Computing 24-25

Year 4 - Programming

Remember when: beebots, scratch, logo	**Key vocabulary**
By the end of the unit children must be able to: - make the sphero move - change the speed of the sphero ball. - change the direction of the sphero ball. - direct a sphero ball through a maze. - debug coding errors.	sphero forwards backwards left right turn angles right angle degrees speed algorithm coding debug

In Year 1:	**In Year 2:**	**In Year 3:**
- move the beebot forwards, backwards and turn. - be able to move a beebot to a given area.	- to create a new character. - to move the character. - make the character bigger /smaller. - make the character talk. - create a link of 3 algorithms.	- change the colour of the pen. - draw at least 4 shapes or letters using algorithms. - complete level 1.

National curriculum:
- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
- use sequence, selection and repetition in programs; work with variables and various forms of input and output.
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Software / Hardware

sphero

Title / Focus	**Lesson outline**
Lesson 1- What is a Sphero? **LO-** To identify how to control a sphero **Sticky Knowledge-** Make the Sphero move	Children to look at the spheros, what do they do? Show the children how to connect it to the ipad. Give them 20 minutes to explore them. Make them move etc. Children to feedback to the rest of the class how they made them move.
Lesson 2- Introduction to sphero balls **LO-** To create a program to make the sphero move. **Sticky knowledge** Change the speed of the Spheros ball. Change the direction of the sphero ball.	Explore using sphero balls. Identify how to change direction of the sphero balls. Children use taped lines to use as guidelines for sphero movement. Explore use of speed. When might we encourage the sphero to move with speed? Share with the class the findings of the day
Lesson 3- Input algorithms **LO-** To create a code to navigate a maze. **Sticky knowledge-** Change the direction of the sphero ball. Direct a sphero ball through a maze.	Children create simple mazes for sphero balls. Demonstrate how to input algorithms to complete maze successfully. How could we make the alogirthm more precise? Talk about revisiting the code and editing it to make it more exact and precise for the maze. Children explore and complete in pairs.
Lesson 4-Algorithm errors **LO-** To identify and debug errors	Provide given algorithm problems, children debug errors to complete tasks. Problems include- printed, sphero ball and puzzle Use photographs to evidence activity. Children work in pairs.

Sticky Knowledge- debug coding errors.		
Working towards	**End of Unit Assessment** Working at Age related expectations	Working at a greater depth