



South Rise Primary School Computing Curriculum 2019-2020

The core principles of the computing curriculum

The four main aspects of the new computing curriculum underpin all teaching and learning in South Rise Primary School.

1. Programming, coding and control
2. How computers work
3. Using technology effectively
4. Online Safety

Year 1 Computing curriculum

Strand	Programme of study Requirements	Key skills	Resources	Links to other areas of the curriculum.
KS1 Programming, coding and control.	<p>- Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions.</p> <p>- Create and debug simple programs.</p> <p>- Use logical reasoning to predict the behaviour of simple programs.</p>	<ul style="list-style-type: none"> Recognise computational thinking by following instructions Simple instructions can be written to move an object around a course or within a route Apply understanding of instructions to create simple shapes or follow a route. Understand how to plan and create a series of basic instructions to move a computer device around a course or within route. Understand that instructions are needed to move control devices, such as Beebots. Correct errors in the code and begin to identify this as debugging. 	<p>Beebot devices or Beebot apps on ipads</p> <p>Use of bee bot maps and interactive programme on IWB.</p> <p>Applications on KS1 iPads include;</p> <ul style="list-style-type: none"> Beebot app Daisy the dino 	<p>Literacy-instructional writing.</p> <p>DT/Art-Construction of a course that the Beebot can go round and a cover for the Beebot to wear. This could suit the environment of the course.</p>
KS1 How computers work	<p>- Recognise common uses of information technology beyond school.</p>	<ul style="list-style-type: none"> Recognise different types of information comes from many different sources e.g. using web sites, TV, ipads, etc... Develop children's familiarity with a computers uses. Begin to recognise the opportunities that computers offer to the people, work and everyday life. 	<p>This will be an ongoing discussion throughout activities being complete.</p>	
KS1 Using technology effectively	<p>- Use technology purposefully to create; organise, store, manipulate and retrieve digital content.</p>	<ul style="list-style-type: none"> Understand how to take photos and videos on computer devices. Use simple authoring tools to create their own content and begin to add basic effects to sections of text, changing the 	<ul style="list-style-type: none"> Book creator Comic life 	<p>Literacy-poster, advert, interview,</p>

		font size and colour. <ul style="list-style-type: none"> • Apply photographs, drawings and sound to a computer device. • Understand how to save and retrieve work to build upon activities overtime. 		
KS1 Online Safety	- 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.	<ul style="list-style-type: none"> • Recognise the importance of keeping information private. • Understand how ones actions online can affect others. • Be aware of where to go or who to talk to if one feels vulnerable. • Understand how the internet stores information. 	This will be an ongoing discussion throughout activities being complete and during termly assemblies.	
Assessment	<u>Below expectation</u>	<u>Meeting expectation</u>	<u>Above expectation</u>	
Names of children				

Year 2 Computing curriculum				
Strand	Programme of study Requirements	Key skills	Resources	Links to other areas of the curriculum.

<p>KS1 Programming, coding and control.</p>	<p>- Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions.</p> <p>- Create and debug simple programs.</p> <p>- Use logical reasoning to predict the behaviour of simple programs.</p>	<ul style="list-style-type: none"> • Understand instructions needed to move control devices, such as Beebots. • Use a control device to plan and create a set of commands for a computer device to follow. • Apply understanding of instructions to create shapes or follow a pattern/ route. • Use knowledge of computational thinking to apply changes to a mistake (debugging) • Combine sequences of instructions to achieve an outcome. • Make logical predictions for outcomes. • Begin to apply knowledge of computational thinking for instructions to an on-screen devices such as scratch. 	<p>Beebot devices or Beebot apps on ipads.</p> <p>Applications on KS1 iPads to include:</p> <ul style="list-style-type: none"> • Scratch jnr/ scratch life • Bee-bot • Daisy the dino 	<p>Literacy- instructional writing. DT/Art- Construction of a course that the Beebot can go round and a cover for the Beebot to wear. This could suit the environment of the course.</p>
<p>KS1 How computers work</p>	<p>- Recognise common uses of information technology beyond school.</p>	<ul style="list-style-type: none"> • Continue to recognise that different types of information come from many different sources e.g. sharing information through twitter. • Continue exposure to computing where possible and increase independence on a range of technology devices. • Understand the opportunities that computers offer to the people, work and everyday life. 	<p>This will be an ongoing discussion throughout activities being complete.</p>	
<p>KS1 Using technology</p>	<p>- Use technology purposefully to create; organise, store, manipulate and retrieve digital</p>	<ul style="list-style-type: none"> • Use some authoring tools to create their own content and begin to add basic effects for purpose such as 	<ul style="list-style-type: none"> • Book creator • Comic life • Microsoft word 	

