

### Getting started

Map and Fieldwork - Local Area Humanities/Geography/Social Studies/The World Around Us	Session 1: Data collection and privacy	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
<b>Social Studies: People, Place Environment 2nd</b> <ul style="list-style-type: none"> <li>To extend my mental map and sense of place, I can interpret information from different types of maps.</li> </ul>	<b>Technologies: Digital Literacy 2nd</b> <ul style="list-style-type: none"> <li>Be aware of ways to keep safe and secure.</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>	<b>Maths: SP&amp;M – Properties of Shapes 2nd</b> <ul style="list-style-type: none"> <li>Having explored a range of 2D shapes, I can use mathematical language to describe their properties.</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 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
<b>Social Studies: People, Place Environment 2nd</b> <ul style="list-style-type: none"> <li>To extend my mental map and sense of place, I can interpret information from different types of maps</li> </ul>	<b>Technologies: Computing science</b> <ul style="list-style-type: none"> <li>Explain core programming language concepts in appropriate technical language. TCH 2-14a</li> <li>Create, develop and evaluate computing solutions in response to a design challenge. TCH 2-15a</li> </ul>	<b>Science: Planet Earth: Energy Sources 2nd</b> <ul style="list-style-type: none"> <li>By considering examples where energy is conserved, identify the energy source, how it is transferred and ways of reducing wasted energy.</li> </ul> <b>Science: Materials: Earth's materials 2nd</b> <ul style="list-style-type: none"> <li>Having explored the substances that make up Earth's surface, compare some of their characteristics and uses.</li> </ul>	<b>Science: Scientific Skills 2nd</b> <ul style="list-style-type: none"> <li>Make observations, collect info/measurements using appropriate devices/units.</li> <li>Select appropriate methods to record data.</li> </ul>	<b>Maths: Info Handling - Data/Analysis 2nd</b> <ul style="list-style-type: none"> <li>Use technology and other methods display data simply, clearly and accurately by creating tables, charts and diagrams, using simple labelling/scale.</li> </ul> <b>Science: Scientific Skills 2nd</b> <ul style="list-style-type: none"> <li>Relate findings to the wider world.</li> <li>Draw basic conclusions consistent with findings.</li> <li>Identify and discusses additional knowledge and understanding gained.</li> <li>Present data/information by choosing from an extended range of tables, bar and line graphs.</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

#### Technologies: Digital Literacy 2nd

- Extend/enhance knowledge of digital technologies to collect and analyse ideas/relevant information and organise in an appropriate way.
- Explain core programming language concepts in appropriate technical language.

#### Technologies: Computer Science 2nd

- Create, develop and evaluate computing solutions in response to a design challenge

### 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 data collected. Calculate average number of plant/animal species recorded. OPTIONAL EXTENSION: display data in different ways.
<b>Social Studies: People, Place Environment 2nd</b> <ul style="list-style-type: none"> <li>Extend my mental map and sense of place, I can interpret information from different types of maps.</li> </ul>	<b>Technologies: Computing science</b> <ul style="list-style-type: none"> <li>Explain core programming language concepts in appropriate technical language. TCH 2-14a</li> <li>Create, develop and evaluate computing solutions in response to a design challenge. TCH 2-15a</li> </ul>	<b>Science: Planet Earth: Biodiversity and interdependence 2nd</b> <ul style="list-style-type: none"> <li>Identify and classify examples of living things, past and present, to help me appreciate their diversity.</li> </ul>	<b>Science: Planet Earth: Biodiversity/interdependence 2nd</b> <ul style="list-style-type: none"> <li>Identify and classify examples of living things to help appreciate their diversity.</li> </ul> <b>Science: Scientific Skills 2nd</b> <ul style="list-style-type: none"> <li>Make observations, collect measurements using appropriate devices/units.</li> <li>Select appropriate methods to record data.</li> </ul>	<b>Maths: Info Handling - Data/Analysis 2nd</b> <ul style="list-style-type: none"> <li>Use technology and other methods, I can display data simply, clearly and accurately by creating tables, charts and diagrams, using simple labelling/scale.</li> </ul> <b>Science: Working Scientifically KS2</b> <ul style="list-style-type: none"> <li>Relate findings to the wider world.</li> <li>Draws basic conclusions consistent with findings.</li> <li>Identify and discusses additional knowledge and understanding gained.</li> <li>Present data/information by choosing from an extended range of tables, charts including bar and line graphs.</li> </ul>
<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>Technologies: Digital Literacy 2nd</b> <ul style="list-style-type: none"> <li>Extend/enhance knowledge of digital technologies to collect and analyse ideas/relevant information and organise in an appropriate way.</li> <li>Explain core programming language concepts in appropriate technical language.</li> </ul>				
<b>Technologies: Computer Science 2nd</b> <ul style="list-style-type: none"> <li>Create, develop and evaluate computing solutions in response to a design challenge.</li> </ul>				

