St Barnabas C of E Primary School, Science and Computing Curriculum Intent

Each Child is Uniquely Created and Loved by God

Our aim at St Barnabas' School is that all children aspire to master a broad range of skills, knowledge and understanding relating to Science and Computing. In Science, pupils will study a range of subjects relating to Physics, Biology and Chemistry. In Computing, Digital Literacy, Information Technology and Computer Science will be focussed upon. Teaching and learning will aim to stimulate curiosity as well as to promote the critical and logical thinking required to solve problems. The Science and Computing Curriculum is aimed to deepen pupils' appreciation and understanding of the world around them and will encourage pupils to believe that their actions can directly shape our future. Scientific and logical thinking will be promoted through observation, questioning, hypothesising, testing, and recording. As part of the Science and Computing Curriculum, pupils will read a rich variety traditional and digital texts in order to deepen their subject knowledge as well for enjoyment. Pupils will write, record, present and create programmes designed to express their ideas as well as the thoughts of others. The Curriculum will encourage pupils to appreciate the utility and aesthetics of Science and Computing and will afford pupils with the opportunity to create pieces of learning which are both useful and/or beautiful. Pupils will be taught to identify and manage risk when conducting scientific investigations and working online. The Science and Computing curriculum will highlight the positive and negative impact that science and technology has had on our society and will support pupils to make informed decisions relating to the role that science and technology plays in their own lives.

In order to ensure that pupils gain a deep and broad understanding of Science and Computing and are able to make meaningful links across the curriculum, we have identified a number of key concepts that will be focussed upon and revisited:

Materials	**Changes**	**Power and Energy**	**Plants and Animals**	**Earth and Space**
Innovation	**Programming**	**Computing Systems and Networks**	**Creating Digital Media**	**Data and Information**

EYFS

Curriculum Area	Coverage	Curriculum Progression and Linkage	Skills of Enquiry	Key Concepts and Vocabulary	
Science	**Everyday Materials and Processes** I can talk about how a material is right for a specific purpose. I can use my understanding of materials in a creative way. I can observe and talk about every changes and processes.	As part of the **Understanding the World** component of the EYFS Framework, pupils are guided to make sense of their physical world and their community through opportunities to observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting and object and a boat floating on water. Pupils will use their understanding of materials and material properties to find creative solutions to problems. In the **Expressive Arts and Design** Curriculum in which pupils explore and play with a wide range of media and materials. In the **Communication and Language** Curriculum in pupils elaborate on their thinking using a rich range of vocabulary and language structures. In Yr1, pupils explore objects and materials that they are familiar with in everyday life. They learn to name them, distinguish between the object and the material and sort them according to simple and observable criteria.	I can show curiosity about objects and events. I can use my senses to explore the world around me. I can engage in an open-ended activity. I can think of ideas. I can find ways of solving problems. I can find new ways of doing things. I can make links and notice patterns in my experience. I can make predictions I can test my ideas. I can develop ideas in relation to grouping,	**Changes** changes same different seasons autumn winter spring summer weather day light sun rain cloud snow temperature hot cold warm wind ice freeze melt month January February March April May June July August September October November December	**Animals** human animal bird fish senses sight hearing touch taste smell body head ear mouth nose teeth shoulder elbow hand fingers thumb leg knee foot toe Materials Strong Break Hard Soft Squashy Shiny Stretchy Waterproof Wood
	Animals Including Humans I can identify and name a variety of common animals including. I can identify and compare the observable features of a range of common animals. I can notice that animals, including humans, have offspring which grow into adults. I can identify and name the basic parts of the human body and say which part of	As part of the **Understanding the World** component of the EYFS Framework, pupils are guided to make sense of and increase their knowledge of their physical world and their community. In the **Expressive Arts and Design** Curriculum in which pupils interpret and respond to what they observe. In the **Communication and Language** Curriculum in pupils elaborate on their thinking using a rich range of vocabulary and language structures. In Yr1, pupils focus on living things with which they are familiar with such as themselves and domestic animals. Pupils name and label their own body parts using everyday language. Pupils learn which body parts are associated with each sense. Their understanding of living creatures is then extended beyond very familiar living things. They are introduced to the concepts of life and what constitutes a living creature. The observe that animals have offspring which grow into adults. They begin to learn to group and classify living creatures according to observable criteria. They describe and compare the structure of common animals.			

