Year 7 Science: Temperature, thermal energy and choosing insulators

Name: _____ Date: _____

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

Practice

1. Which has more kinetic energy: a car at 30 km/h or the same car at 60 km/h?

2. Name the way heat travels from the Sun to Earth.

3. Why are saucepan handles often made of plastic or wood?

4. In a class test, a can wrapped in foil dropped 12 °C and one wrapped in felt dropped 5 °C. Which material is the better insulator?

5. Why does a puffer jacket keep you warm even though it is very light?

Fix the mistake

6. Correct this statement: "A metal bench feels colder because metal is colder than wood."

7. Correct this statement: "A jersey makes heat to keep you warm."

8. Correct this statement: "Temperature and thermal energy are the same thing."

9. Correct this statement: "Cold flows into your hands from a cold drink can."

Answer key (for parents and tutors)

1. Which has more kinetic energy: a car at 30 km/h or the same car at 60 km/h?
   The car at 60 km/h, because it is moving faster.
2. Name the way heat travels from the Sun to Earth.
   Radiation, which needs no material to travel through.
3. Why are saucepan handles often made of plastic or wood?
   They have low thermal conductivity, so the handle stays cool enough to hold.
4. In a class test, a can wrapped in foil dropped 12 °C and one wrapped in felt dropped 5 °C. Which material is the better insulator?
   Felt, because its can lost the least heat (5 °C compared with 12 °C).
5. Why does a puffer jacket keep you warm even though it is very light?
   Its filling traps a lot of still air, which is a very poor conductor, so body heat escapes slowly.
6. Correct this statement: "A metal bench feels colder because metal is colder than wood."
   Both are the same temperature; metal is a better conductor, so it draws heat from your hand faster.
7. Correct this statement: "A jersey makes heat to keep you warm."
   A jersey makes no heat; it is an insulator that slows the loss of your own body heat.
8. Correct this statement: "Temperature and thermal energy are the same thing."
   Temperature is the average particle energy; thermal energy is the total, so a big cool bath can hold more than a small hot cup.
9. Correct this statement: "Cold flows into your hands from a cold drink can."
   Heat flows out of your hands into the can; heat always moves from hotter to colder.