### Measuring area

Map and Fieldwork - Local Area Humanities/Geography/Social Studies/ The World Around Us	Design/make/evaluate product to solve a problem Design Technology/Science and Technology Problem Solving	Session 1: Introduction - MATHS Mapping out playground into quadrilaterals	Session 3: Fieldwork - MATHS Take a micro:bit distance measurement as they 'march' 10m, use micro:bits to measure playground	Session 4: Data analysis - MATHS 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>Social Studies: People, Place Environment 2nd</b> <ul style="list-style-type: none"> <li>To extend my mental map and sense of place, I can interpret information from different types of maps</li> </ul>	<b>Technologies: Computing science</b> <ul style="list-style-type: none"> <li>Explain core programming language concepts in appropriate technical language. TCH 2-14a</li> <li>Create, develop and evaluate computing solutions in response to a design challenge. TCH 2-15a</li> </ul>	<b>Maths: SP&amp;M - Properties of Shapes 2nd</b> <ul style="list-style-type: none"> <li>Having explored a range of 3D objects and 2D shapes, I can use mathematical language to describe their properties</li> </ul>	<b>Maths: NM&amp;M - Measurement 2nd</b> <ul style="list-style-type: none"> <li>Use the common units of measure, convert between related units of the metric system and carry out calculations when solving problems.</li> </ul>	<b>Maths: NM&amp;M - Measurement 2nd</b> <ul style="list-style-type: none"> <li>Carry out calculations when solving problems.</li> <li>Explain how different methods can be used to find the perimeter and area of a simple 2D shape</li> </ul> <b>Maths: NM&amp;M - Expressions and Equations 2nd</b> <ul style="list-style-type: none"> <li>Apply my knowledge of number facts to solve problems where an unknown value is represented by a symbol or letter.</li> </ul>
<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>Technologies: Digital Literacy 2nd</b> <ul style="list-style-type: none"> <li>Extend/enhance knowledge of digital technologies to collect and analyse ideas/relevant information and organise in an appropriate way.</li> <li>Explain core programming language concepts in appropriate technical language.</li> </ul>		<b>Technologies: Computer Science 2nd</b> <ul style="list-style-type: none"> <li>Create, develop and evaluate computing solutions in response to a design challenge</li> </ul>		

### Tracking our physical activity

Map/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 Activity tracker and accelerometer. Machine Learning mode, logging movement Data privacy	Session 3: Fieldwork Discuss importance of balanced healthy lifestyle. Logging physical activity at break/lunchtime. Wearing micro:bit with activity tracker program loaded	Session 3: 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
<b>Social Studies: People, Place Environment 2nd</b> <ul style="list-style-type: none"> <li>To extend my mental map and sense of place, I can interpret information from different types of maps</li> </ul>	<b>Technologies: Computing science</b> <ul style="list-style-type: none"> <li>Explain core programming language concepts in appropriate technical language. TCH 2-14a</li> <li>Create, develop and evaluate computing solutions in response to a design challenge. TCH 2-15a</li> </ul>	<b>Technologies: Digital Literacy 2nd</b> <ul style="list-style-type: none"> <li>Using digital technologies responsibly I can access, retrieve and use information to support, enrich or extend learning in different contexts.</li> </ul>	<b>Sciences: Biological Systems 2nd</b> <ul style="list-style-type: none"> <li>By investigating some body systems and potential problems which they may develop, I can make informed decisions to help me to maintain my health and wellbeing.</li> </ul> <b>Technologies: Computer Science 2nd</b> <ul style="list-style-type: none"> <li>Create, develop and evaluate computing solutions in response to a design challenge.</li> </ul>	<b>Technologies: Digital Literacy 2nd</b> <ul style="list-style-type: none"> <li>Be aware of ways to keep safe and secure.</li> </ul> <b>Maths: Info Handling - Data/Analysis 2nd</b> <ul style="list-style-type: none"> <li>Use technology and other methods to display data simply, clearly and accurately by creating tables, charts and diagrams, using simple labelling/scale.</li> </ul> <b>Science: Scientific Skills 2nd</b> <ul style="list-style-type: none"> <li>Relate findings to the wider world.</li> <li>Draw basic conclusions consistent with findings</li> <li>Identify and discusses additional knowledge and understanding gained</li> </ul>
<b>Session 2: Transferring code:</b> Transferring code onto the micro:bit, checking batteries – teacher to explain how it works				
<b>Technologies: Digital Literacy 2nd</b> <ul style="list-style-type: none"> <li>Extend/enhance knowledge of digital technologies to collect and analyse ideas/relevant information and organise in an appropriate way.</li> <li>Explain core programming language concepts in appropriate technical language.</li> </ul>				

### Exploring machine learning

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 Discuss importance of data Data collection/privacy	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	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
<b>Social Studies: People, Place Environment 2nd</b> <ul style="list-style-type: none"> <li>To extend my mental map and sense of place, I can interpret information from different types of maps</li> </ul>	<b>Technologies: Computing science</b> <ul style="list-style-type: none"> <li>Explain core programming language concepts in appropriate technical language. TCH 2-14a</li> <li>Create, develop and evaluate computing solutions in response to a design challenge. TCH 2-15a</li> </ul>	<b>Technologies: Digital Literacy 2nd</b> <ul style="list-style-type: none"> <li>Be aware of ways to keep safe and secure.</li> </ul>	<b>Science: Scientific Skills 2nd</b> <ul style="list-style-type: none"> <li>Make observations, collect measurements using appropriate devices/units.</li> <li>Select appropriate methods to record data.</li> </ul> <b>Maths: Info Handling - Data/Analysis 2nd</b> <ul style="list-style-type: none"> <li>Carry out investigations/surveys, devising/using a variety of methods to gather information.</li> <li>Work with others to collate, organise and communicate the results in appropriate way.</li> <li>Interpret and draw conclusions from information displayed.</li> </ul>	<b>Science: Working Scientifically KS2</b> <ul style="list-style-type: none"> <li>Having discussed the variety of ways and range of media used to present data, I can interpret and draw conclusions from the information displayed, recognising that the presentation may be misleading.</li> </ul> <b>Technologies – Digital Literacy</b> <ul style="list-style-type: none"> <li>Explore online communities demonstrating an understanding of responsible digital behaviour</li> </ul>