

## THE STANDARD

# Changes in Forms of Energy

*"Apply scientific ideas to design, test, and refine a device that converts energy from one form to another."*

 ANCHORING PHENOMENON

## The Flashlight That Wouldn't Turn On

A teacher holds up a flashlight with everything it needs: a battery, a bulb, and wires. But it stays dark. One small fix later, a loose wire pushed back into place, and it glows. Same parts, same battery, but now energy is flowing all the way through and coming out as light.

## DRIVING QUESTION

*"The battery was full of stored energy the whole time, so why did the light only turn on after we fixed the wire?"*

 INVESTIGATIVE 1

### One Battery, Three Different Jobs

Take one battery and hook it to three different things, one at a time: a small bulb, a tiny motor with a paper flag, and a buzzer. The bulb makes light, the motor makes motion, the buzzer makes sound. Same stored energy, three different forms coming out. The energy that powers the device can become more than one thing.

## DRIVING QUESTION

*"How can the very same battery make light one time, motion the next, and sound the third time?"*

 INVESTIGATIVE 2

### The Solar Cup of Warm Water

Set a small cup of water in sunlight inside a black-lined box and put a matching cup in the shade. After a while, the sunny one is clearly warmer. No battery, no wires. Light energy from the sun turned into heat energy in the water. Use this to show energy converting in a totally different device than the circuit.

## DRIVING QUESTION

*"There's no battery here, so where did the warmth in the water come from?"*