

Making Decisions (If/Then)

40 minutes

Hands-On Logic Challenges

WHAT THIS LESSON DOES

In this lesson, you'll explore how to make decisions in coding using conditional statements. Follow step-by-step activities to understand if/then/else logic, visualise concepts with flowcharts, and apply rules in a fun 'Lunch Robot' group activity.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand the concept of conditional statements and their role in decision-making processes.
- Recognise how to structure if/then/else statements to handle different outcomes.
- Apply logical reasoning to solve problems using predefined conditions and rules.
- Visualise decision-making processes through flowcharts and diagrams.
- Collaborate effectively in groups to interpret and execute conditional logic in practical scenarios.

BEFORE THE LESSON

- This is an unplugged lesson: no pupil devices needed. Have the board or a display chart clear for the flowcharts and the Lunch Robot rules, which stay visible the whole lesson.
- Prepare a large Menu template for groups to write their final answer on at the board.
- Decide your groupings in advance so pupils can start reasoning together quickly.
- Have the lunch rules and the conditions of the day ready to write up, since the challenge depends on them being fixed and visible.

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HOW THE LESSON RUNS

Introduction
What's a Conditional?
Visualising the Statement
Adding a Plan B: The Else Statement
The Lunch Robot Challenge
The Lunch Robot Conditions
Comparing Our Menus: A Logic Check

TEACHING MOVES

- 2. What's a Conditional? Draw out pupils' own if/then examples before naming the word. Land the idea that an action depends on a condition being true, using their examples rather than yours.
- 3. Visualising the Statement. Draw the simple if/then flowchart and trace one true path aloud with a finger. Then ask the class what happens if the condition is false to open the need for else.
- 4. Adding a Plan B: The Else Statement. Add the else branch to the flowchart and stress the payoff: now every possible situation has an instruction. Call it the robot's backup plan.
- 5. The Lunch Robot Challenge. Write the rules up clearly and read each one aloud. Keep them visible for the rest of the lesson so groups can check back against the exact wording.
- 6. The Lunch Robot Conditions. Give the day's conditions, then circulate and listen. Where a group adds its own assumption, point them back to the exact rule and ask what the rule actually says.
- 7. Comparing Our Menus: A Logic Check. When groups disagree, do not correct straight away. Have each group explain its reasoning aloud, then trace the rules together to show the computer follows them precisely.

WHAT TO WATCH FOR

- Pupils treat the robot like a person and fill in gaps with common sense, for example assuming a food is available when no rule says so. Return them to the exact wording. Ask which rule tells them that, and if none does, the robot cannot know it.
- Pupils think if a condition is false, the robot simply does nothing, forgetting the else path. Point back to the else branch on the flowchart and remind them the robot always has an instruction, whatever the condition.
- Pupils apply rules in a jumbled order or stop at the first one, rather than checking each condition in turn. Have them read the rules top to bottom aloud and say true or false for each against the day's conditions.

DIFFERENTIATION

- Emerging: Give them one rule to focus on and ask only whether its condition is true or false today before building up.
- Developing: Ask them to trace their menu back through the flowchart aloud so they check each condition rather than guessing the outcome.
- Proficient: Ask them to write one new rule of their own, including its else path, and test it against the day's conditions.