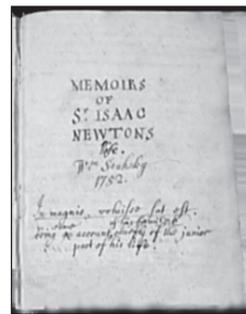


# Наука й технічний прогрес. Відомі винахідники

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"Memoirs of Sir Isaac Newton's Life". Biography. 1752

Урок з використанням мультимедійного обладнання та матеріалів електронних енциклопедій у 9 класі за підручником О. Карпюк

Під час підготовки цього матеріалу я використовувала зразки завдань, які були представлені на ЗНТ [http://osvita.ua/doc/files/news/5048/Trening.pdf], щоб заздалегідь готувати учнів до тестування. Тексти та всі вправи наведені в повному обсязі, тому цей матеріал можуть використовувати вчителі, які працюють за іншими підручниками.

## Цілі уроку:

- *практична*: вчити виділяти в тексті основні думки та узагальнювати факти, вчити реалізовувати цілеспрямований пошук, використовуючи електронні носії інформації;
- *освітня*: поглибити знання учнів про життя та творчість учених і винахідників;
- *розвивальна*: розвивати вміння висловлювати свою точку зору та відстоювати її;
- *виховна*: викликати бажання отримувати знання та використовувати їх на практиці.

**Обладнання:** підручник для 9 класу (О. Карп'юк, видавництво «Астон», 2009 р.), персональний комп'ютер, мультимедійний проектор, екран, презентація "Newton. Life and creative work", матеріали електронної енциклопедії Вікіпедія, роздавальні картки.

## ХІД УРОКУ

### I. Вступ до уроку

#### Вступна бесіда за темою уроку

T. There are proverbs and aphorisms. Which of these statements are proverbs and which are aphorisms?

1. Men learn while they teach. (*Seneca*)
2. Train hard, fight easy.
3. As for me, all I know is that I know nothing. (*Socrates*)
4. Live and learn.

Do you know their Ukrainian equivalents?

1. Навчаючи інших, люди вчаться самі.
2. Важко в навчанні, легко в бою.
3. Щодо мене, то я знаю тільки те, що нічого не знаю.
4. Вік живи — вік навчайся.

Say if you agree with these statements.

What do you know about the authors of the aphorisms?

(Прислів'я, афоризми та портрети філософів проєктуються на екран.)

## Повідомлення теми та завдань уроку

T. We'll talk about science and technological progress, about outstanding scientists at our today's lesson. We'll read the text about famous English scientist Isaac Newton. We'll also listen to the text about Edison, a famous inventor, discuss the problems covered in the texts; practice new vocabulary in speech; revise grammar forms of the verbs; do exercises on the text.

## II. Основна частина уроку

### Listening

#### Pre-listening tasks

Match the words with their synonyms.

- |                  |                  |
|------------------|------------------|
| 1. boss          | A. to keep watch |
| 2. to be on duty | B. chief         |
| 3. mechanism     | C. job           |
| 4. work          | D. device        |
|                  | E. occur         |

Match the words with their opposites.

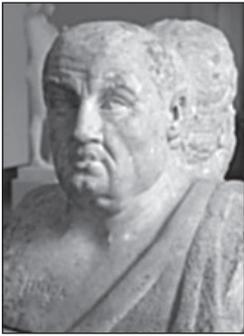
- |             |                |
|-------------|----------------|
| 1. never    | A. subordinate |
| 2. chief    | B. always      |
| 3. to begin | C. awake       |
| 4. to open  | D. to stop     |
|             | E. to close    |

### Listening

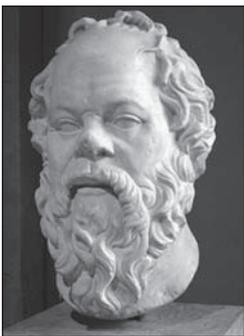
#### Edison's first invention

When Edison was a boy of fifteen, he worked as a telegraph operator. He had to be on duty at night from 7 o'clock in the evening till 7 o'clock in the morning. But at night there was never much work and the telegraph operators usually slept. So the boss ordered each operator to give a signal every hour to show that he was awake. Edison's signals always came at the same time at the beginning of each new hour. That surprised the boss. So one night he sent an inspector to see

