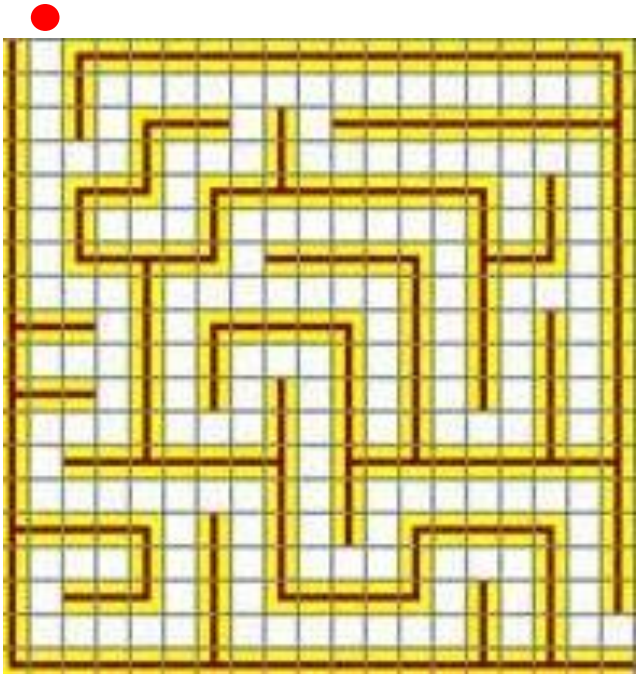
Year 3 Home Learning
Summer Term

Computing

This selection of tasks is to help you develop your ability to code and recap the key vocabulary used in computing. Don't worry if you do not have access to a computer or tablet as tasks 1, 2 and 4 can be done without one.

1.	<u>Creating an Algorithm</u> All forms of code use what is called an algorithm. This is a clear and precise set of instructions. Your first challenge is to create your own algorithm for completing a task. E.g. making a sandwich or getting from one place in your house to another. Imagine your algorithm is for a robot to follow. The robot can not think for itself so you will need to be very clear on what it has to do. E.g. Take 3 steps forward, do a quarter turn left… Once you have finished your algorithm you should have someone read it out for you to follow and check that it works. Remember when you are the robot you can only do exactly what the instruction says!
2.	<u>Debugging an Incorrect Algorithm</u> Below is a maze and an algorithm for getting through it. Unfortunately, the algorithm does not work as there is a mistake somewhere. Debugging an algorithm is when you look for a problem in the code and fix it. Your task is to follow the steps in the algorithm to find and correct any mistakes (there are 5) that have been made so that it works 😊 

1. Move down 4 blocks
2. Move right 2 blocks
3. Move up 2 blocks
4. Move right 6 blocks
5. Move down 2 blocks
6. Move left 8 blocks
7. Move down 4 blocks
8. Move left 2 blocks
9. Move down 4 blocks
10. Move left 2 blocks
11. Move up 6 blocks
12. Move left 5 blocks
13. Move up 2 blocks
14. Move left 2 blocks
15. Move down 4 blocks
16. Move right 2 blocks
17. Move up 2 blocks
18. Move right 2 blocks
19. Move down 7 blocks
20. Move right 2 blocks
21. Move up 2 blocks
22. Move left 6 blocks
23. Move down 4 blocks
24. Move right 2 blocks

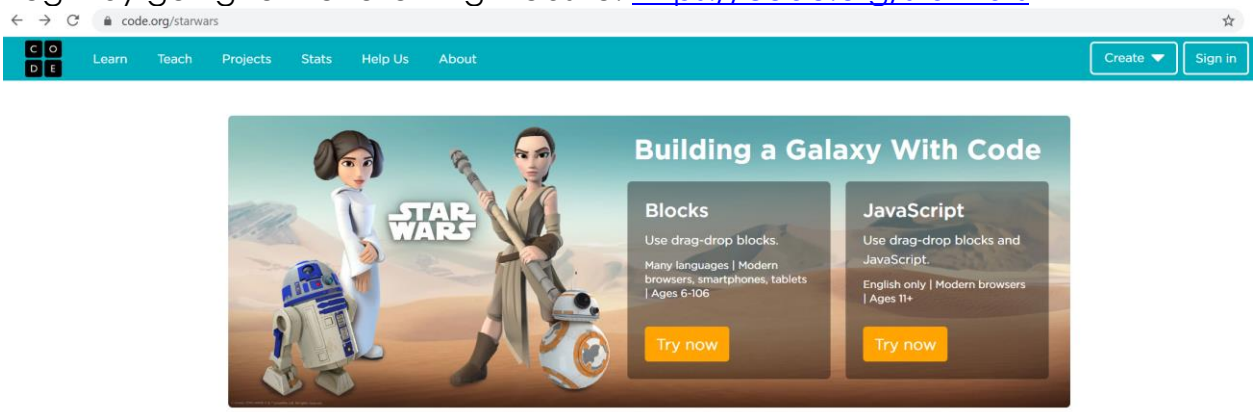
3.

