Moray Micro:bit Data and Environment Lesson Plan 1 – What is Data?

| **Working towards outcomes of a Curriculum for Excellence:** |
| 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. (MNU 2-20a) |
| 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 computers process information (TCH 1-14b and TCH 2-14b) |

| **Programming Concept(s)** |
| Algorithms, Patterns & Evaluations. |

Learning Intention	*Success Criteria*
We are learning to record and analyse data using the micro:bit.	- I can explain what data is and give examples. - I can measure light, temperature and sound using a micro:bit. - I can analyse the data a micro:bit outputs over time.

Resources	Between two or three – 1x micro:bit, 1x battery pack, 1x USB cable, 1x device (iPad or Laptop), Question sheet.
Timing	1hour

5-10mins	**Introduction** Welcome video explaining what the lessons are going to be about. Data and Sustainability, with video and explanation about what data is. Then question posed to do/discuss:
5-10mins	Write down or draw as many different things that could be recorded as data (e.g. temperature, light level, number of children in a class…) – On a Post it note. Discuss the things learners suggested.
15-20mins	**Part 1 – Data Logging Code** Watch the second video with the coding tutorial, children create code to log the temperature, light level and sound in the room (Full Code HERE).
5-10mins	Learners can use the pin inputs (extra blocks of code) to test that their code is working correctly.
5-10mins	Once all learners have created that code you can do a data logging exercise as a class by all doing roughly the same thing at same time (e.g. covering the micro:bit, making a loud noise, turning on all the lights) – Total recording time 5mins.
5mins	**Part 2 – Analyse the Logged Data** Watch the third video which demonstrates plugging in the micro:bit and showing how to access the results. Discussion about what learners see. After all learners have logged their data they should attach the micro:bit to their laptops again and open the 'Data' file. They should answer the questions on the worksheet by looking at their data. Discussion to see if values were similar. **(Extension)** Record data again and experiment with the different readings that you get for making changes to the environment.

	Ending the lesson (Plenary) Discussion of the rest of lessons and smart homes – What is a smart home, what does it have to do with data? Tidy away resources.