*A beauty  
is a woman  
you notice;  
A charmer is one  
who notices you.*  
Alalai Stevenson



*Lucius Annaeus Seneca* was a Roman Stoic philosopher, statesman, dramatist, and in one work humorist. He was tutor and later advisor to Emperor Nero. [http://en.wikipedia.org/wiki/Seneca\_the\_Youngerhttp://en.wikipedia.org/wiki/Seneca\_the\_Younger]



*Socrates* was a Classical Greek philosopher, one of the founders of Western philosophy. He is an enigmatic (загадкова) figure known only through the classical accounts of his students. Plato's dialogues are the most comprehensive accounts of Socrates to survive from antiquity. [http://en.wikipedia.org/wiki/Socrates]

how well the boy was working. When the inspector opened the door he saw Edison sleeping in his chair. The inspector was going to shake the boy when he saw a block with a mechanism on the table near the telegraph apparatus. He waited to see what would happen. When the hand of the clock pointed to the hour, the mechanism began to work and sent a signal. The inspector went up to the boy and shook him. Edison awoke. He was told that he had lost his job. This story explains why the first of Edison's many inventions was never patented.

**Post-listening tasks**

For (1–6) choose T if the statement is true ACCORDING TO the text, F if it is false.

1. When Edison was a boy of sixteen, he worked as a telegraph operator.
2. At night there was always much work.
3. Edison's signals always came at the same time at the beginning of each new hour.
4. That surprised the boss.
5. So one night he sent an inspector to see how well the boy was sleeping.
6. The first of Edison's many inventions was never patented.

**Writing**

Put the words in the correct order.

1. had / be / to / He / on / at / duty / night.
2. operators / The / usually / telegraph / slept.
3. Edison / sleeping / was / his / in / chair.
4. The / saw / mechanism / inspector / the / on / block / with / table / a / a.
5. to / mechanism / work / began / The.
6. up / The / came / inspector / the / to / boy.

Choose the correct variant and complete the sentences.

1. When Edison was a boy of fifteen, he \_\_\_ as a telegraph operator.
  - A. was working
  - B. worked
  - C. has worked
  - D. works
2. But at night there was \_\_\_ much work.
  - A. everywhere
  - B. ever
  - C. never
  - D. forever
3. He waited to see what \_\_\_ happen.
  - A. will
  - B. could
  - C. would
  - D. should
4. Edison's signals always came \_\_\_ the same time at the beginning of each new hour.
  - A. at
  - B. to
  - C. in
  - D. of

**Grammar**

Complete the text below. For each of the empty space (1–12) choose the correct answer (A or B).

When Edison (1) \_\_\_ a boy of fifteen, he (2) \_\_\_ as a telegraph operator. He (3) \_\_\_ on duty at night from 7 o'clock in the evening till 7 o'clock in the morning. But at night there (4) \_\_\_ never much work and the telegraph operators usually (5) \_\_\_. So the boss (6) \_\_\_ each operator to give a signal every hour to show that he (7) \_\_\_. Edison's signals always (8) \_\_\_ at the same time at the beginning of each new hour. That surprised the boss. So one night he sent an inspector to see how well the boy was working. When the inspector opened the door he (9) \_\_\_ Edison sleeping in his chair. The inspector was going to shake the boy when he saw a block with a mechanism on the table near the telegraph apparatus. He (10) \_\_\_ what would happen. When the hand of the clock pointed to the hour, the mechanism began to work and (11) \_\_\_ a signal. The inspector went up to the boy and shook him. Edison awoke. He was told that he had lost his job. This story explains why the first of Edison's many inventions (12) \_\_\_ never \_\_\_.

1	A	were	B	was
2	A	worked	B	was working
3	A	was	B	had to be
4	A	will	B	was
5	A	slept	B	were sleeping
6	A	ordered	B	has ordered
7	A	is awake	B	was awake
8	A	came	B	come
9	A	had seen	B	saw
10	A	waits to see	B	waited to see
11	A	sent	B	send
12	A	was patented	B	is patented

**Reading**

*Pre-reading tasks*

Активізація лексичного та граматичного матеріалу. Роздавальні картки.

