in the field of genetic research.

Having studied a huge number of cultivated and related wild plants, Vavilov discovered the law of biological variability which was similar in importance to Mendeleev's periodic table.

Equally important for world science was Vavilov's study of the areas where cultivated plants first appeared. According to Vavilov, the most ancient areas of agriculture were not in the river valleys of Egypt, Mesopotamia or along the Ganges,

as scholars had believed earlier, but in the mountainous parts of Ethiopia, Central



Asia, China, India, and also in the Andes in South America. He organized expeditions to 60 countries of the world, which collected about 250,000 specimens of grain.

Vavilov's research changed formerly existing ideas of the varieties and species of wheat, rye, corn, cotton, flax and potatoes. The study of world's plant resources enabled Vavilov to work out the foundations of selection in Russia.

Vavilov was a scientist of incredibly broad vision. He promoted extending agriculture to northern territories beyond the Arctic Circle and to mountainous areas and deserts and subtropics.

The scientist's theoretical works were recognized throughout the world. His methods were always original and sound. He was president of the Agricultural Academy and a member of the Academy of Sciences.

His most important ideas were to change cultivated plants in the shortest time possible, develop the best varieties for all the most important crops in the main areas. Nikolay Vavilov died on January 26, 1943.

Tasks

I. Answer the questions.

1. When was Nikolay Vavilov born?
2. What kind of a scientist was he?
3. What law did he discovered?
4. Where were the most ancient areas of agriculture according to Vavilov?
5. How did Vavilov influence the formerly existing ideas of the varieties and species of wheat, rye, corn, flax and potatoes?
6. What did he work out?
7. What did he promote?
8. What were his most important ideas?

II. Translate into Russian.

1. During the years of his early adulthood, Vavilov became a scientist with tremendous potential in the field of genetic research.
2. Equally important for world science was Vavilov's study of the areas where cultivated plants first appeared.
3. Vavilov's research changed formerly existing ideas of the varieties and species of wheat, rye, corn, cotton, flax and potatoes.
4. Vavilov was a scientist of incredibly broad vision.
5. He was president of the Agricultural Academy and a member of the Academy of Sciences.

III. Insert the adequate prepositions: throughout, in, about, of, on.

1. He organized expeditions to 60 countries of the world, which collected 250,000 specimens of grain.
2. Vavilov discovered the law ... biological variability.
3. According to Vavilov, the most ancient areas ... agriculture were not ... the river valleys ... Egypt, Mesopotamia or along the Ganges.
4. The scientist's theoretical works were recognized ... the world.
5. Nikolay Vavilov was born ... November 25, 1887.

IV. Complete the sentences using the following words and expressions:

beyond the Arctic Circle; sound; the Agricultural Academy; the foundations of the selection of plants in Russia; genetic research.

1. Vavilov became a scientist with tremendous potential in the field of...
2. It was Vavilov who worked out...
3. He promoted extending agriculture to northern territories...
4. He was president of...
5. His methods were always original...

V. Translate into English.

1. Теоретические работы ученого были признаны во всем мире.
2. Исследования Вавилова изменили прежде существовавшие идеи о сортах и видах многих растений.
3. Вавилов открыл закон биологической изменчивости.
4. Он организовал экспедиции в 60 стран мира.
5. Закон биологической изменчивости Вавилова был подобен периодической таблице Менделеева.

VI. Make up a plan and retell the text.

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