	the body is associated with each sense. I can make observations and create physical representations of animals.		sequences and cause and effect. I can plan how to solve a problem and reach a goal. I can change strategy as needed. I can review an approach worked. -	**Plants** tree root stem leaves flowers petals fruit seed bulb	Plastic Metal Glass Brick Stone Fabric
	Plants I can observe and describe how seeds and bulbs grow into mature plants. I understand how to look after a plant to ensure it stays healthy. I can make observations and create physical representations of animals.	As part of the **Understanding the World** component of the EYFS Framework, pupils are guided to make sense of and increase their knowledge of their physical world and their community. In the **Expressive Arts and Design** Curriculum in which pupils interpret and respond to what they observe. In the **Communication and Language** Curriculum pupils elaborate on their thinking using a rich range of vocabulary and language structures. In Yr1, pupils are challenged to learn the names of the plants that exist in their immediate surroundings. Pupils are then challenged to learn the names of plants from the wider world. Pupils learn from practical experience how common plants are structured and how they change from seed to bulb to plant.			
	Seasonal Changes I can name describe the weather using everyday language. I can name the four seasons and make observations about their distinctive characteristics. I can discuss how my personal experience changes according to the season.	As part of the **Understanding the World** component of the EYFS Framework, pupils are guided to make sense of and increase their knowledge of their physical world. In Yr1, pupils make and record observations about the weather in their immediate location. Pupils make and record observations about the seasonal changes in their direct location. In the **Communication and Language** Curriculum pupils elaborate on their thinking using a rich range of vocabulary and language structures. In the **Personal, Social and Emotional Development** Curriculum in pupils will learn how to look after their bodies and manage personal needs independently. In Yr1, pupils make and record observations about the weather in their immediate location. Pupils make and record observations about the seasonal changes in their direct location. Pupils use key vocabulary to describe the changes they have observed and recorded.			

Computing	**Programming:** I can give and receive simple commands for a specific purpose. I can give a sequence of single step instructions or commands. I can find multiple solutions to problems.	In the **Communication and Language** component of the EYFS curriculum, pupils will be exposed to and utilise a rich range of vocabulary and language structures. In the **Physical Development** component of the EYFS curriculum, pupils are developing their fine motor skills to develop control and precision. In the **Mathematics** component of the EYFS curriculum pupils are developing their spatial reasoning skills and developing their understanding of space and measures. In Yr1 pupils will build upon these skills by learning to explain what a given command will do and act out a given words. Pupils will combine forwards and backwards commands to make a sequence and use four direction commands to make sequences. Pupils will be challenged to plan a simple program and to find more than one solution to a problem. Pupils will be required to choose a command for a given purpose and to show that a series of commands can be joined together. Pupils will learn to identify the effect of changing a value and explain that each sprite has its own instructions. Pupils will be challenged to design the parts of a project and use an algorithm to create a program.	Instruction Direction Forwards Backwards Left Right Up Down Step Turn Object Sequence Same Different Problem Solve
	Computing Systems and Networks: I can identify examples of technology within the school and everyday day life. I can use the stylus, touch pad, mouse, keyboard and buttons to demonstrate cause and effect and begin to access technology. I can follow rules for using technology safely.	In the **Understanding the World** component of the EYFS curriculum, pupils are guided to make sense of their technologically diverse world. In the **Physical Development** component of the EYFS curriculum, pupils are developing their fine motor skills to develop control and precision. In the **Personal, Social and Emotional Development** component of the EYFS Curriculum, pupils are supported to regulate their behaviour. In Yr1 pupils will build upon this learning by identifying technology, including the main parts of computers. Pupils will learn to use a mouse in different ways and the keyboard to type and edit text. Pupils will also learn to create rules for using technology responsibly.	Computer Interactive White Board Table Laptop Smart Phone (Examples of everyday Information Teachnology) Technology Screen Keyboard Type Mouse Track Pad Button Tap (contactless) Switch on Log on Drag and drop Arrow
	Creating Digital Media: I can make marks with basic freehand tools.	In the **Literacy** component of the EYFS curriculum, pupils are encouraged to make and give meaning to marks. In the Literacy component of the EYFS curriculum pupils use their print and letter knowledge to transcribe. In the **Physical Development** component of the EYFS curriculum pupils are provided with a range of fine motor experiences designed to develop hand-eye co-ordination.	Paint Screen Pen Shape

