SCIENCE

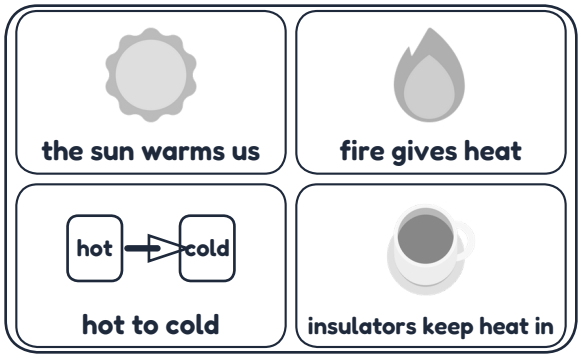
Heat energy

Name _____ Date _____

I can explain how heat moves and name conductors and insulators.

1 How it works

Heat always moves from something warmer to something cooler. Your hand warms an ice cube, and a hot drink warms the mug. Some materials, called conductors, let heat move through them quickly; most metals are good conductors. Others, called insulators, slow heat down, like wool, wood, plastic and air trapped in a coat.



2 Heat: conductor or insulator? Circle one.



metal can

conductor insulator



metal key

conductor insulator



puffy coat

conductor insulator



metal spoon

conductor insulator



metal pot

conductor insulator



wool scarf

conductor insulator



plastic cup

conductor insulator



wood block

conductor insulator

How did I do? ☆ ☆ ☆

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Warming up

Name _____ Date _____

I can predict what warms up faster.

1 Which will get warm faster? Circle it.

1. a metal spoon in hot soup / a wooden spoon in hot soup
2. a white shirt in the sun / a black shirt in the sun
3. ice cream in a cooler / ice cream on a sunny table
4. a metal slide in the sun / a slide in the shade

2 Fill in the blanks

Use the words in the box.

heat | cold | conductor | insulator

1. Heat moves from hot things to _____ things.
2. A _____ lets heat move through it easily.
3. An _____ slows heat down.
4. Rubbing your hands makes _____.

How did I do? ☆ ☆ ☆

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Think like a scientist

Name _____ Date _____

I can explain how heat moves and how to slow it down.

1 Think about it

1. Why do pots have plastic handles? _____
2. Why does a coat keep you warm? _____
3. Why does ice melt in your hand? _____
4. Why wear light colors in summer? _____

2 True or false? Circle it.

1. A wool scarf is a conductor.	true	false
2. Heat moves from hot things to cold things.	true	false
3. Metal is a good conductor of heat.	true	false
4. Dark colors warm up faster in the sun.	true	false
5. A cold drink warms the room.	true	false

3 Design a lunch box that keeps food cold. Label the insulators.

How did I do? ☆ ☆ ☆

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Try it: the spoon race

Name _____ Date _____

I can test which materials let heat move through them fastest.

1 You need

-  a mug of hot tap water
-  a metal spoon
-  a plastic spoon
-  a wooden craft stick
-  a dab of butter for each

2 What to do

1. Put a small dab of butter at the top of each spoon and the stick.
2. An adult stands them in the mug of hot tap water.
3. Watch the butter closely and time it.
4. Write down which butter starts to melt first.

3 I predict

Which butter will melt first?

_____

_____

4 What I see

Spoon	Did the butter melt?	How long?
metal		
plastic		
wood		

How did I do? ☆ ☆ ☆

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FOR TEACHERS AND PARENTS

Answer key: heat energy

1 Page 1

Answers: 1) metal can: conductor; 2) metal key: conductor; 3) puffy coat: insulator; 4) metal spoon: conductor; 5) metal pot: conductor; 6) wool scarf: insulator; 7) plastic cup: insulator; 8) wood block: insulator.

2 Page 2

Warms faster: 1) a metal spoon in hot soup; 2) a black shirt in the sun; 3) ice cream on a sunny table; 4) a metal slide in the sun.

Blanks: 1) cold; 2) conductor; 3) insulator; 4) heat.

3 Page 3

Think: 1) Plastic is an insulator, so it stays cool; 2) It traps your body heat; 3) Heat moves from your hand to the ice; 4) They take in less heat from the sun.

True or false: 1) false; 2) true; 3) true; 4) true; 5) false.

Drawing: answers will vary. Look for layers such as foam, cloth or a thick plastic wall, labeled as insulators.

4 Page 4: Try it!

The butter on the metal spoon melts first, often within a few minutes, because metal is a good conductor: heat travels up it quickly. The butter on the plastic spoon and the wooden stick melts slowly or not at all, because plastic and wood are insulators.

5 Teaching tip

Hand out a metal spoon and a wooden spoon from the same room. The metal one feels colder, even though both are the same temperature, because it pulls heat from your hand faster.

Safety: an adult pours the hot tap water. Never use boiling water, and do not touch the metal spoon.

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