Robert Miles Infant School

COMPUTING

Document 1: Whole School Knowledge Progression

Robert Miles Infant School

Computing Intent / Rationale:

We believe that the knowledge and skills taught within Computing lessons are essential for all children in order to prepare them for the digital world of today and the future. Through our computing curriculum, we aim to enable our children to safely participate and thrive in a rapidly changing world, where work and leisure activities are increasingly transformed by technology.

In the Early Years Foundation Stage, we aim to develop children's curiosity and introduce them to the computing curriculum through exposure and access to a range of everyday technology and age-appropriate technology. We want our youngest children to be enthusiastic about using computing and other ICT equipment and to prepare them for the Year 1 curriculum.

By the end of their infant school years, our pupils will be able to use their knowledge and understanding to work skilfully with a range of software; use computational thinking to solve problems and demonstrate how they can protect themselves online.

Core Principles for the Teaching of Computing at Robert Miles Infant School

Pupils at Robert Miles Infants will learn through a Computing curriculum that teaches them to:

- use the internet responsibly - knowing how and why they need to keep safe online;
- communicate ideas and engage with cross-curricular learning through interacting with a variety of technology;
- understand and apply the essential principles and concepts of Computer Science, including computational thinking, creating and debugging programs, and developing their logical reasoning skills;
- develop creativity, resilience and critical thinking skills through problem solving activities;
- use and understand specific vocabulary linked to the computing curriculum.

EYFS (Reception)	
40-60 months *(Pre Sept 2021)*	▪ Completes a simple program on a computer. ▪ Uses ICT hardware to interact with age-appropriate computer software.
Early Learning Goal *(Pre Sept 2021)*	Aspect/Area: **Technology (Understanding the World)** **Children recognise that a range of technology is used in places such as homes and schools.** **They select and use technology for particular purposes.**
EYFS Revised Curriculum *(From Sept 2021)*	Technology strand has been removed. As a school, we will continue to use technology to support and enrich the curriculum as appropriate and in preparation for learning in Year 1.

The National Curriculum for Computing aims to ensure that all pupils:	**KS1 pupils should be taught to** (NC subject content):
▪ 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; ▪ can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems; ▪ are responsible, competent, confident and creative users of information and communication technology.	▪ understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions; ***Computer Science*** ▪ create and debug simple programs; ***Computer Science*** ▪ use logical reasoning to predict the behaviour of simple programs; ***Computer Science*** ▪ use technology purposefully to create, organise, store, manipulate and retrieve digital content; ***Information Technology*** ▪ recognise common uses of information technology beyond school; ***Digital Literacy*** ▪ use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. ***Digital Literacy***

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RMI school-wide threads:

- **Positive Attitudes for Learning (PAL):** *We will develop positive learning behaviours and attitudes, focusing on engagement, motivation and critical thinking.*
- **Equality and Diversity**: *We aim to provide an equitable start for our children, where communalities and differences are valued and celebrated. Our pupils will develop cultural awareness through a diverse and inclusive curriculum.*
- **Reading at the heart of everything we do**: *We will develop confident readers, instil a love of reading and provide purposeful cross-curricular reading opportunities.*
- **Develop an understanding of how to care for our environment:** *We will support children to take an interest and responsibility, as global citizens and custodians of our planet.*

Concepts of our Computing curriculum at RMI:

- **E-Safety:** *We will use every opportunity to ensure children are taught about internet safety and know how to keep themselves safe online.*
- **Technology is all around us:** *We will ensure children are aware of the wide and varied uses of technology in and out of school and how they impact on our lives.*

	Reception	Year 1	Year 2	Year 3 (Robert Miles Junior School)
Computer Science *Programming*	➢ I know that I have to give a programmable-toy instructions to make it move. ➢ I know how to program a floor robot to make it move in the direction I want it to. ➢ I can predict the outcome of a simple set of instructions and test the results.	➢ I can follow a given sequence to program a floor robot, including forwards, backwards and turns. ➢ I can use symbols to represent an instruction in the correct order, e.g. ↑→ for forward and turn right. ➢ I know that an algorithm is a set of clear and precise instructions, that must be followed in order, to solve a problem or achieve an objective. ➢ I know that an algorithm written for a computer is called a program. ➢ I can work out what is wrong with a simple algorithm when the steps are out of order. ➢ I can read code one line at a time and make good attempts to envisage the overall effect of the program.	➢ I can explain that an algorithm is a set of instructions to complete a task. ➢ I understand that a sequence of instructions must be clear, precise and unambiguous. ➢ I know how to use numbers, as well as symbols, to specify movements e.g. forward 4 rather than ↑↑↑↑ ➢ I can create a simple algorithm (program) for a specific purpose. ➢ I can identify specific parts of program and know how to correct some errors, e.g. Debug Challenges on Purple Mash.	➢
Tier 2 & 3 Vocabulary	Program, Rules, Instructions, Predict, Outcome, Floor robot, BeeBot, Buttons, Arrows, Direction, Forwards, Backwards	Algorithm, Program, Sequence, Symbol, Precise, Debug, Error, Input /Output, Predict, Repetition	Algorithm, Program, Sequence, Symbol, Precise, Debug, Error, Input, Output, Repetition	