effectively	content.	<p>changing the font size, background colour, adding sound etc...</p> <ul style="list-style-type: none"> Using photographs, making videos and creating images on a computer device for a range of purposes to enhance an outcome. Continue to work on understanding how to save and retrieve work on multiply devices to build upon activities overtime. Have an awareness of a user when creating an outcome. 		
KS1 Online Safety	- 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.	<ul style="list-style-type: none"> Recognise the importance of keeping information private. Understand how ones actions online can affect others. Be aware of where to go or who to talk to if one feels vulnerable. Understand how the internet stores information. 	This will be an ongoing discussion throughout activities being complete and during termly assemblies.	
Assessment	<u>Below expectation</u>	<u>Meeting expectation</u>	<u>Above expectation</u>	
Names of children				

Year 3 Computing curriculum

Strand	Programme of study Requirements	Key skills	Resources	Links to other areas of the curriculum.
<p>KS2 Programming, coding and control.</p>	<p>- 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.</p>	<ul style="list-style-type: none"> • Recognise basic language such as algorithm, program and debug. • Apply knowledge of creating basic sequence of instructions for a programmable device on screen. • Understand how different variables can be changed and the effect this has on an outcome. • Understand the need for repetition when programming. • Understand how to debug and problem solve to improve an outcome. • Make logical predictions for outcomes based on understanding of selections, specific goals and variables. • With support, consider their audience when developing a project such as the creation of an online game. 	<p>Applications on KS2 iPads:</p> <ul style="list-style-type: none"> • Scratch jnr app • A.L.E.X. • Hopscotch • Cargo bot • Tynker 	<p>Science, Literacy, Music, Maths,</p>
<p>KS2 How computers work</p>	<p>- Understand computer networks including the internet; how they can provide multiple services, such as World Wide Web. - Understand the opportunities (networks)</p>	<ul style="list-style-type: none"> • Understand that computing enables access to a wider range of information and tools to help find specific information. • To identify how different web pages are organised and why. • Recognise the importance of 	<p>This will be an ongoing discussion throughout activities being complete.</p>	

	offer to communication and collaboration .	networks and how they can contribute to everyday life.		
KS2 Using technology effectively	- 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.	<ul style="list-style-type: none"> • Understand how computers can allow easy creation, manipulation and change. • Use authoring tools independently to create their own content and to add effects for purposes such as changing the font size, background colour, transitions, adding sound, changing layout etc... • Use images or videos for a range of purposes to enhance an outcome. (Teacher will need to support pupils) • Continue to work on understanding how to save and retrieve work on multiple devices to build upon activities overtime. • Create a high quality outcome for a targeted audience. 	http://photosynth.net/create.aspx Use this to create 3D images of an object. <ul style="list-style-type: none"> • iMovie • Book creator • Appshed • Padlet • Popplet lite • Pages • Key note • Educreations • Microsoft office packages 	
KS2 Online Safety	- Use search technologies effectively , appreciate how results are selected and ranked, and be discerning in evaluating digital content. - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	<ul style="list-style-type: none"> • Recognise the importance of keeping information private. • Understand how their actions online can affect others or themselves. • Be aware of where to go or who to talk to if one feels vulnerable. • Understand how the internet stores information. • Understand that not all information found on the internet is factually correct. • Understand the importance of word/phrase choices when 	This will be an ongoing discussion throughout activities being complete and during termly assemblies.	