	To begin to use the keyboard for a purpose. To make a connection between the capital letters on the keyboard and the lower case letters taught in phonics.	In Yr1 pupils will build upon these skills by focussing on and describing what different freehand tools do. Pupils will learn to use the shape tool and the line tools and make careful choices when painting a digital picture. Pupils will also explain why they chose the tools they used. Pupils will use computers to paint their own pictures and compare painting a picture on a computer and on paper. In Yr1 pupils will also use a computers to write, add and remove text on a computer. They will learn that the look of text can be changed on a computer and make careful choices when changing text. Pupils will explain why they used the tools that they chose and compare typing on a computer to writing on paper.	Colour Line Clicking Dragging Double Clicking Delete/Backspace Keys Keyboard Letter Capital Letter Number Space Return Caps Lock
	Data and Information: I can count, compare and group objects according to observable features. I can make observations about groups.	In the **Mathematics** component of the EYFS curriculum, pupils count confidently and develop a deep understanding of the numbers to 10. In the **Mathematics** component of the EYFS curriculum, pupils look for patterns and relationships and spot connections. In the **Communication and Language** component of the EYFS curriculum pupils develop their spoken language to articulate their ideas effectively. In Yr1 pupils will build upon this understanding when they count, sort and label objects. Pupils will then learn to compare and answer questions about groups of objects.	Object Item Group Sort Match Odd one out fit not fit explain describe same different bigger smaller

Year 1

Curriculum Area	Coverage	Curriculum Progression and Linkage	Skills of Enquiry	Key Concepts and Vocabulary	
Science	**Everyday Materials** I can distinguish between an object and the material from which it is made. I can identify and name a variety of everyday materials, including wood, plastic, glass, metal and rock. I can describe the simple physical properties of a variety of everyday materials I can compare and group together a variety of everyday materials on the basis of their simple physical properties.	As part of the Expressive Arts and Design component of the EYFS curriculum, pupils explore and play with a wide range of media and materials. In Yr1, pupils explore objects and materials that they are familiar with in everyday life. They learn to name them, distinguish between the object and the material and sort them according to simple and observable criteria. This understanding will be built upon in Year 2 when pupils explore how different materials are best suited to serve different functions and how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching In Yr1, cross curricular links can be made with the Design and the Arts curriculum in which pupils experiment with everyday materials such as paint, wood, clay and stone.	I can ask my own questions about what I notice. I can use different types of scientific enquiry to gather and record data, using simple equipment where appropriate, to answer questions including: -observing changes over time. -noticing similarities, differences and patterns. -grouping and classifying things. I can use appropriate scientific language from the National Curriculum to communicate my ideas in a variety of ways, what I do and what I find out.	**Changes** changes seasons autumn winter spring summer weather daylight rainfall temperature hot cold warm cool month January February March April May June July August September October November December **Plants** wild plant garden plant weed deciduous evergreen tree trunk branch	**Animals** human animal amphibians bird fish mammals reptiles carnivore herbivore omnivore senses sight hearing touch taste smell body head ear mouth nose teeth shoulder elbow hand fingers thumb leg knee foot toe eyes tongue Martials wood plastic
	Animals Including Humans I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. I can notice that animals, including humans, have offspring which grow into adults. I can identify and name a variety of common animals	As part of the Understanding the World component of the EYFS curriculum, pupils are guided to make sense of their physical world and their community through opportunities to explore, observe and find out about people and the environment. In Yr1, pupils focus on living things with which they are familiar with such as themselves and domestic animals. Pupils name and label their own body parts using everyday language. Pupils learn which body parts are associated with each sense. Their understanding of living creatures is then extended beyond very familiar living things. They are introduced to the concepts of life and what constitutes a living creature. The observe that animals have offspring which grow into adults. (This is revisited in Yr5 with the reproductive system and human lifecycle) They begin to learn to group and classify living creatures according to observable criteria. They describe and compare the structure of common animals. This knowledge is built upon in Yr2 when pupils explore the importance of exercise, balanced diet and hygiene for humans. Yr2 pupils also explore how animals are suited to their habitats and group living things according to non-observable features. Yr2 pupils also explore how the needs of humans change at different stages of their life.			

