Progression in Computing

Who's who?
Subject Leader: Mrs Hayton
Teaching staff: Mrs Watts, Mr Armstrong, Mrs Hayton, Miss Dixon

Our Aims
"A high-quality computing education equips pupils to understand and change the world through computational thinking. It develops and requires logical thinking and precision. It combines creativity with rigour: pupils apply underlying principles to understand real-world systems, and to create purposeful and usable artefacts."
Computing curriculum, Programmes of Study (2019)

As computing is an increasing part of life today, at Rosley C of E School it is essential that all our pupils gain the confidence and ability that they need in this subject and to prepare them for a rapidly-evolving technological world.

We aim that all pupils understand how to use technology safely and the importance of 'keeping safe online', that all our pupils are digitally literate in the key computing skills and recognise the links with other subjects, and that they are able to express their ideas using computer technology and are inspired to be creative with technology.

Our pupils' ask us for computing that is fun and creative. We aim to provide a computing curriculum which allows them to learn new skills which can be transferred across the curriculum and to increase their confidence in technology which will help them in later life.

YEAR A 2024 - 2025

RECEPTION & YEAR 1		
AUTUMN	**SPRING**	**SUMMER**
Computer Systems & Networks • To identify examples of technology and explain how they can help us • To recognise that a computer is an example of technology • To describe what a keyboard is for • To know a computer stores work in files • To give examples of rules to keep them safe and healthy when they are using technology in and beyond the home • To choose a piece of technology to do a job • To identify the main parts of a computer and use a keyboard to type their name on a computer • To turn on the computer and log on with an aid and use a mouse in different ways – click, select and drag • To use the keyboard to edit text and delete letters • To demonstrate that they can use technology safely **Creating Media** • To explain what different freehand tools do and recognise that computers can be used to create a range of art • To recognise a tool can be adjusted and choose appropriate paint tools to recreate a picture • To use freehand tools, changing the colour and brush size • To use shape and line tools for precision, changing the size, shape and colour • To use the undo button to correct mistakes and use the fill tool to colour an enclosed area • To identify the differences between painting on a computer and on paper, and explain their own preference	**Programming** • To explain what a given command does and predict the outcome of a sequence involving up to four commands • To match a command to an outcome and understand that a program is a set of commands that a computer can run • To know that a series of instructions can be issued before they are enacted and predict the outcome of a command on a device • To run a command on a floor robot and choose a command for a given purpose • To choose a series of words that can be enacted as a program • To build a sequence of commands in steps from a given starting point and combine commands in a program • To run a program on a device and debug a program to correct errors **Creating Media** • To know that a keyboard is used to enter text into a computer • To know that the appearance of text can be changed • To recognise some keys and use them to enter text on to a computer/device including some basic punctuation • To add spaces between most words using a space bar and use the backspace key to delete text only as far as the section to be edited • To use the toolbar to find and use the bold, italic, and underline tool • To identify the differences between writing on a computer and on paper, and explain their own preference	**Data and Information** • To collect simple data and identify some attributes of an object • To identify that objects and collected data can be counted • To choose an attribute to group objects and answer questions • To recognise that information can be presented in different ways **Programming** • To explain what a sprite is and compare different programming blocks • To know a series of commands can be joined together to form a program • To understand that a program is a set of commands a computer can run • To predict the outcome of a command and list commands that can be used on a device • To match a command to an outcome and recognise how to run a command • To run different commands for different sprites and choose a command for a given purpose • To build a sequence of commands in steps • To use the start command to initialise a program • To debug a program and rest a program created and evaluate how successful it has been

