**Theme: The most outstanding scientists in Ukraine. Inventors and discoveries.**

**Aim**: активізувати лексичний матеріал з теми у мовленні учнів;

 удосконалювати навички читання, аудіювання та усного мовлення;

 формувати граматичні навички вживання Past Simple Passive Voice;

 продовжувати формувати уміння висловлювати власну думку з приводу

 почутого чи побаченого;

 поглибити знання учнів про відомих винахідників та їх винаходи;

 розвивати мовну здогадку та уміння критично мислити;

 виховувати національно - патріотичну свідомість учнів;

виховувати зацікавленість у розширенні своїх знань.

**Equipment:** мультимедійна презентація у форматіPower Point, відеофільм, роздатковий матеріал

**Procedure**

**І. Підготовка до сприйняття іншомовного мовлення.**

**Greeting**

 **1.1.Організація учнів до уроку.**

 **Theme and aim. Повідомлення теми та мети уроку.**

**T:** Hello, children! I’m very glad to see you! I hope you are ready for active work. Our topic today is “The most outstanding scientists in Ukraine. Inventors and discoveries”. So you’ll learn a lot of useful information about achievements of scientists from our country. You’ll also have plenty of practice in reading, writing, speaking and listening. Besides, we’ll revise the usage of the Passive Voice forms and we’ll practice the usage of the Past Simple Passive Voice and do some grammar exercises. By the end of the lesson you should learn more about famous Ukrainian scientists and their discoveries.

**1.2. Warming up . Мовленнєва розминка.**

 а) Робота з висловами.

**T:** Finish the quotations and sayings of famous people:

1) Genius is one per cent inspiration and **ninety-nine per cent perspiration**.

 (T. Edison)

2) You cannot teach a man anything; **you can only help him find it within**

 **himself**. (Galileo)

3) Wonders are many and nothing is **more wonderful than man.**

 (Sophocles)

4) Imagination is more important **than knowledge.** (A. Einstein)

5) It is better to understand a little, than **to misunderstand a lot.**

6) Train hard, **fight easy.**

7) Necessity is the **mother of invention.**

**T:** The motto of our lesson is: **“Necessity is the mother of invention.”**

**T:** How do you understand this proverb?

**Ps:** If someone really needs to do something, they will find a way of doing it.

**T:** Nowadays we can even say that **“Comfort is the mother of invention”** because various inventions in electronics transport etc. make our life easier and more comfortable.

**T: So, listen to me and answer my questions.**

* What modern inventions do you have at home?
* What is the most useful thing for your mother?
* Which device can’t you do without?
* What thing can’t your father live without?
* What gadget do you use every day?
* What thing can you easily do without?
* What is the most useless thing in your household?

**II. Основна частина.**

 **2.1. Vocabulary. Активізація лексичного матеріалу.**

**T:** The best place to know more about great men’s inventions is, of course, the Museum of Scientific and Technological Progress. Today you’ll get acquainted with some old devices and modern ones. You’ll also try yourself as guides in such a museum.

a) **T:** Look at the photos of these old devices. What do you think you can do with them? What do you think each one is? (The photos of telegraph, cine camera, adding machine, gramophone and crystal radio)

b) **T:** Match the early devices with the modern devices we use today.

1. Adding machine CD player
2. Telegraph camcorder
3. Crystal radio calculator
4. Gramophone digital camera
5. Typewriter telephone
6. Cine camera games console
7. Video game DAB radio
8. Instamatic camera word processor

c) **T:** Complete the sentences using these words:

1. My grandparents still listen to music on an old \_\_\_\_\_\_\_\_\_\_\_\_\_\_, which is about 80 years old.
2. Can someone pick up the \_\_\_\_\_\_\_\_\_\_\_, please? It’s ringing.
3. “What’s that old device?” “It’s a \_\_\_\_\_\_\_\_\_\_\_\_\_. People used it to send messages over long distances.”
4. My mum hates technology. She doesn’t switch on a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to type a letter. She uses an old \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Sara couldn’t add up the numbers in her head so she used a \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. Martin! Turn down your \_\_\_\_\_\_\_\_\_\_\_\_\_\_! How can you listen to such loud music while you are doing your homework?
7. My parents got married in the 1950s. Someone had a \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_and filmed the wedding.
8. My brother spends hours playing video games on his \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
9. “Look at those people surfing!” “Quick! Switch on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and record them!”