	that are carnivores, herbivores and omnivores. I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	In Yr1, cross curricular links can be made with the Design and the Arts curriculum in which pupils use their voice expressively to sing and speak. Further cross curricular links can be made with the Sports, Exercise and Health curriculum in which pupils talk about how different parts of their body feels during an activity. Further cross curricular links can be made with the Outdoor Learning curriculum in which pupils learn to understand and care for their immediate environment. Being able to name and identify a range of common animals will support them in doing so. Further cross curricular links can be made with the Measurement- Length and Height component of the Maths curriculum in which pupils are taught to compare and measure lengths and heights. This practical skill can be used to support pupils understanding of how humans grow. Further cross curricular links can be made with the Wellbeing Curriculum in which pupils show someone how to clean their teeth and wash their hands and face.	root stem leaves flowers petals fruit seed bulb	metal paper glass rock fabric concrete clay waterproof soft hard rough smooth dull shiny transparent opaque bendy flexible not bendy rigid stretchy not stretchy
	Plants I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. I can identify and describe the basic structure of a variety of common flowering plants, including trees. I can observe and describe how seeds and bulbs grow into mature plants	As part of the Understanding the World component of the EYFS curriculum, pupils are guided to make sense of their physical world and their community through opportunities to explore, observe and find out about places and the environment. In Yr1, pupils are challenged to learn the names of the plants that exist in their immediate surroundings. Pupils are then challenged to learn the names of plants from the wider world. Pupils learn from practical experience how common plants are structured and how they change from seed to bulb to plant. Pupils build on this understanding in Year 2 when they explore how plants are suited to different habitats and the needs of green plants for successful growth. In Yr1, cross curricular links can be made with the Outdoor Learning curriculum in which pupils learn to understand and care for their immediate environment. Being able to name and identify a range of common plants will support them in doing so. Further cross curricular links can be made to the Design and the Arts curriculum in which pupils are taught to use sketches to record thoughts and ideas. Pupils can use sketching to record key features of plants and/or to help describe how seeds and bulbs grown into mature plants. Further cross curricular links can be made with the Measurement- Length and Height component of the Maths curriculum in which pupils are taught to compare and measure lengths and heights. This practical skill can be used to support pupils to observe and describe how plants grow.		

