Beech Hill Primary School Knowledge Organiser

Topic: Computing	Year group	Term
Computer Science : Blue Bots	Year 2	Spring 2 6 sessions

Background knowledge
A Blue Bot is a floor robot that can be programmed using controls on its back or via blue tooth from an ipad. It teaches control, directional language and programming through simple algorithms and loops. TTS Blue Bot Teachers guide pdf.

What should I already know?
Children know what an algorithm is and can create a simple programme for a Bee Bot. I can debug and correct a sequence.

National Curriculum Objectives / Key Skills	The Journey
<u>Subject intent</u> To stay safe online and understand the positives and negatives of being online. Develop basic computing skills to prepare for the world of work. To understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. To create and debug simple programs. To use logical reasoning to predict the behaviour of simple programs. I can design simple algorithms using loops, and selection.	1. Create a simple program one step at a time, first using the controls on the Blue Bots' back, then using the app. (eg. begin on the yellow circle, end on the red triangle). 2. Writing and debugging a problem. Children plan a route before pressing go. 3. Reading programs: Children can read the steps of a program and work out what the Blue Bot will do. 4. Becoming more efficient: Children reduce the number of steps they give the Blue Bot (eg. rather than '4 forward steps' they should repeat '1 forward step' 4 times). 5. Repetition (loops): Using repeat mode, children program the Blue Bot to move in a repeating pattern or to make a shape such as a square.

I can use logical reasoning to predict outcomes. I can find and correct errors i.e. debugging, in algorithms.	6. To design an obstacle course for the Blue Bot, photograph it from above, then program the Blue Bot to move around the course, missing the objects and using debugging to correct errors.

Outcomes

An overview of what children will know / can do

Working towards: I have improved my ability to follow and give instructions. With support from an adult or my friends, I can create a simple programme and I can notice if the algorithm has a mistake.

Expected: I know what an algorithm is and can create simple programmes contains directions, turns and loops. I can debug and correct a sequence by trying again. I can use a Blue Bot and the programming software on an ipad.

Exceeding: I can confidently explain what an algorithm is and can independently create programmes, spotting my own errors and debugging them to improve my sequence. I am confident at using a Blue Bot and an ipad.

Key Vocabulary	Timeline / Diagrams
Algorithm - a set of instructions which can be given to complete a task both on hardware and unplugged activities. Bluetooth – what makes the ipad talk to the Blue Bot. Debug – to spot errors and correct them. Directions – up, down, left, right, forward, back, turn. Instructions – to tell someone or a device what to do. Loops – when a program repeats. Repeat – to do something again and again. Program – to give instructions to a person or device. Sequence – to put the algorithm in the correct order. Unplugged - using computing science without a computer.	

Key people / places
Dr. Jaap Haartsen invented Bluetooth in 1994. It covers everything from audio for wireless headphones and speakers, pairing gaming controllers and keyboards, internet connections, and even occasionally transferring files over the air. Bluetooth is named after a Viking King!

Assessment questions / outcomes
1. What do these buttons on the Blue Bots back mean? 2. Look at this simple map. Tell me the steps you would program to get the Blue Bot from the start to the end. 3. Look at this simple map. Which of these sets of instructions would you use to get the BlueBot from the start to the end? 4. Instead of pressing 5 forward steps, what could you do instead? 5. What is a loop? Can you give me an example of a loop? What loop makes a square?