

### 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
<p><b>Geography KS2</b></p> <ul style="list-style-type: none"> <li>Use fieldwork to observe, measure, record, present human and physical features in local area using range of methods, including sketch maps, plans, graphs, digital technologies.</li> <li>Use maps, atlases, globes and digital/computer mapping.</li> <li>Build knowledge of the UK and wider world using the eight points of a compass and four and six-figure grid references.</li> </ul>	<p><b>Computing</b></p> <ul style="list-style-type: none"> <li>Know how to keep personal info private.</li> <li>Use technology safely.</li> </ul> <p><b>Health and Wellbeing</b></p> <ul style="list-style-type: none"> <li>Know the importance of keeping personal information private.</li> </ul>	<ul style="list-style-type: none"> <li>Describe strategies for creating/keeping passwords private.</li> <li>Give reasons why someone should only share information with people they choose to and can trust.</li> <li>Explain that if they are not sure or feel pressured then they should tell a trusted adult.</li> <li>Describe how connected devices can collect and share anyone's information with others.</li> </ul>	<p><b>Maths: Geometry Y5</b></p> <ul style="list-style-type: none"> <li>Use the properties of rectangles to deduce related facts and find missing lengths and angles.</li> <li>Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> </ul> <p><b>Maths: Geometry Y6</b></p> <ul style="list-style-type: none"> <li>Compare/classify geometric shapes based on properties/sizes.</li> </ul>

### 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 <ul style="list-style-type: none"> <li>on natural surface in shade/sunlight</li> <li>on synthetic surface in shade/sunlight</li> </ul>	Session 3: Fieldwork Each group goes to each location in order above and takes repeated temperature readings 60 seconds apart until they get 2 the same	Session 4: Data analysis Collate and analyse data collected. Calculate average number of plant/animal species recorded. OPTIONAL EXTENSION: display data in different ways.
<p><b>Geography KS2</b></p> <ul style="list-style-type: none"> <li>Use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies.</li> </ul>	<p><b>Design Technology KS2</b></p> <ul style="list-style-type: none"> <li>Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</li> <li>Apply their understanding of computing to program, monitor and control their products</li> </ul>	<p><b>Science: Properties and Changes of materials Y5</b></p> <ul style="list-style-type: none"> <li>Compare &amp; group together everyday materials on the basis of their properties, including their thermal conductivity</li> <li>Give reasons, based on evidence from comparative and fair tests, for particular uses of everyday materials, inc. metals</li> </ul> <p><b>Science: Light Y4</b></p> <ul style="list-style-type: none"> <li>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> </ul> <p><b>Science: Working Scientifically KS2</b></p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions</li> </ul>	<p><b>Science: Working Scientifically KS2</b></p> <ul style="list-style-type: none"> <li>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> </ul>	<p><b>Maths: Statistics Y5</b></p> <ul style="list-style-type: none"> <li>Complete, read, interpret information in tables.</li> </ul> <p><b>Maths: Statistics Y6</b></p> <ul style="list-style-type: none"> <li>Calculate and interpret the mean as an average.</li> </ul> <p><b>Maths: Algebra Y6</b></p> <ul style="list-style-type: none"> <li>Use simple formulae</li> </ul> <p><b>Science: Working Scientifically KS2</b></p> <ul style="list-style-type: none"> <li>Recording data &amp; results of increasing complexity using tables, scatter/bar/line/graphs</li> <li>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral &amp; written forms such as displays and other presentations</li> </ul>

**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

Computing NC: KS2	<ul style="list-style-type: none"> <li>Select, use and combine a variety of software on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</li> </ul>	<ul style="list-style-type: none"> <li>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.</li> <li>Work with variables and various forms of input and output.</li> </ul>
-------------------	---	--

### 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 outdoors using the micro:bit - not just playground as this data is not submitted to ONS)	Session 4: Data analysis Collate and analyse the data collected. Calculate average temperature for each location. OPTIONAL EXTENSION: use data to make graphs
<p><b>Geography KS2</b></p> <ul style="list-style-type: none"> <li>Use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies.</li> </ul>	<p><b>Design Technology KS2</b></p> <ul style="list-style-type: none"> <li>Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.</li> <li>Apply their understanding of computing to program, monitor and control their products.</li> </ul>	<p><b>Science: Living Things and their Habitats Y6</b></p> <ul style="list-style-type: none"> <li>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, inc. micro-organisms, plants/animals.</li> <li>Give reasons for classifying based on specific characteristics.</li> </ul> <p><b>Science: Working Scientifically KS2</b></p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions.</li> </ul>	<p><b>Science: Living Things and their Habitats Y4</b></p> <ul style="list-style-type: none"> <li>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</li> </ul> <p><b>Science: Working Scientifically KS2</b></p> <ul style="list-style-type: none"> <li>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</li> </ul>	<p><b>Maths: Statistics Y5</b></p> <ul style="list-style-type: none"> <li>Complete, read, interpret information in tables.</li> </ul> <p><b>Maths: Statistics Y6</b></p> <ul style="list-style-type: none"> <li>Calculate and interpret the mean as an average.</li> </ul> <p><b>Maths: Algebra Y6</b></p> <ul style="list-style-type: none"> <li>Use simple formulae</li> </ul> <p><b>Science: Working Scientifically KS2</b></p> <ul style="list-style-type: none"> <li>Record data/results using diagrams, labels, keys, tables, scatter graphs, bar and line graphs.</li> <li>Reporting and presenting findings from enquiries, including conclusions, causal.</li> </ul>