	Seasonal Changes I can observe changes across the four seasons. I can observe and describe weather associated with the seasons and how day length varies.	As part of the Understanding the World component of the EYFS framework pupils are guided to make sense of their physical world through opportunities to explore and observe. In Yr1, pupils make and record observations about the weather in their immediate location. Pupils make and record observations about the seasonal changes in their direct location. Pupils use key vocabulary to describe the changes they have observed and recorded. Pupils will build upon this understanding in Yr2 when they learn about equatorial locations with contrasting seasonal patterns. Pupils will also expand on this understanding in Year 5 when pupils explain about how the movement of the Earth around the sun causes seasonal change. In Yr1, cross curricular links can be made with the Time and Place curriculum in which pupils keep a weather chart and answer questions about the weather. Pupils also explain how the weather changes throughout the year and name the seasons. Further cross curricular links can be made with the Time and Place curriculum in which pupils describe changes within living memory. Further cross curricular links can be made with the Measurement-Time component of the Maths curriculum in which pupils are taught to recognise and write time to the nearest half hour and to compare time. This practical skill can be utilised when observing and describing how day length varies. Further cross curricular links can be made to the Measurement-Weight and Volume component of the Maths curriculum in which pupils are taught to measure and compare capacity and volume. These practical skills will be useful for comparing the rainfall in different seasons.			

Computing	**Programming:** Introduction to Programming and Animation I can give and receive simple commands for specific purposes. I can combine commands to create sequences of instructions. I can identify the effect of changing a value. I can plan and create programmes and find multiple solutions to problems.	In the Communication and Language component of the EYFS curriculum, pupils will have been exposed to and utilised a rich range of vocabulary and language structures. In the Physical Development component of the EYFS curriculum, pupils develop their fine motor skills to develop control and precision. In the Mathematics component of the EYFS curriculum pupils develop spatial reasoning skills in all areas of Mathematics. In Yr1 pupils will build upon these skills by learning to explain what a given command will do and act out a given words. Pupils will combine forwards and backwards commands to make a sequence and use four direction commands to make sequences. Pupils will be challenged to plan a simple program and to find more than one solution to a problem. Pupils will be required to choose a command for a given purpose and to show that a series of commands can be joined together. Pupils will learn to identify the effect of changing a value and explain that each sprite has its own instructions. Pupils will be challenged to design the parts of a project and use an algorithm to create a program. Pupils will build upon this learning in Yr2 when they apply their programming skills to Robot Algorithms and Quizzes. Pupils will be taught that sequences of commands must have a start and an outcome. Pupils will make predictions about the outcome of algorithms and create, debug and make improvements to existing programmes. In Yr1, cross curricular links can be made with the English and Communication curriculum in which pupils learn how to create oral and written instructions.	Command Outcome Device Direction Forwards Backwards Left Right Turn Object Sequence Program Debug Property Value Sprite Run (execute) Algorithm Attribute (property) Animation block Star block
	Computing Systems and Networks: Technology Around Us I can identify examples of technology within the school and wider world. I can use the mouse and keyboard to perform basic functions of a computer. I can create and follow rules for using technology safely.	In the Understanding the World component of the EYFS curriculum, pupils are guided to make sense of their physical world and their community. In the Physical Development component of the EYFS curriculum, pupils develop their fine motor skills to develop control and precision. In Yr1 pupils will build upon this learning by identifying technology, including the main parts of computers. Pupils will learn to use a mouse in different ways and the keyboard to type and edit text. Pupils will also learn to create rules for using technology responsibly. Pupils will build upon this learning in Yr2 when they look in greater detail at the use of Information Technology in the school and the world around them. Pupils will further their understanding of how IT can be used safely. In Yr1, cross curricular links can be made with the Time and Place curriculum, in which pupils are challenged to explore changes within living memory. Pupils can explore the changes to Information Technology that they have experienced so far in their lives. Pupils can also explore how Information Technology is a relatively recent innovation and was not present in other periods of history studied in Yr1. Further cross curricular links can be made with the Wellbeing Curriculum in which pupils identify some rules about the limits for using screens that can keep people healthy. Pupils also identify how people use 'masks' online to be nasty and who to ask for help.	Computer Information technology Technology Screen Keyboard Mouse Switch on Log on Log off Text Edit Click and drag Save File Delete Open Arrow Key Cursor
	Creating Digital Media: Digital Painting and Writing	In the Expressive Arts and Design component of the EYFS curriculum, pupils develop their artistic and cultural awareness. Pupils were provided with regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. In the Literacy component of the EYFS curriculum, pupils have	Paint Screen Shape

