

Electricity and Magnetism Unit Study Guide

What is static electricity?	The build up of electric charges on an object.
When an object gains or loses electrical charges, what happens?	The object becomes charged, and will attract to opposite charges
Draw a picture of a balloon that is electrically neutral and one that is positively charged. How are they different?	The neutral balloon has an equal number of positive and negative charges, where the positively charged balloon has more positive charges than negative.
What will happen if you bring two objects that have static electricity close to one another?	Oppositely charged objects will attract, or move towards each other. Like charged objects will repel, or move away from each other.
In regards to electrical charges, like charges _____ and unlike charges _____.	Like charges <u>REPEL</u> Unlike charges <u>ATTRACT</u>
What is current electricity?	The flow of electrons along a complete, closed path

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What are some examples of current electricity?	Lamp lighting a room, toaster oven cooking food, alarm clock going off.
What is the difference between an open circuit and a closed circuit? In which type of circuit can electrons flow?	In an open circuit, the path is not complete, and electricity will not flow. In a closed circuit, the path is complete, and the electricity will flow.
What are the THREE components necessary to form an electrical circuit?	A power source, a load (which uses the electricity) and a path for the electrons to flow. Example of a power source: battery
What are conductors? Give some examples.	Materials that allow electricity to flow easily through them. Examples: iron, cobalt, nickel, copper, WATER
What are insulators? Give some examples.	Materials that do not allow electricity to flow easily through them. Examples: plastic, rubber, wood
What is the purpose of the plastic coating around electrical cords?	It helps prevent shocks by insulating the electricity and keeping it on the right path.

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<p>Explain the path that electrons flow in a series circuit. What will happen if one of the light bulbs in this type of circuit goes out? Explain why.</p>	<p>The electricity flows along a SINGLE pathway. If one light bulb goes out, it opens the circuit and all the lights will go out.</p>
<p>Explain the path that electrons flow in a parallel circuit. What will happen if one of the light bulbs in this type of circuit goes out? Explain why.</p>	<p>The electricity flows along more than one pathway. If one light bulb goes out, the others will stay lit.</p>
<p>How many poles do bar magnets have?</p>	<p>TWO, a north pole and a south pole</p>
<p>Describe what happens when like poles of a bar magnet get near each other and what happens when unlike poles get near each other.</p>	<p>LIKE POLES: Like poles will repel each other.</p> <p>UNLIKE POLES: Unlike poles will attract to each other.</p>
<p>Where is the force of a magnet the strongest?</p>	<p>The force is strongest at the poles.</p>
<p>What is the difference between permanent magnets and temporary magnets?</p>	<p>Permanent magnets keep their magnetic properties for a very long time. Temporary magnets lose their magnetic properties quickly.</p>

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<p>How can you turn an iron nail into an electromagnet?</p>	<p>Wrap a wire around nail and connect it to a power source, such as a battery.</p>
<p>Explain why an electromagnet is a temporary magnet.</p>	<p>As soon as electricity stops flowing through the wire, it loses its magnetism.</p>
<p>How are electromagnets and bar magnets alike? How are they different?</p>	<p>ALIKE: Both have two poles and are magnetic.</p> <p>DIFFERENT: Electromagnets need electricity in order to be magnetic. Bar magnets do not need electricity.</p>

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<p>How many poles do bar magnets have?</p>	
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