***Key:* 1-** gramophone**;2-** telephone**;3-** telegraph;**4**- word processor, typewriter;**5-** adding

 machine; **6**- CD player; **7-** cine camera; **8 -** games console; **9**- digital camera

**2.2. Розвиток навичок усного мовлення. Speaking.**

 **Презентація повідомлень учнів.**

 a) NowYou’ll present the information about famous inventors you have found. It was your homework. (Pupils were divided into groups beforehand. They had to do research and prepare presentations

(Children speak about Volodymyr Ivanovych Vernads’kyi,,Ivan Pulilui and Oleksandr Bohomolets ).

**1st Group:**

**VOLODYMYR VERNADS’KYI /1863-1945/**

Volodymyr Ivanovych Vernads’kyi was born on March 12, 1863 in St. Petersburg. His father Ivan V. Vernads’kyi /1821-1884/ was professor of Political economy of Kyiv University.

In 1885 Volodymyr Vernads’kyi graduated from St. Petersburg University. After graduating he did postgraduate work there and in Munich and Paris. In 1891-1911 he taught at Moscow University.

Volodymyr Vernads’kyi had close links to Ukraine. From 1889 to 1918 he spent summer in Poltava Province. In 1890 he researched the soils of Kremenchuk County as a member of V. Dokuchaiev’s soil- science expedition.

After the February Revolution of 1917 V. Vernads’kyi was appointed the Russian deputy minister of education. After the Bolshevik coup he fled to Ukraine. In 1918 he headed the group of Ukrainian scholars that drafted the project for founding the Ukrainian academy of sciences. In 1918-1919 he served as its first president, and lectured in Kyiv University. In 1919 he became the first Ukrainian Academician.

In 1919, while visiting Rostov, he was unable to return to Ukraine and ended up in the White-controiled Crimea. In 1920 he was a professor and rector of Tauris University in Simferopol’.

In 1921 V. Vernads’kyi returned to Petrograd and organized the Radium Institute there. In 1922 he went to Paris to work with Marie Curie /1867-1934/ in research of **radioactivity.** In Paris he lectured at the Sorbonne. In 1926 he returned to Russia. From 1928 until his death he directed the Radium Institute and a Laboratory for Geochemical Problems.

Volodymyr Vernads’kyi’s ideas became the core of new directions in geology, mineralogy, and hydrogeology. He is one of the founders of geochemistry and biogeochemistry.

Academician Vernads’kyi is the author of the fundamental studies on Earth, the chemical composition of atmosphere, the role of radioactive elements in the planet’s evolution.

Academician Vernads’kyi scientific findings are universally recognized.

 **T:** Dear children you may ask some questions each other and answer them:

**Ps**: Where and when was Volodymyr Ivanovych Vernads’kyi born?

**Ps:** Volodymyr Ivanovych Vernads’kyi was born on March 12, 1863 in St. Petersburg.

**Ps**: When did he gradute St. Petersburg University?

**Ps**: In 1885 Volodymyr Vernads’kyi graduated from St. Petersburg University.

**Ps:** What did he research in 1890?

**Ps:** In 1890 he researched the soils of Kremenchuk County as a member of V. Dokuchaiev’s soil- science expedition.

**Ps**: When was he a professor and rector of Tauris University in Simferopol’.

**Ps**: In 1920 he was a professor and rector of Tauris University in Simferopol’.

**Ps**: What did V. Vernads’kyi find?

**Ps:** . He is one of the founders of geochemistry and biogeochemistry.

**2nd Group:**

**IVAN PULIUI/1845-1918|**

Ivan Puliluiwas a noted Ukrainian scientist. He began his road to science on foot from his native village of Hrymailiv in Ternopil area to Vienna where he studied theology.

He wrote in Ukrainian the first textbook on Geometry and the book about stars and planets. His activities prevented him from becoming a lecturer of Kyiv University.

He worked in Vienna in the field of electrical engineering, mathematics, astronomy, and philosophy.

Besides, Ivan Puliuy was a brilliant polyglot, he knew 15 languages. He was the first to discover invisible rays some decades earlier than Wilhelm Roentgen.