		searching online. • To know how to be secure using of the internet.		
Assessments	<u>Below expectations</u>	<u>Meeting expectations</u>	<u>Above expectations</u>	
Name of children				

Year 4 Computing curriculum

Strand	Programme of study Requirements	Key skills	Resources	Links to other areas of the curriculum.
<p>KS2 Programming, coding and control.</p>	<p>- 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.</p>	<ul style="list-style-type: none"> • Continue to develop programming language such as design, write, debug, algorithms and detect etc... • Apply knowledge of creating more complex sequence of instructions (algorithm) for a programmable device on screen and a physical device. • Understand how different variables change an outcome and why this is important. • Understand the need for repetition when programming and why this helps with efficiency • Understand how to debug and problem solve to improve an outcome. • Make logical predictions for outcomes based on understanding of selections, specific goals and variables. • Consider their audience when developing a project. 	<p>Use of both Wedo Lego Education resources and applications on KS2 iPads</p> <ul style="list-style-type: none"> • Scratch on laptops (full version) • WeDo Lego Education • A.L.E.X. • Cargo bot 	
<p>KS2 How computers work</p>	<p>- Understand computer networks including the internet; how they can provide multiple services,</p>	<ul style="list-style-type: none"> • Understand that computing enables access to a wider range of information and tools to help find specific information. 	<p>This will be an ongoing discussion throughout activities being complete.</p>	

	<p>such as World Wide Web.</p> <p>- Understand the opportunities (networks) offer to communication and collaboration.</p>	<ul style="list-style-type: none"> • To identify how different web pages are organised and why. • Recognise the importance of networks and how they can contribute to everyday life. 		
<p>KS2 Using technology effectively</p>	<p>- 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.</p>	<ul style="list-style-type: none"> • Continue to develop an understanding of how computers can allow easy creation, manipulation and change. • Understand and explain which authoring tools will be the most effective for their outcome such as backgrounds, transitions, voice recordings, changing layout, delays etc... • Understand how to organise and collate materials appropriately. • Using independently sourced images or captured images/videos or creating images on a computer device for a range of purposes to enhance an outcome. • Understanding how to organise and input required materials. • Independently create a high quality outcome for a targeted audience. 	<ul style="list-style-type: none"> • iMovie • Book creator • Appshed • Padlet • Popplet lite • Pages • Key note • Edu creations • Microsoft office packages 	
<p>KS2 Online Safety</p>	<p>- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p> <p>- Use technology safely, respectfully and</p>	<ul style="list-style-type: none"> • Recognise the importance of keeping information private. • Understand how their actions online can affect others or themselves. • Be aware of where to go or who to talk to if one feels vulnerable. • Understand how the internet stores information. 	<p>This will be an ongoing discussion throughout activities being complete and during termly assemblies.</p>	

	responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	<ul style="list-style-type: none"> • Understand that not all information found on the internet is factually correct. • Understand the importance of word/phrase choices when searching online. • To know how to be secure using of the internet. 		
Assessments	<u>Below expectations</u>	<u>Meeting expectations</u>	<u>Above expectations</u>	
Name of children				

