BBC micro:bit playground survey
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micro:bit the next gen

Getting started

Map and Fieldwork - Local Area Humanities/Geography/Social Studies/The World Around Us	Session 1: Data privacy and security discussion	Education for a Connected World (ECW) Used in all four UK countries	Session 2: Making a map - MATHS Mapping out playground into quadrilaterals, Map scale
The World Around Us: Place KS2 • Explore features of, and variations in places, including physical, human.	*Cross-curricular Skills: Using ICT* • Understand how to keep safe online. • Develop a pro-active and responsible approach to safety, for example on the internet. • Access and manage data and information.	• Describe strategies for creating /keeping passwords private. • Give reasons why someone should only share information with people they choose to and can trust. • Explain that if they are not sure or feel pressured then they should tell a trusted adult. • Describe how connected devices can collect and share anyone's information with others.	*Maths: Measures KS2* • Develop skills in estimation of length, area. *Maths: Measures KS2* • Construct a range of regular and irregular 2-D shapes, classify through examination of angles/sides name and describe common 2-D shapes.

Comparing surface temperatures

Map and Fieldwork - Local Area Humanities/Geography/Social Studies/ The World Around Us	Design/make/evaluate product to solve a problem Design Technology/Technology/ Science and Technology - Problem Solving	Session 1: Introduction Decide on 4 playground locations to take readings • on natural surface in shade/sunlight • on synthetic surface in shade/sunlight	Session 3: Fieldwork Each group goes to each location in order and takes repeated temperature readings 60 seconds apart until they get 2 the same	Session 4: Data analysis Collate and analyse the data collected. Calculate average temperature for each location. OPTIONAL EXTENSION: use data to make graphs
The World Around Us: Place KS2 • Explore features of, and variations in places, including physical, human.	*Thinking Skills and Personal Capabilities: Thinking, Problem Solving and Decision Making KS2* • Generate possible solutions, trying out alternative approaches, evaluating outcomes.	*The World Around Us: Change over Time KS2* • Understand ways in which change occurs over both short and long periods of time in the physical and natural world (e.g., heat, light, shadows). *The World Around Us: Movement and Energy KS2* • Understand the causes and effect of energy (e.g. light).	*The World Around Us: Progress in Learning KS2* • Examine and collect real data and samples from the world around them.	*The World Around Us: Progress in Learning KS2* • Examine and collect real data and samples from the world around them. *Maths: Handling Data KS2* • Collect, classify, record and present data drawn from a range of meaningful situations, using graphs, tables, diagrams and ICT software. • Interpret a wide range of tables, lists, graphs and diagrams, understand, calculate and use the mean and range of a set of discrete data.

Session 2: Optional coding:
Writing a program for the micro:bit – introduce how code works / optional coding session – teacher to model how to use the code

Using ICT: Explore KS1/2
• Investigate and solve problems in a digital environment.

Investigating biodiversity

Map and Fieldwork - Local Area Humanities/Geography/Social Studies The World Around Us	Design/make/evaluate product to solve a problem Design Technology/Technology/ Science and Technology - Problem Solving	Session 1: Introduction - SCIENCE Recap classification of living things knowledge. Explain how to identify and log different plant and animal species	Session 3: Fieldwork SCIENCE Capture data on different species of plants and animals in school playground using the micro:bit	Session 4: Data analysis Collate and analyse the data collected. Calculate average temperature for each location. OPTIONAL EXTENSION: use data to make graphs
The World Around Us: Place KS2 • Explore features of, and variations in places, including physical, human.	*Thinking Skills and Personal Capabilities: Thinking, Problem Solving and Decision Making KS2* • Generate possible solutions, trying out alternative approaches, evaluating outcomes.	*The World Around Us: Place KS2* • Understand how place influences the nature of life. • Know about features of, and variations in places, including vegetation and animal life. *The World Around Us: Interdependence KS2* • Understand how living things rely on each other within the natural world.	*The World Around Us: Place KS2* • Know about features of, and variations in places, including vegetation and animal life. *The World Around Us: Interdependence KS2* • Examine and collect real data and samples from the world around them.	*The World Around Us: Progress in Learning KS2* • Examine and collect real data and samples from the world around them. *Maths: Handling Data KS2* • Collect, classify, record and present data drawn from a range of meaningful situations, using graphs, tables, diagrams, and ICT software. • Interpret a wide range of tables, lists, graphs and diagrams, create and interpret frequency tables, including those for grouped data. • Understand, calculate and use the mean and range of a set of discrete data.

Session 2: Optional coding:
Writing a program for the micro:bit - introduce how code works/optional coding session - teacher to model how to use the code

Using ICT: Explore KS1/2
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Measuring area

Map and Fieldwork - Local Area
Humanities/Geography/Social **Studies**/
The World Around Us

The World Around Us: Place KS2
- Explore features of, and variations in places, including physical, human.

Design/make/evaluate product to solve a problem
Design Technology/Technology/
Science and Technology - Problem Solving

Thinking Skills and Personal Capabilities: Thinking, Problem Solving and Decision Making KS2
- Generate possible solutions, trying out alternative approaches, evaluating outcomes.

