Dishforth C of E Primary School Computing Progression

Computer Science

The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming.

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems

Pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs

Year 1		Year 2	
Understanding algorithms			
Objectives	**Resources**	**Objectives**	**Resources**
Give precise instructions to, and respond to instructions from, other children involving movement around the room	Human Crane **from Phil Bagge, Code It**		
Describe what actions are needed for a particular task (not necessarily an IT one) and begin to use the word algorithm	**Eg how to clean your teeth: remove top, squeeze toothpaste on brush etc** Bee Bot **algorithm cards, Bee bot ipad app**		
		Understand that a number of different algorithms will often all solve the same problem	Bee Bot route cards Bee Bot Best Route Cards
Begin to understand that sequence (order) is important when devising algorithms and programming devices	**Bee Bot**	Begin to understand that sequence (order) is important when devising algorithms and programming devices	**Bee Bot** **Pro Bot** **Roamer** **J2code**

Be able to predict what will happen in an algorithm or program which they may not have written themselves.	**Bee Bot algorithm cards, Bee Bot ipad app** **BeeBot ipad app** **J2code provide sequence of commands, children predict outcome**	Be able to predict what will happen in an algorithm or program which they may not have written themselves.	**Bee Bot algorithm cards, Bee Bot ipad app** **BeeBot ipad app** **J2code provide sequence of commands, children predict outcome**
Understand why algorithms are useful for solving a wide range of problems and that we use algorithms every day	**Read the story of The ant and the grasshopper: A fable of algorithms and** **talk about it with the children (there are many more like it on this site)**	Understand why algorithms are useful for solving a wide range of problems and that we use algorithms every day	**Read the story of The ant and the grasshopper: A fable of algorithms and** **talk about it with the children (there are many more like it on this site)**
Programmable Robots			
Describe clearly what they expect to happen while programming a robot.	**Bee-Bot Algorithm cards – a useful resources when designing algorithms for** **Bee-bot programming away from the device. – Phil Bagge**	Describe clearly what they expect to happen while programming a robot.	**Bee-Bot Algorithm cards – a useful resources when designing algorithms for** **Bee-bot programming away from the device. – Phil Bagge** **Probot could also be used**
Begin to understand that sequence (order) is important when devising algorithms and programming devices	**Phil Bagge Bee Bot Year 1 planning**	Begin to understand that sequence (order) is important when devising algorithms and programming devices	**Phil Bagge Bee Bot Year 2 planning**
Be able to predict what will happen in an algorithm or program which they may not have written themselves.	**Bee Bot algorithm cards, Bee Bot ipad app** **BeeBot ipad app** **J2code provide sequence of commands, children predict outcome** **2Go**	Be able to predict what will happen in an algorithm or program which they may not have written themselves.	**2Go (use higher levels)**
Be able to execute a program, observe the results carefully spot errors and be able to debug them.	**Phil Bagge Bee Bot Year 1 planning**	Be able to execute a program, observe the results carefully spot errors and be able to debug them	**Year 2 could begin to use Probot (begin to write more efficient programs eg use repeats to draw a square)** **Phil Bagge Bee Bot Year 2 planning**

Understand that programs respond to inputs to carry out actions.	Phil Bagge Bee Bot Year 1 planning	Understand that programs respond to inputs to carry out actions. Use different kinds of inputs in programming (key press, mouse click tap on a sprite, automated start condition …)	Phil Bagge Bee Bot Year 2 planning
Programming on Screen			
Understand that a number of different algorithms will often all solve the same problem.	**J2 code** **2 GO** **Bee Bot ipad app**	Understand that a number of different algorithms will often all solve the same problem.	****The link to Scratch Junior activities below is an excellent set of 8 activities that will build up the children's skills and prepare them well for work in KS2 on Scratch**
Describe clearly what they expect to happen while programming a robot.	**J2 code** **2 GO**	Describe clearly what they expect to happen while programming a robot.	**Scratch Junior** Drive Across the City
Begin to understand that sequence (order) is important when devising algorithms and programming devices	**J2 Code** **Bee bot app** **2Go**	Begin to understand that sequence (order) is important when devising algorithms and programming devices	**Scratch Junior programming activity – Drive across the city – Sprite selection and programming simple movement**
Be able to predict what will happen in an algorithm or program which they may not have written themselves.	**J2 Code** **Bee bot app** **2Go**	Be able to predict what will happen in an algorithm or program which they may not have written themselves.	Dance Party Scratch Junior **Background and Sprite selection, programming movement and sound, programming events on sprite collision.**
Write programs successfully to create movement on-screen. Be able to execute a program, observe the results carefully spot errors and be able to debug them.	**J2 code** **2Go**	Write programs successfully to create movement on-screen. Be able to execute a program, observe the results carefully spot errors and be able to debug them.	Dribbble a Basketball **- Background and** **Sprite selection, programming movement, beginning to use repeat commands.**
Understand that programs respond to inputs to carry out actions.	**J2Code** **2Go** **Bee bot app**	Understand that programs respond to inputs to carry out actions.	**As above**