He was the first to study the so-called “cold light”.

His lamps were much better than Edison’s lamps. Ivan Puliuy offered an isolation transformer for telephone exchanges and put into operation a number of power stations with constant current.

**T:** Complete the sentences:

**Ps:** Ivan Puliluiwas a noted …. **(Ukrainian scientist)**

**Ps:** He wrote in Ukrainian the first textbook on …..**(Geometry)**

**Ps:** He worked in Vienna in the field of electrical engineering, ….. **( mathematics, astronomy, and philosophy).**

**Ps:** Ivan Puliuy was a brilliant polyglot, he knew ….. **( 15 languages)**

**Ps:** He was the first to study the so-called…… **( “cold light”)**

**Ps:** His lamps were much better than …… **( Edison’s lamps)**

**Ps:** Ivan Puliuy offered an isolation transformer for ….. **( telephone exchanges).**

**3rd Group:**

 **OLEKSANDR BOHOMOLETS/1881-1946/**

Oleksandr Bohomolets was born on May 24,1881 in Kyiv. In 1906 he graduated from the medical faculty of Odesa University. After graduating he worked as a lecturer there. He served as professor at Saratov and then Moscow Universities. He was director of the Institute of Hematology and Transfusion in Moscow.

In 1931 he moved to Kyiv, where he founded the Institute of Experimental Biology and Pathology and the Institute of Clinical Physiology. In 1953 the O. Bohomolets’ Institute of Physiology was formed out of these two institutes.

O. Bohomolets was a founder of a large school of pathophysiologists. He developed the hypothesis that the course of a disease and recovery depends on the resistance of organism. He demonstrated that connective tissue has a protective function in organism. He discovered a stimulant of connective tissue, which gained him worldwide fame.

O. Bohomolets’wrote many works in biology, physiology, and pathology. He was president of the Academy of Science of Ukraine in 1930-46.

**T:** Mark if the sentences are true or false:

**Ps:** Oleksandr Bohomolets was born on May 24,1881 in Moscow. **(False)**

**Ps:** After graduating he worked as a lecturer in the medical faculty of Odesa University. **(True)**

**Ps:** He founded the Institute of Experimental Biology and Pathology and the Institute of Clinical Physiology in Odessa. **(False)**

**Ps:** O. Bohomolets was a founder of a large school of pathophysiologists. **(True)**

**Ps:** . He discovered a stimulant of connective tissue, which gained him worldwide fame. **(True)**

**Ps:** O. Bohomolets’wrote many articless in biology, physiology, and pathology. **(False)**

**Ps:** He was president of the Academy of Science of Ukraine in 1945-46. **(False)**

**T:** Thank you very much for your stories about outstanding Ukrainian scientists and their discoveries. It’s very interesting and useful.

**2.3. Розвиток навичок аудіювання. Listening**

**T:** Now I want to read you a text about Eugene Paton and then you’ll do some tasks.

1. **Pre-listening activity. First of all let’s practice new vocabulary. Look at monitor and listen to me.**

 **Презентація ЛО тексту.**

an award— нагорода

a consul — консул

a degree — ступінь

Nice — м. Ніцца

 a title — титул

to award — нагороджувати

electric welding —електрозварювання

boltless — без болтів

 honourable— почесний

1. **Listening**

One can name many outstanding scientists in Ukraine, but I’d like to tell about the man, whose name is known all over the world. This is Eugene Paton. He was born in the family of Russian Consul in Nice, France in 1870. He was a graduate of Dresden Polytechnic Institute, Germany. But when he came back to St. Peters­burg as a famous engineer (architect), he suddenly changed his mind as to his oc­cupation. He became a student of St. Petersburg University being a famous engi­neer and having the project of the Dresden railway station to his credit.

In a year, he passed all exams and got a degree of a railway engineer. Paton was the first to found the Soviet school of bridge — building. He was awarded the title of the Hon­ourable member of the Ukrainian Academy of Sciences. He decided to change his profession when he was 60. “The wish to serve the people made me to take up the new job — the electric welding”, he said.

He became the founder of the first institute of the electric welding in the world. When he was 80, he headed the design and construction of the first boltless bridge in Kyiv. The bridge is 1150 metres long and is named after Paton. The Re­search Institute of Electric Welding is named after Paton too.