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	Reception	Year 1	Year 2	Year 3 (Robert Miles Junior School)
Information Technology	➢ I know how to take a photograph on a digital camera/iPad. ➢ I know that photographs can be stored & retrieved. ➢ I know that information can be retrieved from computers and, as a class, look at age appropriate websites to support research of a particular topic. ➢ I know technology can be used for playing games and can use a computer or tablet to play simple, interactive game ➢ I know how to type my name on the keyboard. ➢ I know how to use a paint program to create a simple picture, including changing the colour. ➢ I can talk about information (data) presented in simple pictograms / charts.	➢ I know how to log onto school computers, with some support. ➢ I can access and complete a simple, interactive game on a computer or tablet. ➢ I can use the keyboard to type words and phrases, locating letter keys, number keys and simple punctuation. ➢ I know what the space bar is and can use it to make spaces between words. ➢ I know how to use a paint program to create pictures, changing the size of the pen and using the shape tool. ➢ I know how to add images / animations / sound effects to my work, and begin to change some of the design features, e.g. backgrounds, size of text. ➢ I can enter data into a simple pictogram / chart, and use it to find answers to simple questions. ➢ I can enter data into a spreadsheet and begin to explain what the data tells us. ➢ I can save my work in a designated space/folder with some support and know that it can be retrieved at a later stage.	➢ I know how to log onto the school computers. ➢ I can use the keyboard to type words and sentences, using the shift key for capital letters and the space bar between words. ➢ I know how to change the size and colour of the font. ➢ I can use a range of tools and brush styles on a paint program to create a picture. ➢ I know that computers can be used to store and organise information. ➢ I can use a familiar program to create a simple factsheet, using a range of media, e.g. photos, text and sound. ➢ I know that search engines can be used to find information about a given topic and can use one to retrieve relevant, purposeful content. ➢ I know how to save my work in a designated space /folder and can how to retrieve it at a later date.	➢
Tier 2 & 3 Vocabulary	Technology Computer Monitor Screen Keyboard Mouse Internet Website Search Research Information Photograph Camera Save / Print Pictogram Chart	Data Save Retrieve / Open Folder Program Tools Search Engine Presentation Text / Type Space bar Image Animation Sound Multimedia Pictogram	Data Save Retrieve / Open Folder Program Tools Digital Search Engine Presentation Text Sound Film Multimedia Modern Technology	

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	Reception	Year 1	Year 2	Year 3 (Robert Miles Junior School)
Digital Literacy Inc. E-Safety	➢ I know and can identify examples of everyday technology in school and at home and begin to talk about its purpose. ➢ I can talk about what I am doing on a computer. ➢ I know why it is important to be kind and polite to other people and know I can speak to an adult if someone is unkind to me. ➢ I know what the internet is and understand that websites can be used to find out information. ➢ I know to tell an adult if I see something that makes me feel worried, scared or sad. ➢ I can talk about the games and activities I like to use on computers and other devices, e.g. tablets, phones.	➢ I know what is meant by 'technology' and can identify a variety of examples in and out of school. ➢ I can identify objects that use modern technology and those that do not, e.g. *a microwave* vs. *a chair*. ➢ I know it is important to be kind and polite, including when online, and know what I should do if someone is unkind to me. ➢ I know that not everyone is who they say they are on the internet. ➢ I know what personal information is (e.g. name, age) and understand that I should not share this online. ➢ I can talk about some of the ways to keep safe online. ➢ I know to tell an adult when I see something unexpected or worrying online. ➢ I know and understand why we have to log-in to use a computer and why I should keep my password safe. ➢ I know the internet can give me information about a given topic, and can use it for this purpose as part of a class or supervised group.	➢ I know what is meant by 'technology' and can identify a variety of examples in and out of school. *(Revisit from Y1)* ➢ I know why it is important to be kind and polite, including when online and know what I should do if someone is unkind to me. ➢ I know that some devices can connect users with other people, e.g. phones, internet, Xbox etc., and know that things can be shared electronically. ➢ I know it is important to have separate log-ins / passwords to shared computers and can explain why to another person. ➢ I know that not everyone is who they say they are on the internet. *(Revisit from Y1)* ➢ I know what personal information is and can explain why I should not share this online. ➢ I can agree and follow sensible e-safety rules. ➢ I know to tell an adult when I see something unexpected or worrying online. *(Revisit from Y1)* ➢ I can use the internet safely to search for information linked to a given topic, under the supervision of a teacher. ➢ I know what a digital footprint is and give some examples.	➢
Tier 2 & 3 Vocabulary	Internet, Online, Website, Device, Computer, Phone, Tablet, Console, Rules, Permission, Personal information, Safety, Stranger Danger	Technology, Internet / Online, Communication, Cyberbullying, Personal Information, Permission, Log-in / Password, Rights, Privacy, Devices	Technology, Internet / Online, Communication, Cyberbullying, Personal Information, Permission, Unexpected, Rights, Privacy, Devices	