Year 9 Science: Electric circuits: insulators, resistors, energy and efficiency

Name: _____ Date: _____

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

Practice

1. Why is the inside of a cable copper and the outside plastic?

2. A student puts a voltmeter in the loop of a series circuit and the lamp goes out. Explain what went wrong.

3. A kettle element on 230 V draws 8 A for 120 s. How much energy is transferred?

4. A motor receives 500 J of electrical energy and gives 350 J of movement energy. How much is wasted, and what is its efficiency?

5. Give one advantage and one disadvantage of relying on hydro for most of New Zealand's electricity.

Fix the mistake

6. Correct this statement: "A voltmeter goes in the loop, the same as an ammeter."

7. Correct this statement: "The lamp uses up the energy, so it no longer exists."

8. Correct this statement: "A lamp on 6 V drawing 0.5 A for one minute uses 6 × 0.5 × 1 = 3 J."

9. Correct this statement: "A lamp with 100 J in and 40 J of light out is 250% efficient, from 100 ÷ 40."