Session 1: Introduction - MATHS
Looking for shapes.
Mapping out playground into quadrilaterals

Maths: Measures KS2
- Develop skills in estimation of length, area.

Maths: Shape and Space KS2
- Construct a range of regular and irregular 2-D shapes, classify through examination of angles/sides.
- Name and describe common 2-D shapes.

Session 3: Fieldwork - MATHS
Take a micro:bit distance measurement as they walk 10m, use micro:bits to measure playground

Maths: Measures KS2
- Appreciate important ideas about measurement including the continuous nature of measurement and the need for appropriate accuracy.
- Understand the relationship between units and convert one metric unit to another.

Session 4: Data analysis - MATHS
Calculate area using a calculator (convert to m, find area of each shape, find total area, get class average)
OPTIONAL: calculate ratio of natural: synthetic space

Maths: Measures KS2
- Calculate perimeter and the areas of simple shapes.
- Use the four operations to solve problems.

Maths: Number KS2
- Interpret, generalise and use simple relationships expressed in numerical, spatial and practical situations.
- Understand that a letter can stand for an unknown number.

Session 2: Optional coding:
Writing a program for the micro:bit – introduce how code works / optional coding session – teacher to model how to use the code.

Using ICT: Explore KS1/2
Investigate and solve problems in a digital environment.

Tracking our physical activity

Map and Fieldwork - Local Area
Humanities/Geography/Social **Studies**/
The World Around Us

The World Around Us: Place KS2
- Explore features of, and variations in places, including physical, human.

Design/make/evaluate product to solve a problem
Design Technology/Technology/
Science and Technology - Problem Solving

Thinking Skills and Personal Capabilities: Thinking, Problem Solving and Decision Making KS2
- Generate possible solutions, trying out alternative approaches, evaluating outcomes.

Session 1: Introduction
Activity tracker and accelerometer.
Machine Learning mode, logging movement
- Data privacy

Thinking Skills and Personal Capabilities:
- Select, classify, compare and evaluate information across the curriculum.

Cross-Curricular Skills: Using ICT
- Access and manage data/information.
- Research, select, process and interpret information.

Session 3: Fieldwork
Discuss importance of balanced healthy lifestyle.
Logging physical activity at break/lunchtime.
Wearing micro:bit with activity tracker program loaded

Personal Development: Health, Growth, Change
- Understanding the benefits of a healthy lifestyle, including physical activity, healthy eating, rest and hygiene.

Using ICT: Explore KS1/2
- Investigate and solve problems in a digital environment.

Session 4: Data analysis
Submitting data to ONS, discussing data privacy and consent for data collection.
Reading line graph activity over time and identifying different activities from the shape of the graph

Cross-curricular Skills: Using ICT
- Understand how to keep safe online.

Maths: Handling Data KS2
- Collect, classify, record and present data drawn from a range of meaningful situations, using graphs, tables, diagrams and ICT software.
- Interpret a wide range of tables, lists, graphs and diagrams.

The World Around Us: Progress in Learning KS2
- Examine and collect real data and samples from the world around them.

Cross-Curricular Skills: Using ICT
- Research, select, process and interpret information.

Session 2: Transferring code:
Transferring code onto the micro:bit, checking batteries – teacher to explain how it works

Using ICT: Explore KS1/2
- Investigate and solve problems in a digital environment.

Exploring machine learning

Map and Fieldwork - Local Area
Humanities/Geography/Social Studies
The World Around Us

The World Around Us: Place KS2
- Explore features of, and variations in places, including physical, human.

Design/make/evaluate product to solve a problem
Design Technology/Technology/
Science and Technology - Problem Solving

Thinking Skills and Personal Capabilities: Thinking, Problem Solving and Decision Making KS2
- Generate possible solutions, trying out alternative approaches, evaluating outcomes.

Session 1: Introduction
Discuss importance of data.
Data collection/privacy

Cross-curricular Skills: Using ICT
- Understand how to keep safe online.

Session 2: Training a machine learning model
Use micro:bit to provide data samples of physical movements to train online machine learning tool.
Use graphs from model to check and test model,
Identify gaps, add more data to fill any gaps

The World Around Us: Progress in Learning KS2
- Examine and collect real data and samples from the world around them.
- Interpret a wide range of tables, lists, graphs and diagrams.

Maths: Handling Data KS2
- Collect, classify, record and present data drawn from a range of meaningful situations, using graphs, tables, diagrams and ICT software.

Session 3: Discussion
Consolidate the idea that a program needs useful accurate data to be useful/accurate.
Importance of identifying gaps in data
Inclusion – improving the model

Thinking Skills and Personal Capabilities: Thinking, Problem Solving and Decision Making KS2
- Justify methods, opinions and conclusions.
- Generate possible solutions, trying out alternative approaches, evaluating outcomes.
- Examine options, weighing up pros and cons.

Cross-Curricular Skills: Using ICT
- Understand how to display acceptable online behaviour.