

## PRACTICE (Vocabulary Grammar)

P.1. What is electricity?

P.2. Did you know....?

P.3. Grammar Review



[https://www.freepik.com/free-vector/electricity-icons-collection\\_1045007.htm#term=electricity&page=1&position=0](https://www.freepik.com/free-vector/electricity-icons-collection_1045007.htm#term=electricity&page=1&position=0)

### P.1. What is electricity?

Electricity is the phenomenon associated with positively and negatively charged particles of matter at rest and in motion, individually or in great numbers. Since every atom contains both positively and negatively charged particles, electricity is connected with the physical properties and structure of matter and is an important factor in physics, chemistry and biology.

**Use the words underlined in the previous passage, either in their singular or plural form, to fill the gaps in the following sentences:**

1. Lightning is a naturally occurring electrical \_\_\_\_\_.
2. Electrical conductivity is an important \_\_\_\_\_ of metals.
3. Atoms, which were once thought to be the smallest \_\_\_\_\_, are known to consist of even smaller ones.
4. \_\_\_\_\_, atoms have only a weak charge, but a very large number together can make a powerful charge.
5. Albert Einstein discovered the relationship between \_\_\_\_\_ and energy.

### P.2. Did you know....?

**Read the text and then make questions so that the underlined structures provide answers:**

#### William Gilbert (1544-1603)

English physicist and physician, known primarily for his original experiments in the nature of electricity and magnetism. He was born in Colchester and educated at Saint John's College, University of Cambridge. He began to practice medicine in London in 1573 and in 1601 was appointed physician to Elizabeth I, queen of England.

Gilbert found that many substances had the power to attract light objects when rubbed, and he applied the term **electric** to the force these substances exert after being rubbed<sup>1</sup>. He was the first to use the terms **electric force**, **electric attraction**, and **magnetic pole**. Perhaps Gilbert's most important contribution was the experimental demonstration of the magnetic nature of the earth<sup>2</sup>. The unit of magnetomotive force, the **gilbert**, was named after him. He was also the first exponent in England of the Copernican system of celestial mechanics, and he postulated that fixed stars were not all at the same distance from the earth<sup>3</sup>. His most important work was *Of Magnets, Magnetic Bodies, and the Great Magnet of the Earth* (1600; trans. 1890), probably the first great scientific work written in England.

"William Gilbert," Microsoft® Encarta® Online Encyclopedia 2009  
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**Read the text and then make questions so that the underlined structures provide answers:**

### **Charles Augustin de Coulomb (1736-1806)**

French physicist, pioneer in electrical theory, born in Angoulême. He served as a military engineer for France in the West Indies, but retired to Blois, France, at the time of the French Revolution to continue research in magnetism, friction, and electricity<sup>1</sup>. In 1777 he invented the torsion balance for measuring the force of magnetic and electrical attraction<sup>2</sup>. With this invention, Coulomb was able to formulate the principle, now known as Coulomb's law, governing the interaction between electric charges. In 1779 Coulomb published the treatise *Théorie des machines simples* (Theory of Simple Machines), an analysis of friction in machinery. After the war Coulomb came out of retirement and assisted the new government in devising a metric system of weights and measures<sup>3</sup>. The unit of quantity used to measure electrical charges, the **coulomb**, was named for him.

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**Read the text and then make questions so that the underlined structures provide answers:**

### **Joseph Henry (1797-1878)**

American physicist, who did his most important work in electromagnetism. He was born in Albany, New York, and educated at Albany Academy. He was appointed as professor of mathematics and natural philosophy at Albany Academy<sup>1</sup> in 1826 and professor of natural philosophy at Princeton University in 1832<sup>2</sup>. The foremost American physicist of his day, he discovered the principle of electromagnetic induction before the British physicist Michael Faraday announced his discovery of electromagnetically induced currents, but Faraday published his findings first and is credited with the discovery. The discovery of the phenomenon of self-inductance, which Henry announced in 1832, is, however, attributed to him<sup>3</sup>, and the unit of inductance is named the **henry** in his honor.

Henry experimented with and improved the electromagnet, which had been invented in 1823 by the Briton William Sturgeon. By 1829 he had developed electromagnets of great lifting power and efficiency and essentially of the same form used later in dynamos and motors. He also developed electromagnets that were capable of magnetizing iron at a distance from the source of current, and in 1831 he constructed the first practical electromagnetic telegraph<sup>4</sup>. Henry also devised and constructed one of the first electric motors. In 1842 he recognized the oscillatory nature of an electric discharge.

In 1846 Henry was elected secretary and director of the newly formed Smithsonian Institution, and he served in those positions until his death. Under his direction, the institution stimulated activity in many fields of science. He organized meteorological studies at the Smithsonian and was the first to use the telegraph to transmit weather reports, to indicate daily atmospheric conditions on a map, and to make weather forecasts from meteorological data. The meteorological work of the Smithsonian led to the creation of the U.S. Weather Bureau<sup>5</sup>. Henry was a founder of the American Association for the Advancement of Science and president (1868-78) of the National Academy of Sciences.

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### **P.3. Grammar Review**

#### ***Tenses (Past simple and Present perfect)***

An artist is being interviewed. Make questions to match his answers. Use the correct form of the Past simple or Present perfect, whichever is correct.

#### **For example:**

Q: What *did you do yesterday*?

A: Worked on the computer.

1. Q: What ...  
A: Worked on a CD of my paintings.
2. Q: How many ...  
A: About a third.
3. Q: What...  
A: I destroyed them.
4. Q: How ...  
A: I scanned them in.
5. Q: How ...  
A: I've organized them into themes.
6. Q: Have ...  
A: Yes, I've added a sound track.
7. Q: How long ...  
A: It's taken me about a week.
8. Q: When ...  
A: I started about ten years ago.
9. Q: What ...  
A: Before I had a computer, I had to use slides.
10. Q: Have ...  
A: Yes, I've sold a few.

**Put the tenses in this dialogue in the correct form: Past simple or Present perfect.**

1 A: What \_\_\_\_\_ (do) today?

2 B: I \_\_\_\_\_ (work) on my project. I \_\_\_\_\_ (search) the Web for sites on digital cameras.

3 A: \_\_\_\_\_ (find) any good ones?

4 B: I \_\_\_\_\_ (find) several company sites – Sony, Canon... but I \_\_\_\_\_ (want) one which \_\_\_\_\_ (compare) all the models.

5 A: Which search engine \_\_\_\_\_ (use)?

6 B: Dogpile mostly. \_\_\_\_\_ (ever use) it?

7 A: Yes, I \_\_\_\_\_ (try) it but I \_\_\_\_\_ (have) more luck with Ask Jeeves. Why don't you try it?

8 B: I \_\_\_\_\_ (have) enough for one night. I \_\_\_\_\_ (spend) hours on that project.

9 A: I \_\_\_\_\_ (not start) on mine yet.

10 B: Yeh? I bet you \_\_\_\_\_ (do) it all.

### **Past simple questions**

Study this description of a student's first term. What questions might the interviewer have asked to obtain the information in italics?

In her first term Pauline studied *six subjects*. She had classes on *four days* each week. On Monday morning she had *IT and Information Systems*. *Tuesday* was a free day for home study. On Wednesday she had Systems Analysis in *Room 324*. She studied *Computer* took place *once a week* on Friday afternoons. She liked *Mr Architecture* on Thursdays. *Programming* happened on Friday mornings. She had a 15-minute coffee break each day and a lunch break from *12.00 to 13.00*.