

Electricity

How to Use This Study Guide

The Electricity Unit has an abundance of information and materials. This study packet was created to help you and your child focus on what to study for the Electricity quizzes.

The study packet breaks down the information you need to know into lesson summaries. Each lesson summary includes the lesson goals, vocabulary and key notes. All of the quiz questions were derived from these lesson summaries. If you would like to use the Electricity notebook at home to help develop an understanding of the unit, that is fine. However, all quiz questions were based on this study packet.

The Electricity Unit is divided into three themes:

1. Electrical Attractions and Repulsions (Lessons 1 - 2)
2. Circuits and Electrical Flow (Lessons 3 – 5)
3. Conductors, Insulators and Electrical Hazards (Lessons 6 - 7)

For the Electricity Unit, your child will take three quizzes:

1. Quiz 1 – Lessons 1 – 2
2. Quiz 2 – Lessons 3 – 5
3. Quiz 3 – Lessons 6 – 7

Each quiz will include a vocabulary section, a true/false section, and a section where your child will apply their knowledge. Look in our class newsletter for quiz dates as they approach and focus your study on the lessons pertaining to that quiz. All the information your child needs to be successful is in this study packet.

There is additional information provided in the back of the packet. This information is only if you would like to read further or need clarification on a topic. This was not used to create quiz questions.

Good luck and enjoy the unit!!

Mrs. Hauck

Electricity

Lesson 1: Discovering What Happens When Something Is Electrically Charged

Student Notebook: pages 2-3

Goals:

1. Express experiences about static electricity.
2. Discover what happens when something becomes electrically charged.
3. Begin to understand that electrically charged objects act on other objects with forces (such as attraction or repulsion).

Vocabulary:

1. Attraction: A force that draws or pulls objects toward each other.
2. Electrical Charge: A property of matter that causes electric forces of attraction and repulsion and other electric effects.
3. Electricity: Things that are related to or caused by electric charge.
4. Force: A push or a pull on an object.
5. Repulsion: A force that pushes objects away from each other.
6. Static Electricity: Things related to electric charges causing forces to attraction and repulsion between objects.

Notes:

1. Electrically charged objects attract or repel other objects.
 2. Static electricity is often produced by rubbing objects together and the charges produced do not move around.
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Lesson 2: Exploring Static Electricity Further

Student Notebook: pages 4 - 5

Goals:

1. Continue to discover what happens when something produces static electricity.
2. Further understanding that electrically charged objects attract or repel other objects.

Notes:

1. Electrically charged objects attract or repel other objects.
2. Electrically charged objects can exert forces on other objects without touching them.

Lesson 3: Discovering How to Light a Bulb

Student Notebook: pages 6 and 9

Goals:

1. Test ideas about how to light a bulb with a battery and wire.
2. Begin to think about the need for electrical current to travel in a complete loop.

Vocabulary:

1. Circuit: An electrical circuit is a circle or loop along which electric charges can flow.
2. Closed Circuit: A circuit that allows electricity to flow. It is a closed loop.
3. Electric Current: A flow of electric charges.
4. Open Circuit: A circuit that does not allow electricity to flow. It is a broken loop.
5. Prediction: A guess about what you think might happen during an experiment or investigation based on what you already know.
6. Source: A place to get something. An electric current source can be a battery or a wall outlet.
7. Switch: Something that opens or closes a circuit.

Notes:

1. For an electric current to flow, there must be a complete path or loop for it to follow around a circuit and return to its source.
 2. Batteries are a source of electrical current.
 3. Wires carry an electrical current.
 4. Light bulbs receive an electrical current.
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Lesson 4: Making More Light Connections

Student Notebook: pages 10 - 11

Goals:

1. Recognize and use the components in a battery-bulb circuit.
2. Gain more experience in how to make a complete electric circuit.
3. Begin to think about electric current from power outlets.

Vocabulary:

1. Filament: A very thin wire that glows and gives off light when an electric current flows through a light bulb.

Notes:

1. For an electric current to flow, there must be a complete path or loop for it to follow around a circuit and return to its source.

Lesson 5: Making Effects with Electric Current

Student Notebook: pages 12 - 14

Goals:

1. Observe that a complete electrical circuit can produce motion, sound, and magnetic effects.
2. Recognize that electric current can turn a motor or sound a buzzer.
3. Construct an electromagnet.

Vocabulary:

1. Electromagnet: A temporary magnet made when electric current flows through wire wrapped around a core of iron or steel.
2. Motor: An electricity receiver that produces motion.
3. Receiver: In electricity, something that receives electric current and changes it into light, heat, sound, motion, or other effects.

Notes:

1. For an electric current to flow, there must be a complete path or loop for it to follow around a circuit and return to its source.
 2. The flow of electric current can produce light, heat, sound, motion or magnetic effects.
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Lesson 6: Identifying Conductors and Insulators

Student Notebook: pages 15-19

Goals:

1. Identify conductors and insulators.
2. Recognize that most metals allow electric current to flow easily.

Vocabulary:

1. Conductor: A material that electric current goes through easily.
2. Insulator: A material electric current cannot go through easily.

Notes:

1. Some materials allow electric current to flow more easily than others.
2. Metals make good conductors.

Lesson 7: Recognizing Electrical Hazards in Everyday Life

Student Notebook: pages 20 – 23

Goals:

1. Recognize the applications of conductors and insulators in everyday life.
2. Identify electrical hazards in everyday life.
3. Strategize ways to prevent electrical hazards.

Vocabulary:

1. Electrocute: To be seriously injured or killed by electric current.
2. Hazard: A possible source of danger.
3. Short Circuit: A circuit with an easy path for the current that bypasses the rest of the circuit. This allows too much current to flow and produces so much heat that it may cause a fire.

Notes:

1. Some materials allow electrical current to flow more easily than others.
2. It is important to avoid electrical hazards by using electricity safely.
3. Human beings are conductors of electric current.