

Target Strategies

4th Grade - Energy



Investigation 1

I can construct a complete circuit using a D-cell, wires, and a lightbulb.

I can explain the function of each of the system's components in the circuit.

I can turn on and off a circuit with the use of a switch.

I can distinguish between specific objects if they are insulators or conductors.

I can construct a circuit using more than one lightbulb.

I can investigate which type of circuit would be the best design for a string of lights.

Investigation 2

I can investigate which objects will attract to magnets and which objects will not.

I can determine that if an object sticks to a magnet, it is most likely made of iron or its alloy, steel.

I can observe that two sides (poles) of magnets are different, either attraction or repelling one another, depending on orientation.

I can observe that magnetism acts through air, most metals, and all nonmetals.

I can observe that bringing a magnet close to a piece of iron induces magnetism in the iron.

I can measure the force of attraction between magnets.

I can observe that the attraction between magnets decreases as the distance between them increases.

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Investigation 3

I can discover that a steel core becomes a magnet when current flows through an insulated wire winds around the steel core.

I can investigate where and how many winds to wind the wire on the core to produce the strongest magnet.

I can apply my knowledge of circuitry and electromagnetism to build a telegraph.

I can invent a code and use my telegraph to send messages to other students.

Investigation 4

I can work in centers to explore evidence of energy when sound, heat, and light are produced, and when objects are in motion.

I can roll steel balls of different sizes down ramps and explore the system's variables.

I can conduct structured investigation to discover how the variables of starting position on the ramp and ball size (mass) affect the speed of a rolling ball.

I can use controlled experiments to test the variables of mass and starting position to find out how these variables affect energy transfer.

Investigation 5

I can experience waves through firsthand experience using ropes, demonstrations with waves in water, spring toys, and a sound generator.

I can use videos, animations, and readings to gather information.

I can conclude that waves are repeating patterns of motion that transfer energy from place to place.

I can analyze compression waves (sound waves) to learn the general properties of waves - amplitude, wavelength, and frequency.

I can use mirrors to experience reflection light.

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Investigation 5 -

I can determine that a mirror can be used to reflect light and can use flashlights, mirrors, and water to observe light in a number of ways.

I can design series and parallel solar cell circuits and observe the effect on the speed of a motor.

I can observe that cells in series make the motor run faster, but cells in parallel do not deliver additional power to the motor.