Lesson planning

Unit 6: Electricity · Lesson 5

This template can be used for individual lessons or a sequence of lessons in the same topic.

Teacher's initials:		**School:**	
Subject/age group:	Cambridge Primary Science Stage 4	**Date:**	

Learning objectives from the Cambridge Primary Science framework (0097):

- 4Pe.01 - Know that an electrical device will not work if there is a break in the circuit
- 4Pe.02 - Describe how a simple switch is used to open and close a circuit
- 4TWSc.03 - Choose equipment from a provided selection and use it appropriately

Unit/Lesson:	Learning intentions:	Success criteria for the learner:
6.4 Switches: Making a Simple Switch (Lesson 1 of 2)	• Understand how a simple switch opens and closes a circuit • Apply knowledge of conductors and insulators to design a working switch • Choose appropriate equipment and work safely to build a switch	• I can explain that a switch works by making or breaking a circuit • I can select suitable conducting and insulating materials to build a switch • I can build a working switch and describe how it opens and closes the circuit

Mental strategies:

Strategy	Example
Prior knowledge recall	Quickly listing metals as conductors (paper clip, drawing pin) and non-metals as insulators (wood, plastic) to decide switch parts
Cause-and-effect reasoning	If the paper clip touches both drawing pins, the circuit is complete, so the lamp lights
Analogy	Comparing a switch turning electricity on/off to turning a tap on/off to control water flow

1	**Resources:** • Small wooden blocks (one per pair) • Metal paper clips (not plastic-coated) • Two drawing pins per group • Short lengths of plastic-covered wire • Wire trimming tools • Wooden or plastic chopsticks • Selection tray with mixed materials (metal, plastic, wood, rubber) for equipment choice • Sticky labels and safety poster	
2	**Language support, including any key vocabulary:** • switch • open circuit • closed circuit • conductor • insulator • break in the circuit	
3	**Introducing the lesson:** Show learners a household light switch and flick it on and off, asking what happens inside. Use the 'Getting started' picture from Learner's Book 6.4 and elicit that a switch turns electricity on and off, linking this back to prior lessons on conductors and insulators.	**Timing:** 10 mins

4	**Main activities:** • Teacher demonstration: hold up a wooden block, two drawing pins, a paper clip and a chopstick. Ask learners to predict which parts must be conductors and which must be insulators, and why. Record ideas on the board. • Equipment selection task: pairs visit a materials tray and choose the correct items to build a switch, justifying each choice (e.g. metal paper clip conducts, wooden block insulates the base). Teacher checks choices before construction begins. • Practical (Think like a scientist 1): pairs assemble the switch following the Learner's Book steps — pin drawing pins into the wooden block, wind stripped wire ends around each pin, and position the paper clip so it can swing to touch or leave the second pin. Teacher supervises any wire stripping. • Test and record: learners move the paper clip using the chopstick to close the switch and lift it to open the switch, drawing a labelled diagram of their switch and annotating where the circuit is 'broken' and 'complete'.	**Timing:** 40 mins
5	**Assessment opportunities:** • Circulating questioning during construction to check learners can justify material choices • Peer check of labelled switch diagrams against a success criteria checklist • Exit ticket: 'Why must the base of the switch be made of wood, not metal?'	
6	**Differentiation opportunities:** • Support: Provide a pre-assembled model switch as a visual reference and a partly-completed labelled diagram for learners to finish. Pair with a confident partner and pre-strip the wire ends to reduce fine-motor demands. • Extension: Challenge learners to design an alternative switch using different materials from the tray (e.g. aluminium foil strip, cardboard base) and explain why their design still works using the terms conductor, insulator and break in the circuit.	
7	**Plenary and reflection:** Groups demonstrate their switch to another pair, showing the lamp will be lit when connected next lesson. Use mini-whiteboards for learners to complete: 'A switch works because when it is open there is a ___ in the circuit, and when it is closed the circuit is ___.'	**Timing:** 10 mins
8	**Homework (if required):** Find three switches at home (e.g. lamp, kettle, torch). For each one, draw it and label which part you touch (insulator) and which part you think moves inside to complete the circuit (conductor). **Notes:**	