Computing 24-25

Year 5 – Programming (Drones)

Remember when: beebots, scratch, logo, sphero	**Key vocabulary**
By the end of the unit children must be able to: - send the drone to fly in the air and hover. - move the drone safely around the room. - land the drone carefully on a landing point. - debug errors in coding.	algorithm coding debug tynker projects programming motion sounds function control/ flow

In Year 1:	**In Year 2:**	**In Year 3:**	**In Year 4:**
- 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.	- move the sphero ball - change the speed of the sphero ball. - change the direction of the sphero ball. - direct a sphero ball through a maze. - debug coding errors.

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

Mambo drones
Tynker

Title / Focus	**Lesson outline**
Lesson 1 Introduce coding on purple mash **LO-** To recap purple mash **Sticky knowledge-** To use timers and countdowns.	Remind the children how to log onto purple mash and access their 2dos. Tell the children they are going to work through the 'send the rocket to space' Show the video and introduce it to them. Demonstrate putting in a code but then reading it like a story before pressing play. Children to work their way through the activity. SEN- mixed ability pairs
Lesson 2 Purple mash coding **LO-** To recap purple mash **Sticky knowledge-**To use when and if statements	Remind the children how to log onto purple mash and access their 2dos. Tell the children they are going to work through the 'catching game' Show the video and introduce it to them. Demonstrate putting in a code but then reading it like a story before pressing play. Children to work their way through the activity. SEN- mixed ability pairs
Lesson 3 Introduction to drones **LO-** To make the drone move **Sticky knowledge-** send the drone to fly in the air and hover.	What is this? What are they used for? Discuss using the Ipad to control the drone. Demonstrate how to connect the drone to the Ipad. Display the coding screen. Tell them only that they need a take off and land. Children to explore and experiment how to make it work, adding different functions to it. As the lesson progresses, demonstrate what each child has found out.
Lesson 4- Landing **LO-** To make the drone land in a specific place **Sticky knowledge-** move the drone safely around the room.	Review what the children learned in the previous lesson. What can the children make the drone do? Tell the children that today they have to program the drone to land in a specific position in the classroom. This will require the children to make specific and accurate codes for the drone and they will need to debug throughout.

- land the drone carefully on a landing point.	Share what the children have managed to achieve throughout the lesson.
Lesson 4 Debugging the drones **LO-** **Sticky knowledge-** debug errors in coding.	Review what the children learned in the previous lesson. What can the children make the drone do? can we change direction and make the drone flip? Give out the code. Children to input it into the ipad. What is wrong with it? Can the children work out what needs to happen in order for it to work successfully? SEN- TA support
Lesson 5 Assessment task	Assessment task The children must create a code which makes the drone Take off Move turn twice Flip Come back Land

Working towards	**End of Unit Assessment** Working at Age related expectations	Working at a greater depth