Year 5 Computing curriculum

Strand	Programme of study Requirements	Key skills	Resources	Links to other areas of the curriculum.
<p>KS2 Programming, coding and control.</p>	<p>- 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.</p>	<ul style="list-style-type: none"> • Recognises that software relies on algorithms within programs to run and that a range of different coding languages exist. • Become familiar with text-based coding languages such as Swift • Understand how to use a range of assisted programming software to plan, design and debug a simple platform game, which interacts with external controllers or devices (Drones/Sphero/Mindstorms/MicroBit) • Understand how to control the input of different variables so the output is enhanced for both an on-screen programming device and a physical device (this can be linked or separate). • Understand how to detect (debug) and correct errors to enable a successful outcome. • Use logical reasoning for outcomes based on understanding of selections, specific goals and variables. • Consider their wider audience when 	<ul style="list-style-type: none"> • Lego Mindstorms <p>Building using the basic robot format.</p> <p>Other applications to include</p> <ul style="list-style-type: none"> • Kudo can be used to create a platform game. It is a free Microsoft product. • Hopscotch • Tynker • Games Press • Kodable 	

		developing a project		
KS2 How computers work	- Understand computer networks including the internet; how they can provide multiple services, such as World Wide Web. - Understand the opportunities (networks) offer to communication and collaboration .	<ul style="list-style-type: none"> • Understand that computing enables access to a wider range of information and tools to help find/develop specific information. • To identify how different web pages are organised and why. • Recognise the importance of networks and how they can contribute to everyday life. 	This will be an ongoing discussion throughout activities being complete.	
KS2 Using technology effectively	- 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.	<ul style="list-style-type: none"> • To independently identify, insert and use manipulating features • To select relevant tools which can help achieve a specific aim and justify these decisions to others • Continue to work on organising and collate materials appropriately • To independently take photographs and record videos taking into account the audience and/or purpose for the image/video • To use image editing and refining tools to create more complex images/video outcomes • Understanding how to organise and input required materials to gain an outcome that is consistent throughout • Create and present a high-quality outcome for a purpose/targeted audience 	<ul style="list-style-type: none"> • iMovie • Pages • Keynote • Book creator • Creating a Wiki page • Sketchup • Primary Blogger to present information to a wider audience. 	
KS2 Online Safety	- Use search technologies effectively , appreciate how results are selected and ranked, and be	<ul style="list-style-type: none"> • Recognise the importance of keeping information private. • Understand how their actions online can affect others or themselves. 	This will be an ongoing discussion throughout activities being complete and during termly assemblies.	

	<p>discerning in evaluating digital content. - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>	<ul style="list-style-type: none"> • Be aware of where to go or who to talk to if one feels vulnerable. • Understand how the internet stores information and the difficulties faced when trying retrieve shared personal information. • Understand that individual access to the internet is worldwide and the effect this has on an individual, personal data and privacy. • Understand that not all information found on the internet is factually correct. • Understand the importance of word/phrase choices when searching online. • To know how to be secure when using the internet on all devices. 		
Assessments	<u>Below expectations</u>	<u>Meeting expectations</u>	<u>Above expectations</u>	
Name of children				

Year 6 Computing curriculum

Strand	Programme of study Requirements	Key skills	Resources	Links to other areas of the curriculum.
<p>KS2 Programming, coding and control.</p>	<p>- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</p> <p>- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</p> <p>- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	<ul style="list-style-type: none"> • Recognises that software relies on algorithms within programs to run and that a range of different coding languages exist. • Explore different programmable devices to illustrate coding/programming runs in all software used. • Understand how to use a range of assisted programming software to plan, design and debug a complex platform game, which interacts with external controllers or devices (Drones/Sphero/Mindstorms/MicroBit) • Understand how to control the input of different variables so the output is enhanced for both an on screen programming device and a physical device (this can be linked or separate). • To control a device using text based programming, • To write complex written algorithms that involve sensors. • Understand how to detect (debug) and correct errors to enable a successfully outcome. • Use logical reasoning for outcomes 	<ul style="list-style-type: none"> • Lego Mindstorms <p>Building using the basic robot format.</p> <p>Other applications to include</p> <ul style="list-style-type: none"> • Kudo can be used to create a platform game. It is a free Microsoft product. • Hopscotch • Tynker • Game press • Kodable • Tiny tap create interactive lessons • Makey Makey kit 	

