LESSON MAKER PRO

Energy Clues

Use observations to track moving energy.

GRADE 4 · 4-PS3-2

4-PS3-2 "Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. Assessment Boundary: Assessment does not include quantitative measurements of energy."

NAME _____ DATE _____

LOOK FOR EVIDENCE

Energy can move by sound, light, heat, or electric currents. Look for a change, such as motion, warmth, light, or a sound, to find evidence of the transfer.

WORKED EXAMPLE

A radio plays after it is plugged into an outlet. What transfers energy to the radio?

1. The radio changes by making sound.
2. It is connected to an outlet.
3. An electric current transfers energy to the radio.

Answer: electric current

PRACTICE 5 problems

1 A drum is hit, and nearby paper bits shake. What transfers energy to the paper bits?

ANSWER _____

2 Sunlight shines on a small solar fan, and the fan turns. What transfers energy to the fan?

ANSWER _____

3 A spoon sits in hot soup, and its handle becomes warm. What transfers energy to the handle?

ANSWER _____

4 A battery is connected to a toy car, and the wheels spin. What transfers energy to the car?

ANSWER _____

5 A tuning fork is tapped in water, and ripples form. What transfers energy to the water?

ANSWER _____

APPLY IT Show your work

1 At a talent show, a speaker plays music. A ribbon held near the speaker moves. What kind of energy transfer does the moving ribbon show?

WORK SPACE

ANSWER _____

2 At lunch, a student leaves a dark cup in sunshine. The drink becomes warmer. What kind of energy transfer does this show?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A battery powers a motor. The motor spins, hums, and its metal shaft feels warm. Write 3 sentences that name the energy transfer shown by each observation. Then observe a real demonstration: teacher supplies a working battery flashlight and white card. In a dim room, keep the card at one marked distance; compare it with the flashlight off and on, then block the beam with an opaque card. Do not aim at eyes. On separate paper, record the three actual appearances of the receiving card and explain what changed when the light path was blocked. Name the source, receiver and transfer supported by these observations; report an unclear result honestly.

WORK SPACE AND ANSWER

ANSWER KEY # Energy Clues

GRADE 4 · 4-PS3-2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A drum is hit, and nearby paper bits shake. What transfers energy to the paper bits?	**sound**
2	Sunlight shines on a small solar fan, and the fan turns. What transfers energy to the fan?	**light**
3	A spoon sits in hot soup, and its handle becomes warm. What transfers energy to the handle?	**heat**
4	A battery is connected to a toy car, and the wheels spin. What transfers energy to the car?	**electric current**
5	A tuning fork is tapped in water, and ripples form. What transfers energy to the water?	**sound**

PART 2 · APPLY IT

1. **sound** The speaker makes sound, and the ribbon moves. The motion is evidence that sound transferred energy to the ribbon.
2. **light** Sunlight reaches the cup, and the drink warms. The warming is evidence that light transferred energy.

CHALLENGE

Electric current transfers energy from the battery to the motor, shown by spinning. Sound transfers energy from the motor, shown by the hum. Heat transfers energy from the warm shaft to a finger. Demonstration example only: the receiving card looked dim with the flashlight off, brighter with it on, and dimmer again behind the blocking card. Light carried energy from the flashlight to the receiving card; blocking that path reduced its illumination. Actual appearances depend on the setup and ambient light.

Accept "electrical energy" for "electric current." Accept equivalent evidence statements that correctly connect the observed change to the named energy transfer. The original three-sentence motor explanation is preparation, not an instruction to touch a running motor. Teacher supplies the working flashlight and cards. Check a completed off/on/blocked observation record and source-to-receiver explanation; accept honest unclear observations followed by a setup check. No numerical energy measurement is required, and students do not directly see electric current.