

Lesson plan – Micro:bit

# Using the Accelerometer

Code Playground



## Learning objectives

"I can explain what an accelerometer measures, and can code my micro:bit to use the accelerometer in a meaningful way"

Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

"I can design and construct models and explain my solutions."

"I can demonstrate a range of basic problem solving skills by building simple programs to carry out a given task, using an appropriate language."

## Resources

- Laptops or desktop computers
- Micro:bits (one per computer)
- <https://microbit.org>
- Craft materials

## Main activity

Start this lesson with a challenge: in an open space like the playground or gym hall, ask the children to move around in the space, and count the number of steps they take as they do. You may want to build this part of the activity into a PE lesson.

Ask the children to share how many steps they counted. Was it difficult to keep track? What if they had to count their steps over a longer period of time. For example, during a game of football? Are there any tools they could use to help with this? E.g. a fitness tracker or smart watch?

Can the children remember any of the features or sensors of the micro:bit?

This lesson will focus on using the accelerometer feature.

Ask the pupils what they think an accelerometer is. Can they think of any words that sound similar that might help them to work out what it means?

The accelerometer measures speed along three axes: x, y and z. It can sense movement

How can the accelerometer help us solve the step counter problem? Have a look at the micro:bit MakeCode editor and ask the children to identify any blocks that might be helpful.

The children should code their micro:bit with a simple programme that counts their steps as they move

Use craft materials to turn the micro:bit into a wearable device.

Can the children think of any other projects they could use the accelerometer feature for?

## Differentiation

### Lower Ability/ASN

Ask the children to identify an input block that uses the accelerometer feature. Explain that this input should be used to count the number of steps using a variable

### Higher Ability/Extension

Add additional features to your step counter – you could code it to let you know when you've reached your steps goal for the day

Add a reset button or motivational phrases to show on the screen

## Plenary

Try the first activity again – or use the step counters during a PE lesson.  
Did the micro:bits work?

Who had the most steps on their counter after the activity?

## Assessment Questions

What does an accelerometer measure?

Which blocks for the micro:bit use the accelerometer feature?