

Sunshine and Shade

How sunlight warms objects and shade can cool them.

SC.3.E.6.1 "Demonstrate that radiant energy from the Sun can heat objects and when the Sun is not present, heat may be lost."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each sentence that tells how sunlight warms an object. Circle each sentence that tells what can happen when direct sunlight is gone.

Maya's Warm Objects

- ① On a clear morning, Maya put two metal spoons on a dry tray outside. One spoon sat in sunlight. The other spoon stayed under a covered porch. After a while, Maya carefully held the ends that had not been in the sun. The sunny spoon felt warmer. Sunlight carries radiant energy, which can warm an object without touching it.
- ② At noon, the tray became hot where sunlight shone. A dark rock beside it also warmed up. The Sun's radiant energy reached the tray and rock. The energy made particles in the objects move faster, so the objects got warmer. This is why a sunny sidewalk can feel hot, even when nobody has touched it.
- ③ Later, clouds covered the Sun, and the porch spoon was brought indoors. The tray, rock, and sunny spoon no longer received direct sunlight. Over time, they lost some heat to the cooler air around them. They became less warm. An object does not stay hot forever when the Sun is not present. Its heat can move to cooler things nearby.

2 ANSWER WITH EVIDENCE Use the passage

1 What showed Maya that sunlight had warmed one of the spoons?

2 What kind of energy from the Sun warmed the tray and rock?

3 What happened to the tray, rock, and sunny spoon after they no longer received direct sunlight?

4 Where did some of the objects' heat go as they became less warm?

3 YOUR TURN Your own words

Draw two panels showing the same object. In Panel 1, show it in sunlight and label how its temperature changes. In Panel 2, show it after the Sun is not present and label how its temperature changes. Write one sentence that explains both panels.



A rectangular box for drawing Panel 1. A dashed horizontal line is positioned near the bottom of the box, indicating where to write a label.



A rectangular box for drawing Panel 2. A dashed horizontal line is positioned near the bottom of the box, indicating where to write a label.

PART 1 • READ AND MARK

Underline each sentence that tells how sunlight warms an object. Circle each sentence that tells what can happen when direct sunlight is gone. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What showed Maya that sunlight had warmed one of the spoons?	The spoon in sunlight felt warmer than the spoon under the covered porch.
2	What kind of energy from the Sun warmed the tray and rock?	Radiant energy from the Sun.
3	What happened to the tray, rock, and sunny spoon after they no longer received direct sunlight?	They lost some heat and became less warm.
4	Where did some of the objects' heat go as they became less warm?	Some heat moved to the cooler air around them.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Panel 1: A black water bottle sits in sunlight and is labeled, "Warms as it receives radiant energy from the Sun." Panel 2: The same bottle sits in shade and is labeled, "Becomes less warm as it loses heat to cooler air." Sentence: The bottle will be warmer in sunlight and less warm after the Sun is not present.

Accept answers that state that radiant energy from sunlight warms objects and that objects can lose heat when sunlight is absent. For the drawing, accept any safe object with accurate labels showing warming in sunlight and cooling or heat loss without sunlight.