		<p>based on understanding of selections, specific goals and variables.</p> <ul style="list-style-type: none"> • Consider their wider audience when developing a project. 		
<p>KS2 How computers work</p>	<p>- Understand computer networks including the internet; how they can provide multiple services, such as World Wide Web. - Understand the opportunities (networks) offer to communication and collaboration.</p>	<ul style="list-style-type: none"> • Understand that computing enables access to a wider range of information and tools to help find/develop specific information. • To identify how different web pages are organised and why. • Recognise the importance of networks and how they can contribute to everyday life. 	<p>This will be an ongoing discussion throughout activities being complete.</p>	
<p>KS2 Using technology effectively</p>	<p>- 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.</p>	<ul style="list-style-type: none"> • Continue to independently identify, insert and use complex manipulating features. • To select relevant tools which can help achieve a specific aim and justify these decisions to others. • To work on organising and collate complex materials appropriately. • Independently capture photographs and record videos taking into account the audience and/or purpose for the image/video. • To use image editing and refining tools to create more complex images/video outcomes e.g trimming, unwanted silencing etc... • Compare and contrast different digital tools across a range of platforms. • Understanding how to organise and input required materials to gain an outcome that is consistent 	<ul style="list-style-type: none"> • iMovie • Book creator • Creating a Wiki page • Appshed • Pages • Keynote • Showbie to upload learning • Edmodo • Primary Blogger 	

		<p>throughout.</p> <ul style="list-style-type: none"> • Create and present a high quality outcome for a purpose/targeted audience. • Create a web based application for a computer device with consideration for the audience-containing information about a topic, trip, the school or to support work in other areas of the curriculum. 		
KS2 Online Safety	<p>- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p> <p>- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>	<ul style="list-style-type: none"> • Recognise the importance of keeping information private. • Understand how their actions online can affect others or themselves. • Be aware of where to go or who to talk to if one feels vulnerable. • Understand how the internet stores information and the difficulties faced when trying retrieve shared personal information. • Understand that individual access to the internet is worldwide and the effect this has on an individual, personal data and privacy. • Understand that not all information found on the internet is factually correct. • Understand the importance of word/phrase choices when searching online. • To know how to be secure using of the internet on all devices. 	This will be an ongoing discussion throughout activities being complete and during termly assemblies.	
Assessments	<u>Below expectations</u>	<u>Meeting expectations</u>	<u>Above expectations</u>	

Name of children				
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Glossary

Algorithm- an unambiguous procedure or precise step by step guide to solve a problem or achieve a particular objective.

Computer Networks- the computers and the connecting hardware (wifi access points, cables, fibres, switches and routers) that make it possible to transfer data using an agreed method.

Control- using computers to move or otherwise change 'physical' systems. The computer can be hidden inside the system or connected to it.

Data- a structured set of numbers, representing digitised text, images, sound or video, which can be processed or transmitted by a computer.

Debug- to detect and correct the errors in a computer program.

Digital content- any media created, edited or viewed on a computer, such as text (including the hypertext of a web page), images, sound, video (including animation), or virtual environments, and combinations of these (i.e. multimedia).

Input- data provided to a computer system, such as via a keyboard, mouse, microphone, camera or physical sensors.

Output- the information produced by a computer system for its user, typically on a screen, through speakers or on a printer, but possibly through the control of motors in physical systems.

Program- a stored set of instructions encoded in a language understood by the computer that does some form of computation, processing input and/or stored data to generate output.

Repetition- a programming construct in which one or more instructions are repeated, perhaps a certain number of times, until a condition is satisfied or until the program is stopped.

Selection- a programming construct in which the instructions that are executed are determined by whether a particular condition is met.

Simulation- using a computer to model the state and behaviour of real-world systems, including physical and social systems; an integral part of most computer games.

Variables- a way in which computer programs can store, retrieve or change simple data, such as a score, the time left, or the user's name.