<u>Block Coding – Star Wars</u>

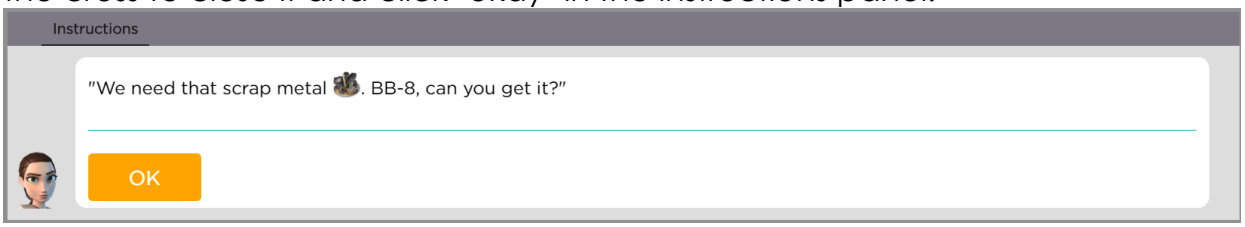
For this task you will need to use a computer or tablet.

This is an hour of code task that will recap the work on block coding that we did in school and is very similar to the Minecraft coding we completed as it is created by the same website code.org.

Begin by going to the following website: https://code.org/starwars

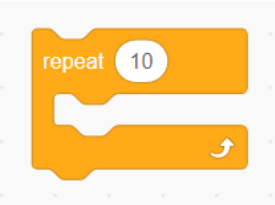
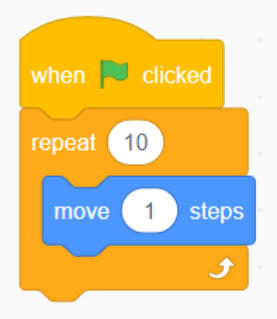
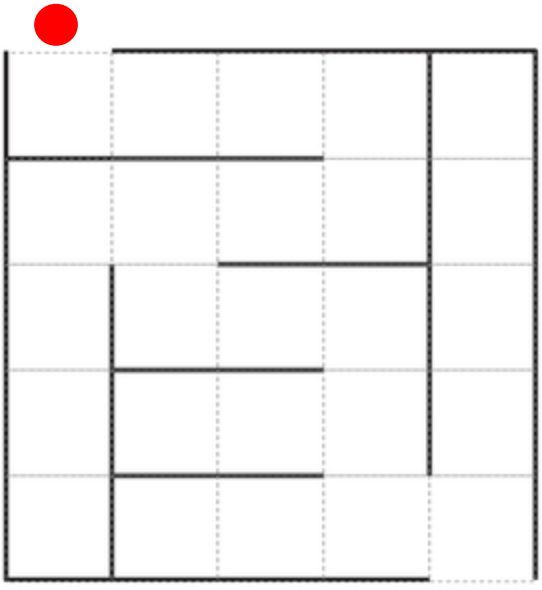


