

Flower Power: Planting with Bee-Bots

30 minutes

Journey into Robotic Movements

WHAT THIS LESSON DOES

In this lesson, you'll guide students through a series of activities involving Bee-Bots. They'll start by acting as Bee-Bots, then practice programming on an interactive whiteboard. The lesson culminates in a hands-on game where students use real Bee-Bots to plant flowers on a grid mat, reinforcing their understanding of directional commands and sequencing.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand the basic movements of Bee-Bots, including forward, backward, left turn, and right turn.
- Apply the concept of programming by giving step-by-step instructions to a 'student Bee-Bot'.
- Develop the ability to clear the code before giving a new set of instructions to the Bee-Bot.
- Use Bee-Bots to follow specific directions in a game-like setting, reinforcing the concept of programming.
- Work collaboratively in small groups to program a Bee-Bot, enhancing teamwork skills.
- Reflect on the learning experience and articulate what they have learned about Bee-Bots and programming.

BEFORE THE LESSON

- Print and cut out the Bee-Bot Directional Cards and the Bee-Bot Flower Resources ahead of time, one set per group.
- Check Bee-Bots are charged and working, and have enough for small groups to share.
- Lay out the grid mats on the floor and clear enough space for pupils to stand and move as human Bee-Bots.
- Have the interactive whiteboard ready if you plan to model on screen.

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HOW THE LESSON RUNS

Introduction

Student Beebots

Bee-Bot Recap

Planting Flowers

Wrapping Up

TEACHING MOVES

- 2. Student Beebots. Demonstrate each move with your own body first, then talk one pupil through a short sequence out loud so the class hears commands given one at a time, in order.
- 3. Bee-Bot Recap. Before handing out robots, get the whole class turning and stepping on your command. Confirm everyone can tell a turn from a step forward.
- 4. Planting Flowers. Hold up each direction card and say what it means before groups start. Remind pupils to clear the Bee-Bot's memory before entering a new sequence, then plant a flower wherever it stops.
- 5. Wrapping Up. Ask groups to say aloud one sequence that worked and one they had to fix, connecting the flower positions back to the commands they entered.

WHAT TO WATCH FOR

- Pupils think a left or right command also moves the Bee-Bot forward a square. Show with your body that a turn changes which way you face and nothing else. Have them turn on the spot, then take a separate step.
- Pupils enter a new set of commands without clearing the previous ones, so the Bee-Bot runs the old sequence plus the new. Make clearing the memory a fixed first step every time. Have pupils press clear aloud together before entering anything.
- Pupils judge left and right from their own view rather than the Bee-Bot's facing direction. Get them to crouch behind the Bee-Bot and face the same way it does before deciding which turn to press.

DIFFERENTIATION

- Emerging: Give a two-command sequence only, forward and one turn, and let them plant a flower after each single command so results are immediate. Pair them with a partner who reads the direction card aloud while they press the buttons.
- Developing: Ask them to enter the full card sequence before running it, then check whether the Bee-Bot landed where they expected. Have them predict which square the Bee-Bot will stop on before pressing go.
- Proficient: Ask them to write their own direction card for another group to follow. Challenge them to reach a chosen flower square using the fewest commands, then explain their route back to you.