Year 5 Science: Heat: where thermal energy comes from and where it goes

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. You rub your hands together quickly and they get warm. What is the source of the thermal energy?

2. A cold can of drink sits on a table in a room at 22 °C. Which way does thermal energy move?

3. A bowl of soup at 60 °C is left on the bench in a room at 20 °C. What temperature will it end up at?

4. Which of these is a testable question: "Is summer the best season?" or "Does a lid change how fast hot water cools?"

5. Mia tests ice melting on two trays. She uses a big ice cube on the metal tray and a small one on the plastic tray. What is wrong with her test?

Fix the mistake

6. Correct this statement: "When I hold ice, the cold moves into my hand."

7. Correct this statement: "A jumper makes heat, so it warms you up."

8. Correct this statement: "A hot drink keeps cooling until it is colder than the room."

9. Correct this statement: "Using a big ice cube on one tray and a small one on another is still a fair test."

Answer key (for parents and tutors)

1. You rub your hands together quickly and they get warm. What is the source of the thermal energy?
   Friction, from rubbing the two surfaces together.
2. A cold can of drink sits on a table in a room at 22 °C. Which way does thermal energy move?
   From the warmer air and table into the cold can, so the can warms up.
3. A bowl of soup at 60 °C is left on the bench in a room at 20 °C. What temperature will it end up at?
   It cools to 20 °C, room temperature, then stops cooling.
4. Which of these is a testable question: "Is summer the best season?" or "Does a lid change how fast hot water cools?"
   "Does a lid change how fast hot water cools?", because you can change one thing (lid or no lid) and measure the temperature.
5. Mia tests ice melting on two trays. She uses a big ice cube on the metal tray and a small one on the plastic tray. What is wrong with her test?
   It is not a fair test: the ice cube size should be the same, so only the tray material changes.
6. Correct this statement: "When I hold ice, the cold moves into my hand."
   Thermal energy moves out of your warmer hand into the ice; your hand feels cold because it is losing energy.
7. Correct this statement: "A jumper makes heat, so it warms you up."
   A jumper makes no thermal energy; it slows the energy leaving your body, so you stay warm.
8. Correct this statement: "A hot drink keeps cooling until it is colder than the room."
   It stops cooling once it reaches room temperature, because then nothing around it is cooler.
9. Correct this statement: "Using a big ice cube on one tray and a small one on another is still a fair test."
   The ice cube size is a variable too, so it must be the same on every tray or you cannot compare the trays.