So Awkward

Make an indoor-outdoor thermometer

micro:bit the next gen

Computing topics covered

Hardware
- Connecting a micro:bit to a laptop
- Connecting input sensors
- Calibrating a sensor
- Transmitting/receiving radio signals
- Producing LED/audio output

Coding and Programming
- Sequencing
- Repeat loops
- Selection and conditionals
- Events and triggers
- Debugging

Computational Thinking
- Logical reasoning
- Decomposition
- Algorithms
- Patterns
- Abstraction

Curriculum links

England

Computing NC: KS2
- Select, use & combine a variety of software on a range of digital devices to design & create a range of programs, systems & content that accomplish given goals including collecting, analysing, evaluating & presenting data & info
- Design, write & debug programs that accomplish specific goals, including controlling or simulating physical systems
- Work with variables & various forms of input & output

Science: Working Scientifically KS2
- Take measurements, using a range of scientific equipment with increasing accuracy and precision

Design Technology KS2
- Use research & 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 & control their products

Wales

Science & Technology: Design Thinking & Engineering offer technical and creative ways to meet society's needs and wants. Progression Step 3
- I can use design thinking to test and refine my design decisions without fear of failure
- I can combine component parts, materials & processes to achieve functionality and improve the effectiveness of my outcomes
- I can apply my knowledge & skills when making design decisions in order to produce specific outcomes

Northern Ireland

Thinking Skills & Personal Capabilities: Thinking, Problem Solving & Decision Making KS2
- Generating possible solutions
- Trying out alternative approaches
- Evaluating outcomes

Using ICT: Computational Thinking and Coding KS2
- As a class look at and talk about examples of coding projects, including the use of motion, looks, lights or sounds, sensors, control and events such as 'if... then' and 'loop until' (or equivalent) that make the code more efficient
- In small groups, plan and storyboard their own coding project, working out what different parts of the program must do, using logical reasoning to discuss and compare the commands that are required for their algorithm and predict the outcome
- Use a range of commands to create a project including triggering commands such as 'if... then' and 'loop until' to facilitate a more efficient method of interaction

World Around Us: Progress in Learning KS2
- Examining and collecting real data and samples from the world around them

Scotland

Technologies: Computing Science 2nd
- I can explain core programming language concepts in appropriate technical language. TCH 2-14a
- I can create, develop and evaluate computing solutions in response to a design challenge TCH 2-15a

Cross-curricular opportunities

Geography/Humanities
- Find out more about the North and South poles, the location of Antarctica - climate zones, biomes
- Explore Antarctic weather and temperature data, creating graphs to show the annual range and compare it to the UK

Science/Science and Technology
- Research the Antarctic biome and habitat
- Understand that temperature measures how hot or cold something is using degrees Celsius
- Explore the thermal insulation properties of materials

Design and Technology/Technologies
- Design/make a thermal insulating device to keep a drink hot - test success by measuring heat loss over time - link to Science - thermal properties of materials

Maths and Numeracy
- Create line graphs to record temperature changes over time - link to Science and DT activities

Art and Design
- Illustrate a scene where a micro:bit robot has been "adopted by a penguin" as a cartoon strip