

Design Technology: Exploring Electronic Circuits with Kit the Fox

Learning objective: To understand the function of components in a simple electrical circuit and how to represent them using standard symbols.

Read the questions carefully and use your knowledge of electrical circuits to complete the tasks. Refer to the word bank if you need help with technical terms.

Word bank: Cell · Switch · Component · Circuit · Buzzer · Conductive · Insulator · Voltage

1. Kit the Fox is building a simple circuit to power a small light. Explain the difference between a conductive material and an insulator when choosing wires for this project. (2 marks)

2. Draw the standard circuit symbol for a cell and a switch. Why is it important to use standard symbols in circuit diagrams? (2 marks)

3. If a circuit has a cell, a switch, and a buzzer, what happens to the energy flow when the switch is opened? Use the term 'complete circuit' in your answer. (2 marks)

4. Max the Monkey tries to add a second buzzer to the circuit, but the sound becomes much quieter. Suggest a reason why adding more components might affect the performance of the circuit. (2 marks)

5. Identify two common household items that use a simple electrical circuit to function. (2 marks)

Draw: Draw a circuit diagram that includes one cell, one switch, and one bulb connected in a simple loop. Label each component using the correct scientific name.



Extension challenge: Imagine you are designing an alarm system for your bedroom door. Write a short plan describing which components you would need and where you would place the switch to ensure the alarm sounds when the door is opened.