**T:** ***Do you understand the text?***

 ***Let’s check how do you understand it?***

1. While-listening activities.

**Mark if the statements below are true or false.**

**a** Eugene Paton was born in Moscow in 1870.

**b** His father was Russian Consul in Nice, France.

**c** Paton graduated from Dresden Medical Institute and later became a famous surgeon.

**d** Eugene Paton graduated from St Petersburg University and then had a project of the Dresden railway station.

**e** He got a degree of a railway engineer at Dresden Polytechnical Institute.

**f** Paton was a founder of bridge-building.

**g** At the age of 60 he took up the electric welding.

**h** He headed the construction of the first wooden bridge in Kyiv.

**i** The bridge is 2000 metres long.

**j** The name of Paton has been given to the bridge and to the Research Institute in St Petersburg.

***Key: a-F; b- T; c-F; d-F; e-F; f-T; g- T; h- F; i- F; j- F***

1. Post-listening activities.

**Listen to the biography** **of Paton again and answer the questions.**

**a** Where was Eugene Paton born?

**b** What higher educational institutions did he study in?

**c** What project did he have to his credit when he became a student of St Petersburg University?

**d** What institution did he found?

**e** How old was Eugene Paton when he headed the design and construction of the first boltless bridge in Kyiv?

**f** Why did Eugene Paton change his profession when he was 60.

**T.** ***Say what fact in his biography impressed you the most?***

**3. Grammar Revision. Present Simple Passive Voice**

 **Роздатковий матеріал (таблиця Passive Voice).**

 **Grammar Review.**

**Т:**When we speak or read texts about inventors and inventions we often use Passive structures.

Повторення правил утворення «Passive Voice» за таблицею.

|  |
| --- |
| **Simple** |
| **Present** | **питають**зазвичай, кожного дняamis askedare |
| **Past** | **спитали,** **його було запитано**вчора, колись у минуломуwas askedwere |
| **be V3** |

**T: Now please, let’s remember the rule: the usage of the Passive Voice forms:**

Passive Voice вживається:

1) Коли особа, яка виконує дію не зазначено або воно вказується побічно.

Наприклад: Computers are used everywhere. Where was your calculator made?

2) Коли ми хочемо сказати, ким або чим виконуються дія, ми вживаємо

 прийменник by або with після дієслова.

**4. Writing**

**A. Make up sentences using Passive Voice.**

**Example:** Shevchenko wrote this poem. – This poem was written by Shevchenko.

Pupils do a lot of exercises at the lessons. – A lot of exercises... .

They showed this film on Sunday. – This film... .

The postman will bring the letters. – The letters... .

Alecsander Fleming invented penicillin. – Penicillin... .

Walt Disney created Mickey Mouse. – Mickey Mouse....

**B. Language work.**

**T: Work on the model**: Edison / the cinema – Edison invented cinema – The cinema was invented by Edison.

Rudolf Diesel / the Diesel engine

Adolf Sax / the saxophone

Ladislao Biro / the ball – point pen.

**5. Relaxation**

**T:** Now we are going to play a game. Break into teams: Team A (the 1 st row). Team B (the 2 nd one). Team C (the 3rd row) While listening to the story Team A must stand up on hearing the word **“invent**”. Team B has to stand up when they hear the word **“invention”**. Team C has to stand up when they hear the word **“inventor”**. Let’s play.

**Text:** «Peter Greaves is 16. His ambition is to become a suc­cessful, professional inventor. Peter became interested in inventing when he learnt about famous inventors at school. His hero is Thomas Edison, the man who invented the light bulb. Edison got his first patent for an invention when he was 19. Peter wants to follow in Edison's footsteps.

Peter, who lives near New York, started to invent things when he was 3. His first inventions were toys which he made from old clothes.

Peter, whose latest invention is a gadget that helps old people pick up things without bending down, believes that his talent lies in finding solutions for everyday problems. For example, the family dog pulled Peters father off his bike while they were out on a walk together. So Peter in­vented a gadget, which allows you to ride a bike and walk your dog at the same time. When he tried to patent the idea he found that someone else had got there first.

