

Title: Digital design Programs: Move the Turtle		Year: 6 Duration:
Teaching Ideas	Subject	National Curriculum Objectives
<ul style="list-style-type: none"> - Introduce app and idea purpose. Move the turtle used to teach the basics of coding and computer programming i.e. algorithms, logical reasoning, repetition etc. - Model using Move the Turtle using the in app lessons/tutorials to go through the basic commands and movement instructions. Allow children to attempt opening tutorials for themselves following on screen instructions and guidance. - Once confident with the basic commands within the app (move, turn, set colour, play sound etc.) challenge the children to complete certain challenges within the app or set by teacher i.e. can you draw a square? Can you draw an equilateral triangle? Think to Maths knowledge (angles and sides.) - Introduce concept of designing own repeated pattern/shape drawing. Ask the children to manually design a simple repeated shape pattern or collection of geometric shapes. Children to then try to replicate their design in app by programming the turtle. 	<p>Subject</p> <p><u>Resources</u></p> <p>I-Pads with Move the Turtle app</p> <p><u>Key vocab</u></p> <p><u>Algorithm</u> – an instruction/direction which achieves a goal</p> <p><u>Program</u> – when an algorithm/instruction is inputted on a digital device</p> <p><u>Repetition</u> – programming certain codes to repeat to create more efficient algorithms.</p> <p><u>Input</u> – a movement/action which triggers a program i.e. tilting, tapping, shaking</p>	<ul style="list-style-type: none"> • To use repetition in programs • To use selection in programs • To solve problems by decomposing them into smaller parts • Use logical reasoning to explain how some simple algorithms work. • Work with variables

Title: App design (App Store) Programs: Hopscotch		Year: 6 Duration:
Teaching Ideas	Subject	National Curriculum Objectives
<ul style="list-style-type: none"> - Introduce app and creating own game/app using given characters and coding skills. Focus on characters movement – set challenges for children to follow using basic movement commands i.e. move forward and rotate 90°. Experiment with creating more movement by adding commands to algorithms. Combine 	<p>Subject</p> <p><u>Resources</u></p> <p>I-Pads with Hopscotch app</p> <p><u>Key vocab</u></p>	<ul style="list-style-type: none"> • To use repetition in programs • To use selection in programs • To solve problems by decomposing them into smaller parts • Use logical reasoning to explain how some simple algorithms work.

movement with lines code to create a shape – a square and ask children to draw square using repetitive code.

- Progress to using repetition to create loops of code (i.e. simplifying code and making more efficient) Model how to simplify movement algorithm using repetition. Challenge children to move character from one side to other like climbing a staircase. Children to write code using repeats, screen shot and annotate/dictate.
- In this unit pupils should be given the opportunity to explore the use of inputs within Hopscotch to control the program they code. They may try adding additional objects, achieved by touching the add sign at the top of the screen. Pupils should experiment using the loop function to create more efficient algorithms.

Can you program a simple game in hopscotch?

Pupils should be challenged to code a simple game in Hopscotch : A game in which they have to move their character around and avoid other characters on the Hopscotch stage

The game above would require use of the various tilt inputs to alter the X and Y position of a character so you can move your character by tilting the iPad in various directions. In addition, for the game pupils may add a second character and use the ‘When ... touches.....’ input so a consequence occurs if you touch the other character - such as turning transparent using the opacity command or rotating/growing.

Algorithm – an instruction/direction which achieves a goal

Program – when an algorithm/instruction is inputted on a digital device

Repetition – programming certain codes to repeat to create more efficient algorithms.

Input – a movement/action which triggers a program i.e. tilting, tapping, shaking

- Work with variables
- Work with various forms of input

<p>Games Fair – upon completion of project a Games Fair could be held where children take it in turns to trial and play each other’s games, leaving feedback and suggestions for improvements.</p>		
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