**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

Computing NC: KS2	<ul style="list-style-type: none"> <li>Select, use and combine a variety of software on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</li> </ul>	<ul style="list-style-type: none"> <li>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.</li> <li>Work with variables and various forms of input and output.</li> </ul>
-------------------	---	--

Measuring area				
<b>Map and Fieldwork - Local Area</b> Humanities/Geography/Social Studies/ The World Around Us	<b>Design/make/evaluate product to solve a problem</b> Design Technology/Technology/ Science and Technology Problem Solving	<b>Session 1: Introduction - MATHS</b> Mapping out playground into quadrilaterals	<b>Session 3: Fieldwork - MATHS</b> Take a micro:bit distance measurement as they 'march' 10m, use micro:bits to measure playground	<b>Session 4: Data analysis - MATHS</b> Calculate area using a calculator (convert to m, find area of each shape, find total area, get class average) <i>OPTIONAL: calculate ratio of natural: synthetic space</i>
<b>Geography KS2</b> • Use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies.	<b>Design Technology KS2</b> • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular audience. • Apply their understanding of computing to program, monitor and control their products.	<b>Maths: Geometry Y5</b> • Use the properties of rectangles to deduce related facts and find missing lengths and angles. • Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. <b>Maths: Geometry Y6</b> • Compare and classify geometric shapes based on their properties and sizes.	<b>Maths: Measurement Y5</b> • Convert between different metric units. • Measure and calculate perimeter of composite rectilinear shapes in cm/m. <b>Maths: Measurement Y6</b> • Use, read, write and convert between standard units. • Convert measurements of length from smaller to larger unit and back using decimal notation to up to 3 places.	<b>Maths: Measurement Y5</b> • Use all four operations to solve problems involving measure using decimal notation. • Calculate and compare area of rectangles (inc squares), using standard units, cm <sup>2</sup> /m <sup>2</sup> . <b>Maths: Measurement Y6</b> • Solve problems involving calculation/conversion of units of measure, using up to 3 decimal places. • Recognise when possible to use formulae for area. • Calculate area of parallelograms and triangles. <b>Maths: Algebra Y6 (no Algebra in Y5)</b> • Use simple formulae.
<b>Session 2: Optional coding</b> Writing a program for the micro:bit - introduce how code works / optional coding session - teacher to model how to use the code				
<b>Computing NC: KS2</b> • Select, use and combine a variety of software on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.		• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems. • Work with variables and various forms of input and output.		
Tracking our physical activity				
<b>Map and Fieldwork - Local Area</b> Humanities/Geography/Social Studies/ The World Around Us	<b>Design/make/evaluate product to solve a problem</b> Design Technology/Technology/ Science and Technology - Problem Solving	<b>Session 1: Introduction</b> Activity tracker and accelerometer Machine Learning model Logging movement Data privacy	<b>Session 3: Fieldwork</b> Discuss importance of balanced healthy lifestyle. Logging physical activity at break/lunchtime. Wearing micro:bit with activity tracker program loaded	<b>Session 3: Data analysis</b> 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
<b>Geography KS2</b> • Use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies.	<b>Design Technology KS2</b> • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular audience. • Apply their understanding of computing to program, monitor and control their products	<b>PHSE</b> • Know how information and data is shared and used online. <b>Computing</b> • Be discerning in evaluating digital content	<b>Science</b> • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function <b>Computing NC: KS2</b> • Select, use and combine a variety of software on a range of digital devices to design and create a range of systems to accomplish given goals, including collecting, analysing, evaluating data • Work with various forms of input and output	<b>Computing</b> • Know how to keep personal info private • Use technology safely <b>Maths: Statistics Y5</b> • Complete, read and interpret information in tables, <b>Science: Working Scientifically KS2</b> • Record data and results of increasing complexity using tables, scatter graphs, bar and line graphs • Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations
<b>Session 2: Transferring code:</b> Transferring code onto the micro:bit, checking batteries – teacher to explain how it works				
<b>Computing NC: KS2</b> • Select, use and combine a variety of software on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.				
Exploring machine learning				
<b>Map and Fieldwork - Local Area</b> Humanities/Geography/Social Studies/ The World Around Us	<b>Design/make/evaluate product to solve a problem</b> Design Technology/Technology/ Science and Technology - Problem Solving	<b>Session 1: Introduction</b> Discuss importance of data Data collection/privacy	<b>Session 2: Training Machine Learning Model</b> 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	<b>Session 3: Discussion</b> Consolidate the idea that a program needs useful accurate data to be useful/accurate. Importance of identifying gaps in data Inclusion – improving the model
<b>Geography KS2</b> • Use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies.	<b>Design Technology KS2</b> • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups • Apply their understanding of computing to program, monitor and control their products	<b>Computing</b> • Know how to keep personal info private • Use technology safely	<b>Science: Working Scientifically KS2</b> • Take measurements, using a range of scientific equipment, with increasing accuracy/precision, taking repeat readings when appropriate <b>Maths: Statistics Y5/Y6</b> • Read/interpret information in tables/graphs • Interpret line graphs, use to solve problems	<b>Science: Working Scientifically KS2</b> • Report and present findings from enquiries, including conclusions, causal relationships and explanations in displays/presentations <b>Computing – Digital Literacy</b> • Use technology respectfully and responsibly • Recognise acceptable and unacceptable behaviour