St Joseph's Catholic Primary School

Computing Progression Document

Our Computing Progression Document has been written by St Joseph's Catholic Primary School. It has been agreed by senior management.

The Progression Document was revised by: Dawn Guy

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Contents

Document intent

This document sets out to show the progression of typical learning in computing in St Joseph's Catholic Primary School. At St Joseph's Catholic Primary School we expect the majority of children in each cohort to be working at the expected standard as described in the tables below by the end of their school year. We understand that there will be a number of children who do not meet the expected criteria at this time, this group of children will be working towards in their year group. There will be a group who have met the expected standard and are working at greater depth showing mastery in computing for their particular year - not working at the level of the cohort above them. At St Joseph's Catholic Primary School we endeavour to support all children in reaching their full potential in computing and provide opportunities for children to gain mastery.

Whilst we operate a two year cycle owing to mixed cohorts, children who are working on a unit in a different year group will have the opportunity to develop or deepen their skills appropriate for their abilities.

Year 1	In computing most of our Year 1 children	While some children
Computer Science	● use the word algorithm correctly, explaining that it is a list of clear instructions ● can follow a simple algorithm (like a recipe, or rules for a game) ● can put a sequence in the correct order ● know that if one part of the algorithm changes then the end result will be different ● can name devices in school and at home that use an algorithm to work (a washing machine, alexa, BeeBot) ● can construct their own algorithm (pictures, symbols, emergent writing or verbally) to complete an action (draw a face, move a BeeBot, make a sandwich)	● identify when instructions are not clear enough and are beginning to make suggestions to improve them ● make suggestions about how a wide range of devices might work
IT and Digital Literacy	● can open a program and create work for a given task (e.g. open 2paint and produce a digital image, open 2publish+ and input text and images)	● describe the difference between some digital forms of media (music, images, film, ebooks etc.)

	● name different types of computer produced work (e.g. words, pictures, music, films) ● talk about their work and suggest ways to improve it ● are beginning to save their work in the correct folders as directed by staff ● share their use of technology outside of school, naming common devices and their functions (computer/laptop, tablet devices, smart home devices) ● login and off the school network with increasing speed and accuracy using appropriate scaffolding ● list what personal information to keep private ● name at least one action to follow if they have concerns about their online safety	and can make attempts at explaining the different ways that they communicate information ● know that computers have no intelligence and that computers can do nothing unless a program is run
Year 2	In computing most of our Year 2 children	While some children
Computer Science	● explain what the word algorithm means using the words 'unambiguous' and 'precise' correctly in their definition ● create their own simple (linear) algorithms ● explain what the endpoint of an algorithm will be (e.g. predict where a BeeBot will travel to by reading a program of arrows arrows) ● identify mistakes/errors in algorithms and make suggestions about how to make improvements (debug)	● produce longer algorithms ensuring precision and accuracy ● are beginning to use the word 'if' to suggest that there could be a choice made between two instructions
IT and Digital Literacy	● can select or name software/app that would be appropriate for a simple given task ● use a wider range of programs to accomplish more complex tasks (e.g. produce graphs, access age appropriate databases) ● can open a saved piece of work, edit the project and resave with increasing accuracy ● can find relevant content for a topic from the world wide web using a web browser ● login without support	● compares different media types and can accurately discuss these using appropriate vocabulary and in terms of the corresponding software or applications ● know that all software executed on digital devices is programmed

	● explain how to use technology safely ● can explain the importance of keeping passwords secret and protecting other personal information	
Year 3	In computing most of our Year 3 children	While some children
Computer Science	● can read simple linear algorithms in a familiar programming language (e.g. Scratch, Lego WeDo) ● are able to predict what the outcome of a program will be, run the program and check their results ● plan and design a program for a specific task ● find and correct errors i.e. debugging in an algorithm written in a familiar programming language ● show the use of sequence and repetition in programs	● are beginning to identify errors in programs before the program is executed ● are beginning to explore new code blocks and ask 'what happens if?', making changes to the code to produce new results
IT and Digital Literacy	● refine projects that include text, sound and graphics that produce a digital artefact with a given purpose ● collect images from devices or the internet and use simple editing tools ● collect information from a range of sources and use this to find answers to questions ● discuss how to improve their work and knows that by using technology any editing can be made more quickly ● use the internet to carry out simple web searches to collect digital content ● show an awareness of copyright and understand that digital work belongs to the author ● know a range of ways to report unacceptable content they might encounter online ● discuss what is appropriate contact when online	● show increasing awareness of the quality of their digital work ● begin to experiment with more complex editing features to produce different effects (e.g. using tables, different types of image, visual effects, layering of sound)