1	signs	ознаки
2	to be fascinated	захоплюватися
3	research	дослідження
4	plague	чума
5	differential calculi	диференціальні числення
6	the nature of white light	оптика
7	the law of gravitation	закон усесвітнього тяжіння
8	Fellow of the Royal Society	Член Королівського Товариства
9	evidence	свідотство
10	to persuade	переконати

[http://translate.google.com.ua/#]

## Text

Isaac Newton was born in 1642 at Woolsthorpe in Lincolnshire. He did not show any signs of cleverness in his early schooldays. When he grew older his mother wanted him to help her on the farm, for his father was dead. But the boy did not like this; he was now fascinated by mathematics, and in 1661 he went to Cambridge University, where he took first degree four years later. Then the Great Plague came. The university was closed, and Newton went back to his quiet home in Woolsthorpe. It was during the next few months that he carried out his first important researches into the nature of light. Newton's original reflector, completed about 1671, had a mirror two and a half centimeters across; the largest telescope in the world today has a mirror over 500 centimeters across! He went back to Cambridge as soon as the Plague danger was over. He became the Fellow of the Royal Society, and came into contact with many other brilliant men. Among them there were Christopher Wren, and Edmund Halley. It has been said that Newton was sitting in his Woolsthorpe garden when he saw an apple fall off a tree. This started a chain of thoughts in his mind, and he realized that the force pulling on the apple was the same as the force which keeps the Moon in its path round the Earth. From this he was led to draw up the laws of gravitation. There is strong evidence that this story — unlike most of its kind! — is true. At any rate, Halley persuaded Newton to rework the calculation, and public them in a book. The result was the great volume known generally as "The Principia". It was completed in 1687. For many years Newton served as president of the Royal Society. When he died, in 1727, he was buried in Westminster Abbey.

(Читання тексту супроводжується презентацією Microsoft Power Point)

## Post-reading tasks

For questions (1–6) choose the correct answer (A, B or C)

- Was Isaac Newton born in \_\_\_ ?  
A. 1642 +  
B. 1548  
C. 1799
- Did Newton go to \_\_\_ in 1661?  
A. Kiev National University  
B. Cambridge University +  
C. Donetsk Medical University.
- Did the Great Plague come then?  
A. Yes, it did. +  
B. Yes, it does.  
C. No, it didn't.
- Was Newton's original reflector completed about \_\_\_ ?  
A. 1895  
B. 1633  
C. 1671 +
- What fell on Newton's head?  
A. apple +  
B. banana  
C. orange
- Did Newton serve as \_\_\_ for many years?  
A. president of the Royal Society  
B. president of the Royal Court  
C. president of Ukraine



Barrow Isaac (1630–4.5.1677), a famous English mathematician, was Newton's teacher and friend at the University



Isaac Newton

## Speaking

Discuss in small groups. Problem questions.

- When you think of discoveries, what ideas come to your mind?
- Everywhere you look, there are discoveries to be made. Each day we learn a little more about the world around us. What discoveries of your own have you made? (Ex. 3b, p. 93.)

## III. Завершальна частина уроку

## Домашнє завдання. Project work

Do exercise 6, page 94. You are going to prepare part of an exhibition about the work of a famous

Newton's tomb in Westminster Abbey (left). A house, where Newton was born (right)





An apple tree in Newton's garden



scientist or inventor. This could take the form of pictures, things they have said, their great ideas, etc. Start with a biography chart.

*Example:*

Maria Sklodowska-Curie (1867–1934)

- 1867 — born in Warsaw, Poland
- 1891 — started studies at Sorbonne University in Paris
- 1895 — married Pierre Curie
- 1898 — discovered polonium
- 1903 — won the Noble Prize in physics for the discovery of radioactivity
- 1906 — became the first woman professor

- 1911 — won the Noble Prize in chemistry for the studies on radium
- 1934 — died of leucemia

The best projects will be displayed on our site <http://englishclub37.at.ua/>

#### Підбиття підсумків уроку

What have you done at the lesson? Were the activities useful for you? I hope that our today's lesson was interesting for you and you learnt some important facts about scientists and inventors.

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