Bro's in Control

Make a funny voice recorder

micro:bit the next gen

Computing topics covered

Hardware
- Connecting a micro:bit to a laptop
- Using built-in input device - microphone
- Using the LED display and speaker outputs
- Connecting external input and output devices to the micro:bit
- Using built-in sensors to activate programs

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

Computational Thinking
- Logical reasoning
- Decomposition
- Algorithms
- 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
- Design, write & debug programs that accomplish specific goals, including controlling or simulating physical systems
- Work with variables & various forms of input & output

Design Technology KS2
- Use research & develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose and aimed at a 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 (Desirable Features)
- Use a range of commands including triggering commands in a program (L3)
- 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 (L4)
- 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 (L4)

Scotland
Technologies:
Computing Science
- I can explain core programming language concepts in appropriate technical language. TCH 2014a
- I can create, develop and evaluate computing solutions in response to a design challenge TCH 2-15a

Cross-curricular opportunities

Science
- Revise understanding of how sound is generated and transmitted via sound waves and the link to vibration
- Revise understanding of volume and pitch
- Revise previous learning about the human ear and how we hear sounds

Music - link to DT
- Explore using the micro:bit to change the sampling rate for recording sound and use the recordings as part of a soundscape or musical composition
- Use online digital tools (e.g. Audacity) to create and edit digital sound files

PHSE/PDMU/Health and Wellbeing
- Discuss the issue of noise pollution and anti-social behaviour around playing music in public places
- Talk about potential problems with playing pranks on other people – how to keep things friendly and fun

History
- Create a timeline showing the development of devices and technology to record and play back sound and music – link to music

Design Technology/Technologies - link to Science
- Learn the basic principles of how a microphone and speaker work using thin vibrating materials – annotate a simple exploded diagram
- Create a decorated case for the micro:bit – use different design criteria – e.g. "must allow connection to the output ports" or "must enable the micro:bit to be worn on the wrist" etc and test and evaluate the product against these criteria
- Revise understanding of how a wheel/axle mechanism works when driven by a simple motor
- Develop new ideas for using the micro:bit with a motor and attached components