

Traffic Lights and Car Communication

60 minutes (2 periods)

Intermediate Robotics & Engineering

WHAT THIS LESSON DOES

In this step-by-step lesson, you'll learn how to code a set of traffic lights and a robot car using Microbits. You'll program the traffic lights to run through a sequence and broadcast their state, which the car will receive and respond to accordingly. The lesson also includes a challenge to modify the code so the car only responds when close to the traffic lights.

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand and apply the concept of radio communication between Microbits.
- Program a sequence of traffic light signals using code blocks.
- Develop skills to broadcast and receive specific messages based on traffic light states.
- Control the movement of a robot car based on received messages.
- Enhance problem-solving skills by modifying the code to respond based on the proximity of the car to the traffic lights.

BEFORE THE BELL

- This lesson involves coding a set of traffic lights and a robot car using Microbits. Students will program the traffic lights to display a sequence and broadcast the light being shown. The robot car will receive this broadcast and decide whether to stop or go. The lesson involves creating two code projects, adding a 'stopbit' extension, programming a sequence, broadcasting the state, programming the car, receiving the message, downloading the code, and an additional challenge. Teachers should ensure they have the necessary equipment and familiarise themselves with the coding platforms used.

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HOW THE LESSON RUNS

Introduction

Program the traffic lights

Add the Stopbit extension

Program the sequence

Broadcast the state

Program the car

Receive the message

Download the code

Challenge