Year 6 Science: Simple circuits: loops, switches and circuit diagrams

Name: _____ Date: _____

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

Practice

1. A lamp will not light because one wire has come loose. Is the circuit open or closed?

2. Which of these would close the gap in a circuit: a plastic straw, a steel spoon, or a wooden pop stick?

3. What are the three parts every simple circuit needs?

4. In a circuit diagram, what does a circle with a cross inside it show?

5. Why do wires have a plastic coating?

Fix the mistake

6. Correct this statement: "One wire from the battery to the lamp is enough to light it."

7. Correct this statement: "When a switch is off, the circuit is closed."

8. Correct this statement: "The charge gets used up in the lamp, so less comes back to the battery."

9. Correct this statement: "In a diagram, a lamp is drawn as a little picture of a light bulb."

Answer key (for parents and tutors)

1. A lamp will not light because one wire has come loose. Is the circuit open or closed?
   Open: there is a gap, so no charge flows.
2. Which of these would close the gap in a circuit: a plastic straw, a steel spoon, or a wooden pop stick?
   The steel spoon, because steel is a metal and a conductor.
3. What are the three parts every simple circuit needs?
   A power source (a cell or battery), wires, and a load such as a lamp.
4. In a circuit diagram, what does a circle with a cross inside it show?
   A lamp.
5. Why do wires have a plastic coating?
   Plastic is an insulator, so it keeps the charge in the wire and away from your fingers.
6. Correct this statement: "One wire from the battery to the lamp is enough to light it."
   The lamp needs two wires so charge can go out from the battery and come back; it must be a complete loop.
7. Correct this statement: "When a switch is off, the circuit is closed."
   Off means the switch has opened a gap, so the circuit is open and no charge flows.
8. Correct this statement: "The charge gets used up in the lamp, so less comes back to the battery."
   The charge flows all the way round and back; it is energy that the lamp uses, not the charge.
9. Correct this statement: "In a diagram, a lamp is drawn as a little picture of a light bulb."
   A lamp is drawn as a circle with a cross inside it, the standard symbol.