	I can use basic freehand tools with precision. I can make and explain careful choices when producing digital content. I can edit text for a specific purpose I can reflect on the similarities and differences producing digital and non-digital content.	focussed on transcription and composition. In Yr1 pupils will build upon these skills by focussing on and describing what different freehand tools do. Pupils will learn to use the shape tool and the line tools and make careful choices when painting a digital picture. Pupils will also explain why they chose the tools they used. Pupils will use computers to paint their own pictures and compare painting a picture on a computer and on paper. In Yr1 pupils will also use a computers to write, add and remove text on a computer. They will learn that the look of text can be changed on a computer and make careful choices when changing text. Pupils will explain why they used the tools that they chose and compare typing on a computer to writing on paper. Pupils will build upon these skills in Yr2 when they use computers to produce digital photography and music. In Yr1, cross curricular links can be made with the English and Communication curriculum in which pupils will produce written content for a range of different purposes. Pupils can these pieces of writing to create and edit pieces of digital content. In Yr1, cross curricular links can be made with the Design and the Arts curriculum in which pupils explore the work of a range of artists including: Beatriz Milhazes, Andy Goldsworthy, Anthony Gormsley, Miranda Lloyd, Katerina Apale. Pupils could take inspiration from these artists to produce their own pieces of digital painting. Further links can be made with the Drawing and Composition component of the Design and the Arts curriculum in which pupils are challenged to explore mark making using both line experiments and 2D shapes. Pupils can use digital tools to complete these paining skills.	Line Tool Toolbar Word Processor Clicking Dragging Double Clicking Undo Keys Keyboard Letter Number Space Text Font Font Size Bold Italic Capital Letter Delete Backspace Return Underline
	Data and Information: Grouping data I can count, compare and group objects according to observable features. I can label and answer questions about groups.	In the Mathematics component of the EYFS curriculum, pupils count confidently and develop a deep understanding of the numbers to 10. In the Literacy component of the EYFS curriculum, pupils have focussed on transcription and composition. In Yr1 pupils will build upon this understanding when they count, sort and label objects. Pupils will then learn to compare and answer questions about groups of objects. Pupils will build upon this understanding in Yr2 when they learn to produce pictograms. In Yr1, cross curricular links can be made with the Mathematics curriculum in which pupils are required to count and group objects according to observable features. Pupils are also challenged to answer questions and draw conclusions about groups.	Data Information Object Label Criteria Property

Year 2

Curriculum Area	Coverage	Curriculum Progression and Linkage	Skills of Enquiry	Key Concepts and Vocabulary	
Science	**Uses of Everyday Materials** I can identify and compare the suitability of a variety of everyday materials, including; wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	In Yr1, pupils explore objects and materials that they are familiar with in everyday life. They learn to name them, distinguish between the object and the material and sort them according to simple and observable criteria. In Yr2, pupils extend their understanding to include the suitability of different materials for different purposes. They extend their vocabulary for describing material properties and learn to using sorting tools such as Venn Diagrams to sort objects according to 1 and then 2 criteria. Pupils are also introduced to the concept that materials can be physically changed using force. Pupils build upon this understanding in Year 3 when they are introduced to the concept of magnetism as a material property and when they sort rocks according to their material properties. They extend their understanding even further in Year 5 when they are introduced to the concept of reversible and irreversible material changes. In Yr2, cross curricular links can be made with the Design and the Arts curriculum in which junk modelling equipment is used to make moving structures/sculptural forms. Pupils can use and apply their understanding of material properties to help design, build and review the success of their structural and sculptural creations.	I can ask my own questions about what I notice. I can use different types of scientific enquiry to gather and record data, using simple equipment where appropriate, to answer questions including: • observing changes over time • noticing similarities, differences and patterns • grouping and classifying things I can use appropriate scientific language from the National Curriculum to communicate my ideas in a variety of ways, what I do and what I find out.	**Materials** opaque transparent flexible strong fragile absorbent durable flammable flame retardant stretchy elastic **Changes** bend squash twist stretch adapt adaptation life cycle **Power and Energy** Photosynthesis	**Plants** germination sprout shoot seed dispersal sunlight water temperature nutrition **Animal** hydrate dehydrate diet disease energy exercise germs heart rate hygiene nutrition pulse air water food habitat micro-habitat food chain producer consumer predator life processes living dead food source depend
	Plants I can explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. I can describe how plants are suited to meet the demands of their habitat.	In Yr1, pupils are challenged to learn the names of the plants that exist in their immediate surroundings. Pupils are then challenged to learn the names of plants from the wider world. Pupils learn from practical experience how common plants are structured and how they change from seed to bulb to plant. In Yr2, pupils extend their understanding to consider how plants are suited to their environments, They also explore through practical experience what plants need for successful growth. Pupils design and complete a fair test in order to test this understanding. Pupils will build upon this understanding in Year 3 when they learn about the functions of the main parts of plants, including those involved in reproduction and transporting water and nutrients and in Year 4 when they categorise plants according to observable features. In Yr2, cross curricular links can be made with the Outdoor Learning curriculum in which pupils learn to understand and care for their immediate environment. Understanding the requirements of plants for life will support them in doing so. Further cross curricular links can be made to the Design and the Arts curriculum in which pupils are taught to use sketches to record thoughts and ideas. Pupils can use sketching as a means of recording how well a plant is growing or to help explain how it has adapted to suit its habitat.			

