

Electric Light and Press Switch

30 minutes

Electricity and Simple Circuits

WHAT THIS LESSON DOES

As the teacher, guide your students through building a simple circuit using Snap Circuits. Start by explaining electricity and switches, then oversee the step-by-step assembly of components on a base grid to light up a lamp with a press switch.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand the basic principles of electricity and its flow.
- Recognise the function and importance of a switch in controlling the flow of electricity.
- Construct a simple circuit using a press switch and a light bulb.
- Apply knowledge of circuits to successfully light up a bulb using a press switch.
- Explore and experiment with different circuit configurations using Snap Circuits.

BEFORE THE LESSON

- This is an unplugged build lesson: no pupil devices needed. Have one Snap Circuits set per group.
- Check every set has working batteries in the battery holder before class. Keep a spare set of batteries to hand.
- Set out enough flat, stable table space so each group can lay the base grid down comfortably.
- Build the circuit yourself once beforehand so you know the grid coordinates (C4, C2 to E2, C2 to C4, E2 to E4) by sight.

Electric Light and Press Switch

HOW THE LESSON RUNS

Introduction

Prepare the Base Grid

Inserting Batteries

Place the battery holder (B1)

Place wire block (3)

Place the lamp block (L1)

Place the press switch block (S2)

Lighting Up the Circuit

Time to Explore!

TEACHING MOVES

- 1. Introduction. Keep the recap to a minute. Ask pupils where they have seen a switch control something at home, a light or a torch, before you touch the kits.
- 2. Prepare the Base Grid. Have each group lay the grid flat and clear the table. A grid on a lap or a wobbly surface makes blocks pop loose mid-build.
- 3. Inserting Batteries. Confirm every group's holder has batteries before they build. A dead or empty holder is the most common reason the bulb never lights.
- 4. Place the battery holder (B1). Teach the grid as a map first: letters up and down, numbers across, meet at C4. Get this landing before any block goes down.
- 5. Place wire block (3). Walk round and check each wire block has snapped at both C2 and E2. A block resting but not clicked in looks right but breaks the circuit.
- 6. Place the lamp block (L1). Have pupils press until it clicks. Point out the lamp bridges C2 to C4, joining the wire and battery holder.
- 7. Place the press switch block (S2). This block completes the loop across E2 to E4. Check every corner is snapped before anyone presses the switch.
- 8. Lighting Up the Circuit. Let them press and release a few times so they see the light follow the switch. Name it: pressing closes the circuit, releasing breaks it.
- 9. Time to Explore! Circulate and ask each group to explain their build in their own words. Prompt them to add or swap a component and predict what happens first.

WHAT TO WATCH FOR

- Students may think: Pupils think a block that is sitting in the right square is connected, but it has not actually snapped down, so the bulb will not light. What to do: Show them the click and the flush fit. Have them press every corner of every block and re-check the whole loop before pressing the switch.
- Students may think: Pupils read the grid the wrong way round, mixing up the letter and the number, and place blocks at the wrong coordinate. What to do: Reinforce the map: letter first, then number, find where they cross. Point to your own worked example on a spare grid.
- Students may think: Pupils expect the light to stay on after releasing the press switch, not realising the switch must be held to keep the circuit closed. What to do: Have them press and release slowly and watch the bulb. Connect it to a torch button: it only works while you hold it down.

DIFFERENTIATION

- Emerging: Pair them with a partner and let one read the coordinate aloud while the other places the block. Place the battery holder yourself so they can start from the first wire block with a working anchor.
- Developing: Have them talk you through where the electricity travels as they build, block by block, to check they follow the loop.
- Proficient: In the explore time, ask them to add a second component or change one block and predict the result before testing. Have them explain to another group why the bulb goes out when the switch is released.