



Code Explorers KS2

Duration: 1 hour, **max capacity:** 30 students

An introduction to coding and robotics using mBots. Students will use coding skills to programme robots to explore the Antarctic Tundra. In this workshop students will take on the role of scientific explorers using robotics to investigate wildlife in one of the most inhospitable habitats on earth. Students will programme robots to move, use sensors, and respond to external stimulus in a range of exciting ways.

Key Words:

Coding, technology, blocks, robots, debugging, programming, algorithm, sensing, survey, Antarctic, exploration.

Learning objectives

Introduce students to robotics and programming.

Understand how robotics can be applied in real life situations.

Understand how robots use different types of sensors.

Learn how to write and debug simple algorithms using block-based coding.

Understand and define the terms 'algorithm' and 'programming'.

Understand the importance of clear and logical instructions when coding.

Gain experience and develop confidence with mBlock and mBots.

Content

Students will:

Learn the definition of robotics and see examples of their real-life applications.

Create programmes that use movement, looping, and sensing to complete tasks.

Program an mBot robot using mBlocks block-based coding software.

Work in groups of 2, with one robot per group.

Control movement and operate sensors on an mBot robot.

Write, test, and debug algorithms to perform a series of activities.

Apply learning to complete a themed programming task.

Curriculum Links:

Computing

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.
- Solve problems by decomposing them into smaller parts.
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour.

Potential Hazards and accessibility

Students will work with battery operated robots on activity mats on the floor.

Activity mats and computer cables are potential trip hazards.