

Energy on the Move

Read how energy travels by radiation, conduction, and convection.

6.4.c "radiation, conduction, and convection distribute energy; and"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline one sentence about radiation, circle one sentence about conduction, and number 1, 2, and 3 beside examples of radiation, conduction, and convection. Marking the evidence will help you compare how each transfer moves energy.

Maya Notices Moving Energy

- ① At a city park, Maya notices that the metal slide is hot on a sunny afternoon. The Sun is far away, so no touching or moving air carries energy from the Sun to the slide. Instead, energy travels as radiation, which can move through empty space. Dark pavement near the slide also absorbs radiation and becomes warm. A child standing nearby may feel warmth from the pavement without touching it. Radiation transfers energy by electromagnetic waves, and it does not need matter between the source and receiver.
- ② Later, Maya helps make a grilled cheese sandwich. A pan rests on a hot burner, and energy moves from the burner into the pan where they touch. The pan then transfers energy into the bread touching its surface. This transfer is conduction, the movement of energy through direct contact between materials. The metal pan conducts energy quickly, while the wooden handle slows the transfer to Maya's hand. The cheese melts because energy reaches it from the hot pan and bread. Energy moves from warmer objects to cooler objects.
- ③ On a cool evening, Maya watches water heat in a clear pot. Water at the bottom gains energy from the stove first. It becomes less dense and rises, while cooler, denser water sinks to take its place. This circulating movement transfers energy through a fluid, a liquid or gas, and is called convection. The water keeps moving in looping paths until much of the pot becomes warmer. Warm air above a radiator can rise and set up a similar current in a room. Unlike conduction, convection depends on the motion of the fluid itself.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 How does energy travel from the Sun to the metal slide?

2 Trace the path of conduction that heats Maya's sandwich.

3 What happens to the water at the bottom of the pot as it gains energy?

4 How is convection different from conduction? Use evidence from the passage.

3 YOUR TURN _____ Your own words

Choose one situation not named in the passage, such as cooking at a campfire. Write exactly three sentences. Use one sentence each to explain radiation, conduction, and convection in your situation.

PART 1 • READ AND MARK

Underline one sentence about radiation, circle one sentence about conduction, and number 1, 2, and 3 beside examples of radiation, conduction, and convection. Marking the evidence will help you compare how each transfer moves energy. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	How does energy travel from the Sun to the metal slide?	Energy travels by radiation, or electromagnetic waves, through empty space. It does not need matter between the Sun and slide.
2	Trace the path of conduction that heats Maya's sandwich.	Energy moves from the hot burner to the pan where they touch, then from the pan to the bread touching the pan.
3	What happens to the water at the bottom of the pot as it gains energy?	It becomes less dense and rises. Cooler, denser water sinks to take its place.
4	How is convection different from conduction? Use evidence from the passage.	Conduction transfers energy through direct contact between materials. Convection transfers energy by the circulating motion of a fluid, such as water or air.

PART 3 • YOUR TURN (SAMPLE ANSWER)

At a campfire, radiation carries energy from the flames to a nearby camper's hands. Conduction moves energy through the metal pot from its hot bottom to food touching the pot. Convection carries energy upward as heated air rises and cooler air moves toward the fire.

Accept equivalent examples if the student correctly identifies all three transfer methods and explains how energy moves in each one. Radiation must not require contact or moving fluid, conduction must involve direct contact, and convection must involve moving liquid or gas.