

Coding Christmas Decorations – micro:bit Christmas Lesson

Working towards outcomes of the Curriculum for Excellence: I understand the instructions of a visual programming language and can predict the outcome of a program written using the language. (TCH 1-14a and TCH 2-14a) I understand how information is stored and how key components of computing technology connect and interact through networks (TCH 2-14b)	
Learning Intention	Success Criteria
We are learning to create Christmas decorations with the micro:bit.	<ul style="list-style-type: none"> - I can recognise and use some of the inputs of the micro:bit. - I can understand how to use some of the logic blocks on MakeCode. - I can create a working and creative Christmas decoration using the micro:bit.
Resources	Learners will need: <ul style="list-style-type: none"> • 1x micro:bit, 1x USB Cable, 1x Battery Pack and 1x device (iPad or Laptop). • For part 2 of the lesson an extra micro:bit is required as remote control for either whole class or per group. • To display the micro:bits as decorations you can use thread to hang them. You may want to include a paper or card surround if displaying the micro:bit.
Timing	1 hour
5-10mins	Introduction Watch an introductory video from Mr Morrison. This looks at some of the inputs on the micro:bit followed by a tutorial to create a Christmas animation on the micro:bit using the light level or sound level as a trigger to turn it on.
15-20mins	Part 1 – Basic Christmas Decoration activated by light or sound. Learners follow the tutorial to create the code. There are two options, using the light or sound level. Learners can try both or just one. You can use the slide and video as prompts for this. Full code for the light level version can be found HERE and full code for the sound level version HERE .
20-30mins	Part 2 – Adapting decoration to be activated by radio. To extend the learning part 2 looks at adapting the Christmas animations to be activated by another micro:bit over radio. Watch the video for the explanation and tutorial. You can choose to have the whole class coding receivers (Full Code HERE) and only downloading one transmitter (Full Code HERE) to one micro:bit. Alternatively, you can split the class into groups, each group must have a separate 'radio group' for this to work (same number on their transmitters and receivers). Once all the code has been created and tested it's now time to display these somewhere like a Christmas tree (you will find small holes for thread on either side of the micro:bit). Then take photos/videos of your classes' creations!
5-10mins	(Extension) This lesson is very easy to extend by asking learners to add more complexity to their animation. They could also include sound if you wish. Ending the lesson (Plenary) After celebrating the classes creations there are optional plenary discussion questions. Have a great Christmas!