YEAR 3 & 4		
AUTUMN	**SPRING**	**SUMMER**
Computer Systems & Networks • To describe what an input is and explain what a process acts on the inputs • To identify input and output devices • To explain that an output is produced by the process • To identify how changing the process can affect the output • To explain that a computer system accepts an input and processes it to produce an output • To recognise that a digital device is made up of several parts • To recognise that computers and devices in a network can be connected to each other and • To explain how computer systems can change the way we work • To recognise that a network is made up of a number of components • To explain how information is passed through multiple connections • To identify the benefits of computer networks **Creating Media** • To explain that an animation is made up of a sequence of images • To identify that a capturing device needs to be in a fixed position • To plan an animation using a storyboard • To recognise that smaller movements create smoother animation. • To use the onion skinning tool to review subject position • To explain the need for consistency in working • To explain the impact of adding other media to an animation • To explain that a project must be exported so it can be shared	**Programming** • To explain that programs start because of an input • To explain what a sequence is and identify that a program includes sequences of commands • To identify that the sequence of a program is a process • To combine commands in a program • To order commands in a program • To explain that the order of commands can affect a program's output • To identify that different sequences can achieve the same output • To identify that different sequences can achieve different outputs • To create a sequence of commands to produce a given outcome **Data and Information** • To suggest questions that can be answered using a table of data • To identify data that can be logged over time • To identify that sensors are input devices • To recognise that a sensor can be used as an input device for data collection • To explain that a data logger captures 'data points' from sensors over time. • To use a digital device to collect data automatically • To use a computer program to sort data by one attribute • To export information in different formats	**Programming** • To explain that programs start because of an input • To explain what a sequence is and identify that a program includes sequences of commands • To identify that the sequence of a program is a process • To combine commands in a program • To order commands in a program • To explain that the order of commands can affect a program's output • To identify that different sequences can achieve the same output • To identify that different sequences can achieve different outputs • To create a sequence of commands to produce a given outcome **Creating Media** • To identify that sound can be recorded • To identify that an input device is needed to record sound • To identify that output devices are needed to play audio • To record sound using a computer • To recognise that recorded audio can be stored on a computer • To recognise that audio can be edited • To import audio into a project • To recognise that sound ca be represented visually as a waveform • To delete a section of audio • To recognise that audio can be layered so that multiple sounds can be played at the same time • To change the volume of tracks in a project • To consider the results of editing choices made

YEAR 5 & 6		
AUTUMN	**SPRING**	**SUMMER**
Computer Systems & Networks • To recognise that a system is a set of interconnected parts • To explain that computers can be connected together to form IT systems • To recognise inputs, processes and outputs in large IT systems • To describe the role of a particular IT system in their lives • To identify that data can be transferred between IT systems • To relate that search engines are examples of large IT systems • To describe the input and output of a search engine • To explain why search engines create indices, and that they are different for each search engine • To explain the role of web crawlers in creating an index • To explain how search results are selected • To explain that ranking orders search results to make them more useful • To explain how ranking is determined by rules, and that different search engines use different rules • To explain how search engines make money by selling targeted advertising space • To identify some of the limitations of search engines • To evaluate the results of search terms **Creating Media** • To explain that 3D models can be created on a computer • To recognise that a 3D environment can be viewed from different perspectives • To recognise that digital tools can be used to manipulate 3D objects	**Programming** • To explain that a condition can only be true or false • To relate that a count-controlled loop contains a condition • To choose a condition to use in a program • To compare a count controlled loop with a condition-controlled loop • To explain that a condition-controlled loop will stop when a condition is met • To explain that when a condition is met a loop will complete a cycle before it stops • To create a condition-controlled loop • To use a condition in an 'if... then...' statement to start an action • To explain that selection can be used to branch the flow of a program • To explain that a loop can be used to repeatedly check whether a condition has been met • To use 'if... then... else...' to switch program flow in one of two ways • To explain the importance of instruction order in 'if... then... else...' statements **Creating Media** • To identify that a vector drawing comprises separate objects • To add an object to a vector drawing • To recognise that each object in a drawing is in its own layer • To move objects between the layers of a drawing • To recognise that vector images can be scaled without impact on quality • To recognise that objects can be modified in groups	**Data and Information** • To identify questions that can be answered using spreadsheet data • To explain what an item of data is in a spreadsheet • To explain how the data type determines how a spreadsheet can process the data • To outline that there are different software tools to work with data • To explain that formulas can be used to produce calculated data • To calculate data using a formula for each operation • To recognise cells can be linked • To use functions to create new data • To explain why data should be organised in a spreadsheet • To use existing cells within a formula • To recognise that a cell's value automatically updates when the value in a linked cell is changed • To evaluate results in comparison to the question asked • To choose suitable ways to present spreadsheet data **Programming** • To explain that a condition can only be true or false • To relate that a count-controlled loop contains a condition To compare a count-controlled loop with a condition-controlled loop • To explain that a condition-controlled loop will stop when a condition is met • To explain that when a condition is met, a loop will complete a cycle before it stops • To create a condition-controlled loop

• To combine objects to create a 3D digital artefact • To show how placeholders can create holes in 3D objects • To recognise that artefacts can be broken down into a collection of 3D objects	• To explain how alignment and size guides can help create a more consistent drawing • To combine options to achieve a desired effect • To consider the impact of choices made • To create a vector drawing for a given purpose	• To use a condition in an 'if...then...' statement to start an action • To explain that selection can be used to branch the flow of a program • To use selection to switch the program flow in one of two ways • To explain that a loop can be used to repeatedly check whether a condition has been met • To use a condition in an 'if...then...else...' statement to produce • To explain the importance of instruction order in 'if...then...else...' statements