Computing
Progression of skills and knowledge

	Working towards A.R.E.	A.R.E	Above A.R.E.
Year 3			
<u>Computer Science</u> 1. *Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection and repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.* 2. *Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for*	● 1.The learner's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. ● 2.The learner can list a range of ways that the Internet can be used to provide different methods of communication.	● 1.The learner demonstrates the ability to design and code a program that follows a simple sequence. ● The learner can experiment with timers to achieve repetition effects in their programs. ● The learner is beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. ● 2.The learner can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails, for example when using 2Email.	● 1.The learner can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. ● The learner's design shows that they are thinking of the desired task and how this translates into code. ● The learner can identify an error within their program that prevents it following the desired algorithm and then fix it.

communication and collaboration.			
Information Technology 1. *Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.* 2. *Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.*	● 2.The learner can carry out simple searches to retrieve digital content	● 1.The learner can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database (2Question), using software such as 2Graph. ● 2.The learner understands that to carry out a search, they are connecting to the internet and using a search engine such as Purple Mash search or internet-wide search engines.	● 1.The learner can consider what software is most appropriate for a given task. ● The learner can create purposeful content to attach to emails, e.g. 2Respond.
Digital Literacy *Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact.*	● The learner demonstrates an understanding of the need for a secure password and not sharing this with anyone else. ● The learner knows what is meant by personal information.	● The learner can explain the negative implications of a failure to keep passwords and personal information safe and secure and are familiar with terms such as a 'digital footprint'. ● The learner can understand the importance of staying	● The learner knows more than one way to report unacceptable content and contact, including cyberbullying.

		safe and the importance of their conduct when using familiar communication tools such as an email in a web browser or 2Email in Purple Mash. ● The learner understands that an adult needs to know what they are doing online	

Year 4

| Computer Science

1. *Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection and repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.* | ● 1.The learner's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'IF' statements, repetition and variables.
● The learner can trace code and use step-through methods to identify errors in code and make logical attempts to correct this.
● In programs such as Logo, the learner can 'read' programs with several steps | ● 1.The learner makes more intuitive attempts to debug their own programs.
● The learner's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs.
● The learner can understand 'IF statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs.
● As well as understanding how variables can be used to store information while a | ● 1.When turning a real-life situation into an algorithm, the learner's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. |

2. *Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration.*	and predict the outcome accurately. ● 2.The learner recognise the main component parts of hardware which allow computers to join and form a network.	program is executing, the learner is able to use and manipulate the value of variables. ● The learner can make use of user inputs and outputs such as 'print to screen'. e.g. 2Code. ● 2. The learner's ability to understand the online safety implications associated with the ways the Internet can be used to provide different methods of communication is improving.	
<u>Information Technology</u> 1. *Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing,*	● 1.The learner is able to make improvements to digital solutions based on feedback. ● 2. The learner can understand the function, features and layout of a search engine.	● 1.The learner makes informed software choices when presenting information and data. ● The learner can create linked content using a piece of software, with some support. ● 2. The learner can appraise selected webpages for	● 1.The learner can independently create linked content using a range of software such as 2Connect and 2Publish+. ● The learner can share digital content within their community, i.e. using Virtual Display Boards

evaluating and presenting data and information. 2. *Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.*		credibility and information at a basic level.	
<u>Digital Literacy</u> *Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact.*	● The learner understands the need for rules to keep them safe when exchanging ideas online. ● The learner can understand that an adult needs to know what they are doing online and understand how to report concerns, including cyberbullying. ● The learner can explore key concepts relating to online safety using concept mapping such as 2Connect.	● The learner recognises the need to choose age-appropriate games to play on their devices, and when to limit use. ● The learner can recognise the need to protect their devices from viruses. ● The learner understands that any personal information they put online can be seen and used by others (a digital footprint). ● The learner can also help others to understand the importance of online safety.	● The learner knows a range of ways of reporting inappropriate content and contact. ● The learner can recognise that they can use online tools to collaborate and communicate with others and the importance of doing this responsibly, choosing age-appropriate websites. ● The learner recognises the effect their writing or images might have on others.
Year 5			
<u>Computer Science</u>	● 1.When the learner codes, they are beginning to think about their code structure	● 1.The learner can translate algorithms that include sequence, selection and	● 1.The learner may attempt to turn more complex real-life situations into

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2. *Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration.*

in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables.

- 2.The learner understands the value of computer networks but are also aware of the main dangers.

repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures.

- The learner can combine sequence, selection and repetition with other coding structures to achieve their algorithm design.

- 2.The learner can select the most appropriate form of online communications contingent on audience and digital content, e.g. 2Blog, 2Email, Display Boards.

algorithms for a program by deconstructing it into manageable parts.

- The learner is able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code.

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Information Technology			
1. Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. 2. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	• 1.The learner is able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g. creating their own program to meet a design brief using 2Code. • 2.The learner can search with greater complexity for digital content when using a search engine.	• 1.The learner can objectively review solutions from others. • 2.The learner is able to explain in some detail how credible a webpage is and the information it contains.	• 1. The learner is able to collaboratively create content and solutions using digital features within software such as collaborative mode. • The learner is able to use several ways of sharing digital content, i.e. 2Blog, Display Boards and 2Email.
Digital Literacy Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact.	• The learner understands the need to keep personal information and passwords private, and know how to choose a secure password. • The learner can understand appropriate and inappropriate use of the Internet including excessive use.	• The learner has a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. • The learner can recognise the risks and rewards of using Internet	• The learner implicitly relates appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others. • The learner can understand the need to respect the rights of other users, and understand their own responsibility for

		communication tools and understand how to protect themselves and the devices they use.	information that is shared and how it may impact on others.
Year 6			
<u>Computer Science</u> *1.Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection and repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.* *2. Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide*	● 1.Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions. ● 2.The learner can understand and can explain in some depth the difference between the internet and the World Wide Web.	● 1.The learner is able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole. ● The learner can test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem. ● The learner can translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such	● 1.The learner is able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs.

Web, and the opportunities they offer for communication and collaboration.		structures, including nesting structures within each other. ● 2.The learner knows what a WAN and LAN are and can describe how they access the internet in school.	
<u>Information Technology</u> 1. *Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.* 2. *Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.*	● The learner can make clear connections to the audience when designing and creating digital content. ● 2.The learner can readily apply filters when searching for digital content.	● 1.The The learner can design and create their own blogs to become a content creator on the internet, e.g. 2Blog. ● 2.The learner is able to explain in detail how credible a webpage is and the information it contains. ● The learner can compare a range of digital content sources and are able to rate them in terms of content quality and accuracy..	● 1.The learner is able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements ● 2.The learner can use critical thinking skills in everyday use of online communication
<u>Digital Literacy</u>	● The learner can recognise their own right to be	● The learner can understand how to use social	● The learner can recognise the value in preserving their

Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact.	protected from the inappropriate use of technology by others and their responsibility to report concerns. ● The learner can understand the need to respect the rights of other users, and understand their own responsibility for information that is shared and how it may impact on others.	networking websites appropriately, keeping an adult informed about their online activity. ● The learner makes good choices when they present themselves online. ● The learner can recognise the appropriate online tools to collaborate and communicate with others, understanding how to protect themselves from cyberbullying or causing hurt to others, especially when using social networks (including online gaming communities).	privacy when online for their own and other people's safety. ● The learner can identify more discreet inappropriate behaviours through developing critical thinking, e.g. 2Respond activities.