Year 4	In computing most of our Year 4 children	while some children
Computer Science	● read increasing complex programs in a familiar programming language and can suggest plausible meanings for new blocks of code ● can produce diagrams to show how the code could look before creating blocks of code on screen ● know that programs can work with different types of data (text, numbers, sound) ● are able to use a range of input and output devices (sensors, motors etc.)	● are increasingly accurate when predicting outcomes that include inputs and outputs ● produce code that is increasingly fluent (avoids unnecessary repetition, includes fewer errors, has been tested) and can read this explaining exactly what will happen
IT and Digital Literacy	● capture good quality still and moving images considering the purpose and the audience ● plan, produce and edit a media project (presentation, animation, film) taking into account the audience and the copyright of resources ● can explain the difference between data and information ● can organise data in a table to make it useful ● use a spreadsheet to produce simple graphs ● explain how and when to use range on online services responsibly, identifying possible risks and how they can be reduced	● give examples of other media choices that could have been used ● compare graphs and charts and explains what they show

Year 5	In computing most of our Year 5 children	while some children
Computer Science	● plan and design a solution (algorithm) that uses repetition and two-way selection i.e. if, then and else ● can explain the difference between 'if', 'then' and 'else' statements ● can independently declare and assign variables ● show an awareness of tasks best completed by humans or computers ● know that different solutions exist for the same problem	● are beginning to use nested 'if' statements ● understands the need to build in an 'end' to a program possibly by using a variable
IT and Digital Literacy	● know the difference between the internet and internet service e.g. the World Wide Web ● compare the difference between hardware and application software, and the roles within a computer system ● produce their own success criteria to evaluate their own work and that of others ● use the criteria to improve the content and design of their digital project ● collect data in a variety of ways, use this to produce graphs or charts which are used in appropriate software to present the analysis ● make spreadsheet models to answer given problems, using a range of simple calculations and functions	● label a simple network diagram naming and can add devices and connections to show new scenarios ● justify media choices used in projects ● give examples of how digital models can be used to find solutions
Year 6	In computing most of our Year 6 children	while some children
Computer Science	● use decomposition to plan and design solutions for different parts of a problem ● design, write and debug modular programs using procedures ● know that a procedure can be used to hide the detail with a sub-solution (procedural abstraction)	● demonstrate confidence when using a range of physical systems (e.g. Lego EV3, Raspberry Pi, microbit) applying what has been learned in one computing environment to another

IT and Digital Literacy	• work with increasing confidence both independently and as a group to create a digital project, which
	  ○ meets a brief / solves a problem
	  ○ has used a range of appropriate software
	  ○ has been created for a targeted audience
	  ○ demonstrates an awareness of copyright
	  ○ shows evidence of evaluation and improvement
	• analyse and evaluate data and know that poor quality data leads to unreliable results, and inaccurate conclusions
	• can represent data in a variety of formats (charts, tables, graphs, infographics) and can explain when each would be appropriate
	• know how to effectively use search engines, and know how search results are selected, including that search engines use 'web crawler programs'
	• perform more complex searches for information e.g. using Boolean and relational operators.
		• prioritise the user experience in their digital work at the expense of their own preference
		• investigate data, finding patterns and suggest ways of using the results in other ways
		• compare search results for accuracy and show an awareness of validity

Additional Useful Documents

- The National Curriculum
- Early years Outcomes (technology page 29)
- CAS computing progression pathways
- Education for a connected world
- South West Grid for Learning's Digital Literacy curriculum - 'Project Evolve'

Additional Useful Resource Sites

- Barefoot computing
- Computing at School
- National Centre for Computing Education NCCE