		Further cross curricular links can be made with the Statistics component of the Maths curriculum in which pupils are taught to use block diagrams to represent data. Pupils could use block diagrams to present their findings relating to practical plant growing investigations. Further cross curricular links can be made with the Measurement- Length and Height component of the Maths curriculum in which pupils are taught to measure length in cm and to compare perform calculations with length. These practical skills can be used to support pupils to present their findings relating to practical plant growing investigations. Further cross curricular links can be made with the Measurement-Time component of the Maths Curriculum in which pupils are taught to measure time in days and hours. Pupils can use this skill when planning and completing practical plant growing investigations. Further cross curricular links can be made with the Measurement-Mass, Capacity and Temperature component of the Maths Curriculum in which pupils are taught to measure use ml to measure capacity and degrees Celsius to measure temperature. These skills could be used to help control variables in a comparative investigation.			survive life cycle
	Animals Including Humans I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air). I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	In Yr1, pupils focus on living things with which they are familiar with such as themselves and domestic animals. Pupils name and label their own body parts using everyday language. Pupils learn which body parts are associated with each sense. Their understanding of living creatures is then extended beyond very familiar living things. They are introduced to the concepts of life and what constitutes a living creature. The observe that animals have offspring which grow into adults. They begin to learn to group and classify living creatures according to observable criteria. They describe and compare the structure of common animals. In Yr2 pupils learn about basic human needs and explore how exercise, diet and hygiene can impact a healthy lifestyle. Pupils will build on this understanding in Year 3 when they learn about the functions of the musculoskeletal system and develop a deeper understanding of how diet affects their body's' function. Pupils will develop their understanding even further in Yr4 when they learn about the digestive system, in Yr5 with the reproductive system and in Yr6 when they learn about the circulatory system and the effect of exercise, drugs and lifestyle on how their bodies function In Yr2, cross curricular links can be made with the Sport, Exercise and Health curriculum in which pupils are taught to talk about how to exercise safely, how their body feel during an activity and how to follow a simple recipe to prepare a healthy snack. Further cross curricular links can be made with the Wellbeing Curriculum in which pupils talk about how people can help themselves to have good sleep. Pupils also learn to understand the importance of getting enough high-quality sleep.			

