

## LESSON 5

# Number Line Adventure: Step by Step

30 minutes

Exploring Patterns

### WHAT THIS LESSON DOES

This lesson introduces students to the concept of grid navigation. They'll learn about forward and backward movement through interactive games and activities. The lesson includes a 'Robot Roger' game, direction games, and a number grid movement worksheet.

### WHAT STUDENTS SHOULD BE ABLE TO DO

- Students will understand the concept of grid navigation and be able to navigate a character on a grid using forward and backward movements.
- Students will develop the ability to give clear and precise instructions for movement on a grid.
- Students will learn to follow instructions for movement on a grid accurately.
- Students will be able to apply the concept of grid navigation to different contexts, such as colors and numbers.
- Students will develop problem-solving skills by figuring out the correct sequence of movements to reach a target on a grid.
- Students will enhance their cooperative learning skills by working in pairs to give and follow instructions for grid navigation.

### BEFORE THE LESSON

- Open and test the direction game interactive on your IWB or projector before class, and clear space at the front for a pupil to move as Robot Roger.
- Print one 5x1 number line strip (numbers 1 to 5) per pupil from the attached worksheet, and gather a counter for each: a button, coin or similar.
- Have a few Robot Roger instructions ready to model with, from simple steps to compound ones like hop twice then touch your toes.

## Number Line Adventure: Step by Step

### HOW THE LESSON RUNS

Introduction

Playing Robot Roger

Direction Game (Colours)

Direction Game (Numbers)

Number Line Printable Activity

### TEACHING MOVES

- 2. Playing Robot Roger. Be Robot Roger first and follow one pupil's instruction absurdly literally. If they say go, ask go where. Make the point that the robot only does exactly what it is told, nothing guessed.
- 3. Direction Game (Colours). Take turns letting pupils call out one instruction at a time to move the frog. Pause after each step so the class sees the effect of a single command before the next.
- 4. Direction Game (Numbers). Run the same game with number targets. Draw the link out loud: the frog moves along numbers the same way a counter moves along a number line.
- 5. Number Line Printable Activity. Have all pupils start on 1. Say move forward 2, then ask where they landed. Repeat to varied answers before pairing pupils to instruct each other.

### WHAT TO WATCH FOR

- Pupils give vague instructions like just move or go and expect the robot or frog to know where. Reinforce during Robot Roger by only acting on complete instructions. Prompt with what direction, and how many times, until precise commands become the norm.
- On the number line pupils count the starting square as their first move, landing one square short. Model slowly: on 1, one forward moves to 2, not stays on 1. Have them count each move aloud as their counter slides one square.

### DIFFERENTIATION

- Emerging: Keep this pupil on the whole-class number line commands longer before pairing, and let them slide the counter one square per spoken step.
- Developing: Pair them to take the instructor role, saying moves aloud, so they must plan the sequence rather than only follow it.