Peter, who won the young inventor of the year com­petition, believes that if only he could invent something that was fun, fashionable and appealing to young people, he could make his fortune».
**Key: Team A – 4**

 **Team B – 3**

 **Team C - 3**

**6. Reading**

**T:** Read the text about Sergey Korolyov and complete the text with the words from the box.

**rocket, tested, engineering, scientist, developing, industry, graduated, space, founders, research**

Academician Serhiy Pavlovych Korolyov, the famous (1)... and designer of space- rocket systems, was born in the city of Zhytomyr in the family of a teacher. From 1927 he worked in the aircraft (2)... . In 1930, without leaving his job, he (3)... from Moscow Bauman Higher Technical School and finished a flying school in Zhytomyr in the same year.

After a meeting with Tsiolkovsky and studying his ideas, Korolyov became a (4)... enthusiast. He was one of the (5)... of modern space-rocket engineering1.

In 1933, when the Group for Studying Jet Propulsion2 was organised, and the first experimental rockets were made and (6)..., Korolyov took part in its work.

Afterwards Korolyov devoted himself to (7)... space-rocket engineering. In 1957 the first Earth satellites in the world were put into orbit with the help of the systems he had designed1 and the far side of the Moon was photographed.

He controlled the spaceships, in which man first flew into (8)... and from which he walked out into space.

Korolyov trained many scientists and engineers who are now leading the work in (9)... institutes and designing office buildings which specialise in the sphere of space-rocket (10)... .

 **Key:** **1**-scientist; **2-** industry; **3-** graduated; **4-** space; **5-** founders; **6-** tested;

 **7-** developing; **8-** rocket; **9-** research; **10-** engineering.

**b) Work in pairs to answer the questions.**

**T:** I purpose you to work in pairs. One of you will ask your question and the other will answer it.

**1** Who is Serhiy Pavlovych Korolyov?

**2** When did Korolyov graduate from Moscow Bauman Higher Technical School?

**3** What connection with aviation did Korolyov have before he became interested in cosmonautics?

**4** What was the result of Korolyov’s meeting with Tsiolkovsky?

**5** What was done in space research under Korolyov’s control?

**7. Speaking**

**T.** Ihor Sikorsky was a pioneer of aviation who designed the first four-engine aeroplanes and the first successful single main rotor with tail rotor helicopter.

 ***Read the text and match paragraphs 1-5 with the headings A-F. There is one***

 ***extra heading.***

**Ihor Sikorsky (1889-1972)**

□ 1. Ihor Sikorsky was born in Kiev in 1889. He was a pioneer of aviation who designed the first four-engine aeroplanes and the first successful single main rotor with tail rotor helicopter.

□ 2. Sikorsky studied at the Naval War College in St Petersburg and in Kiev Polytechnic Institute but he didn't finish his formal studies. His work included the construction of the first four motor aircrafts, the S-22 Sikorsky's planes were used by Russia as bombers in World War I.

□ 3. After emigrating to the USA in 1919, he worked as a school teacher and a lecturer until he formed the Sikorsky Aero Engineering Company. In 1928 he became a citizen of the USA.

□ 4. Sikorsky had experimented with helicopter-type flying machines before

 going to the US. He eventually produced the Vought-Sikorsky 300, a

 machine with a single three-blade rotor powered by a 75 horsepower

 engine. It was to become the most popular helicopter.

□ 5. Sikorsky died in 1972 but the Sikorsky Aircraft Corporation continues to

 the present day as one of the world's leading helicopter manufacturers.

**A** A wonderful invention

**B** Studies

**C** Sikorsky's legacy

**D** A great man

**E** Early years

**F** New life

 **Key: 1-d, 2-e, 3-f, 4-a, 5-c**

**III. ЗАКЛЮЧНА ЧАСТИНА УРОКУ**

**3.1.Рефлексiя.**

Бесіда за формою  **«Microphone**»

**T:** - What did we speak about at the lesson today?

* Do you think all these inventions are useful or harmful for mankind?
* What grammar have you revised?

**3.2. Homework.**

Write a composition «Modern Inventions in my house».

**3.3. Summarizing.**

**T:** Thank you very much, students, for you creative work, for your interesting stories. You have heard many interesting facts, impressive information about inventors and inventions. And I want to finish our lesson with the “Symphony of Science”

**3. *So, your marks for the lesson are..***