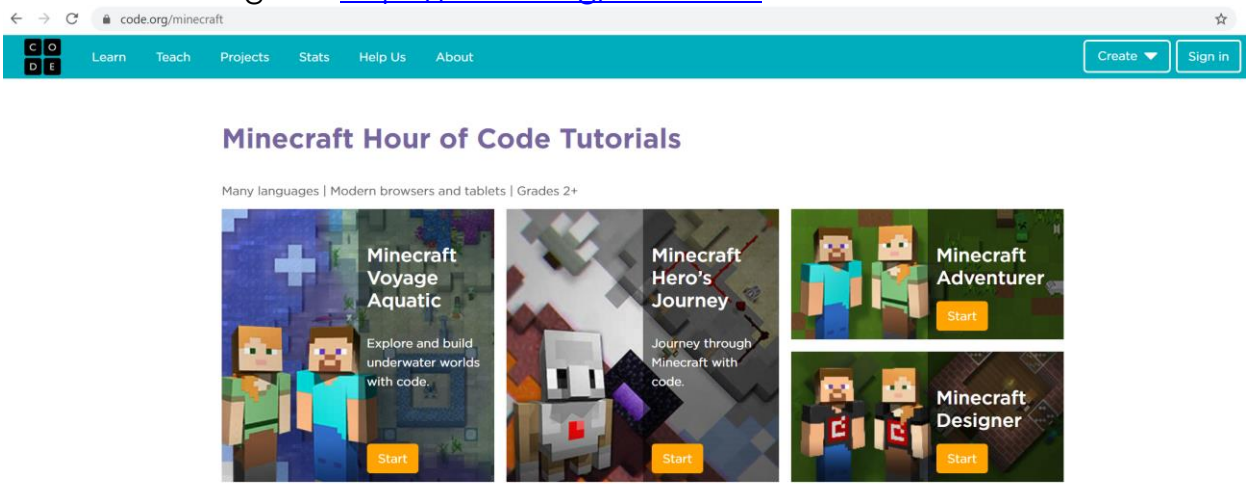
Click on the orange Try now button under the Blocks box. This will take you to the coding page and will begin an introduction video which will talk through how to use the blocks to create the code to control BB-8. Once the video is finished use the cross to close it and click 'okay' in the instructions panel.



You are now set to code! The first 6 levels will get you familiar with using the block codes by helping BB-8 collect scrap metal. Then there is a second video before the start of level 7 which will explain how you are now going to programme your own Star Wars game!

Tips: Don't forget to click run once you are finished writing your code, otherwise R2-D2 won't move and remember to read the instructions as it will tell you what you need to do to complete the level.

	There are 15 levels in total that increasingly allow you to do more with the different characters and sets. It allows you to develop the game how you want it to be. It can be as simple or as challenging as you make it! Can your family win your game? The levels are not always easy so take your time and see how far through you can get and don't forget to have a go at debugging if it doesn't work first time. Have Fun 😊
4.	<u>Using the Repeat Block</u> Sometimes algorithms can become very long when the same actions have to be completed again and again e.g. move forward and one way to shorten them is to use what is called the repeat block.  This block often looks like a moth and can be different colours depending on the program you are using. This orange repeat block comes from the program Scratch. It is a useful command as whatever you put inside will be repeated as many times as you ask it to:  Written as text: 1. When Green Flag is clicked 2. Repeat (move 1 step) 10 times This algorithm will move the sprite forward 10 times when the green flag is clicked. Look at the maze below and the control blocks that you can use. Your task is to write an algorithm that uses the fewest blocks to get out so use the repeat block everywhere you can.  Start Finish Move 1 block up Move 1 block down Move 1 block left Move 1 block right Repeat (10x)

5.	<u>Block Coding – Minecraft Voyage Aquatic</u> This is another hour of code session from code.org so if you have already done task 3 then you will be familiar with the layout and progression of the task. In this task you will also get the chance to put the repeater block to good use. On hour of code the block is pink rather than orange but it does the same job. You will also be introduced to the 'if' block which will cause something to happen IF a condition in met e.g. if (there is a path to the right) then (turn right). Use the following link: https://code.org/minecraft  Then click start on the Minecraft Voyage Aquatic to start your adventure 😊 There are 12 levels this time and the level dots at the top turn green once you have completed each level. If they go dark green, then you have done it in the shortest amount of code but if they are light green then the code you used could be shorter (this could be an extra challenge though it is rather tricky, especially level 6!). You can always go back to a level by clicking on the green dot for the level you want to redo. Level 6 shows the light green:  If you enjoyed the block coding tasks, then you can always explore more of code.org as it has other similar coding tasks and they all have helpful videos and build in difficulty.