LESSON 5

Number Path: Step-by-Step Navigation

30 minutes | Solving Problems

WHAT THIS LESSON DOES

In this interactive lesson, you'll start by playing 'Robot Roger', a game that teaches you to follow and give instructions. You'll then move on to direction games, using colours and numbers to guide a frog to a target. Finally, you'll complete a worksheet activity, moving a counter on a number line based on given instructions.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand and apply the concept of forward and backward movement on a number line.
- Develop skills in giving and following instructions accurately.
- Enhance problem-solving abilities and logical thinking through interactive games.
- Improve spatial awareness and sequencing skills.
- Apply knowledge of addition and subtraction in a practical context.

BEFORE THE LESSON

- This is an unplugged lesson: no pupil devices are needed. You only need the IWB or projector for the frog direction game in step 4.
- Print one 5x1 grid strip (numbers 1 to 5) per pupil, and have a counter each ready: a button, coin or cube.
- Clear a little floor space so a volunteer can safely take steps, spin and sit for Robot Roger.
- Open and test the frog direction game on the large screen before the bell so sound and controls work.

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HOW THE LESSON RUNS

Introduction
Playing Roger Robot
Direction Game (Numbers)
Direction Game Colours
Number Line Worksheet Activity

TEACHING MOVES

- 2. Playing Roger Robot. Be Robot Roger yourself first and follow one instruction over-literally. When told 'go to the door', walk only until told to stop. Make the point that the robot never guesses.
- 3. Direction Game (Numbers). Swap the target for numbers: pupils direct the robot to a chosen number using steps forward and back. Insist instructions say how many and which way, not just 'go there'.
- 4. Direction Game Colours. Model one turn on the screen, thinking aloud as you give the frog each step. Then take instructions from the class one at a time and enter exactly what is said.
- 5. Number Line Worksheet Activity. Everyone starts on 1. Call 'move forward 2', then ask where the counter landed before telling them. Repeat to land on different numbers, then let pairs instruct each other.

WHAT TO WATCH FOR

- Pupils count the starting square as their first move, so 'forward 2' from 1 lands them on 2 instead of 3. Model it slowly: the counter jumps a square each move. Count the jumps aloud, not the squares, and check together where it stops.
- Pupils expect the robot or frog to know what they meant, giving vague instructions like 'go over there'. Carry out the vague instruction wrongly on purpose. Ask the class to fix it into an exact number and direction, then follow the corrected version.

DIFFERENTIATION

- Emerging: Let them keep a finger on the current number and physically slide the counter one square per move rather than jumping. Give one instruction at a time and check the position before the next.
- Developing: Have them say the instruction aloud before moving, so direction and number are stated clearly. Pair them to take turns as instructor and follower.
- Proficient: Use the extended challenge: chain instructions such as 'forward 3, then back 1', and ask for the final number. Ask them to predict where the counter will land before moving it, then check.