	Living things and their habitats I can explore and compare the differences between things that are living, dead, and things that have never been alive. I can identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. I can identify and name a variety of plants and animals in their habitats, including micro-habitats. I can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	In Yr1, pupils are challenged to learn the names of the plants that exist in their immediate and wider surroundings. Pupils learn how common plants are structured and how they change from seed to bulb to plant. Pupils are introduced to the concepts of life and what constitutes a living creature. They observe that animals have offspring which grow into adults and begin to learn to group and classify living creatures according to observable criteria. In Yr2, they explore how animals are suited to their environments and learn to group and organise them into food chains. Pupils develop an understanding of interdependence as well as an understanding of a range of different animal lifecycles. Pupils build upon this understanding in Yr4 when construct and interpret more complex food chains/webs and explore how environmental changes may have an impact on living things. In Yr4 pupils also learn to use the observable features of plants and animals to group, classify and identify them into broad groups. Pupils will build on this understanding further in Yr5 when they explore the reproductive processes and life cycles of animals and in Yr6 where the concept of microorganisms is introduced. In Yr2, cross curricular links can be made with the Outdoor Learning curriculum in which pupils learn to understand and care for their immediate environment. Understanding the habitats, food chains and interdependence will support them to do so. Further cross curricular links can be made with the Statistics component of the Maths curriculum in which pupils are taught to use tally charts and pictograms to collect data. Pupils can use such tools when collecting data about living things found in local habitats.			

Computing	**Programming:** Robot Algorithms and Quizzes I can give and receive sequences of instructions. I understand that a sequence of commands must have a start and an outcome I can design and predict the outcome of algorithm. I can create and debug a programme. I can decide upon and implement improvements to my project.	In Yr1, pupils were introduced to programming. They learned to give and receive simple commands for specific purposes. They combined commands to create sequences of instructions. They identify the effect of changing a value.and planned and created programmes and found multiple solutions to problems. In Yr2, pupils will build upon this understanding when pupils learn to give series of instructions as a sequence and understand the importance of the order that instructions are given. Pupils learn to use logical reasoning to predict the outcome of a program and use artwork as part of their designs. In Yr2 pupils design their own algorithms and create and debug programs that they have written. In Yr3, pupils will build upon this understanding when they learn about sequence in music, events and actions. In Yr2, cross curricular links can be made with the English and Communication curriculum in which pupils learn how to create oral and written instructions.	command algorithm instruction sequence outcome program floor robot route debug start run block design sprite background character images project features
	Computing Systems and Networks: IT Around Us I can recognise and use the key features of IT around the school. I recognise and can talk about the key features and uses of IT in the wider world. I understand how IT can be used safely.	In Yr1, pupils learned about the technology in the world around us. Pupils learned to identify examples of technology within the school and wider world. They used the mouse and keyboard to perform basic functions of a computer and created and followed rules for using technology safely. In Yr2 pupils will build upon this understanding by extending their understanding of the uses and features of information technology in the school and wider world. Pupils focus on how information technology helps us and deepen their understanding of how to use it safely. Pupils also learn to recognise that choices are made when using information technology. In Yr3 pupils will build upon this understanding when they learn how computers can be connected to create networks. In Yr2, cross curricular links can be made with the Time and Place Curriculum in which pupils are required to describe events beyond living memory that are significant nationally or globally significant. Pupils can explore the major Information Technology developments that shape the world we live in today. Further cross curricular links can be made with the Wellbeing Curriculum in which pupils list some of the ways that screens improve their lives as well as what information should or should not be shared.	Computer Information technology Technology Screen Keyboard Mouse Device Laptop Personal Computer Tablet USB Stick Digital Camera Printer Smartphone Safety
	Creating Digital Media: Digital photography and music	In Yr1, pupils learned how to create pieces of digital painting and writing. Pupils used the basic freehand tools with precision and made careful choices when producing digital content. They also edited text for a specific purposes and reflected on the similarities and differences producing digital and non-digital content. In Yr2, pupils will build upon this understanding when they use digital devices to take effective photographs, They will learn how to decide how photographs can be improved and use photo editing tools to change images. In Yr2 pupils will	Digital camera Landscape Portrait Framing Photo-editing

	I can use a digital device to take and edit a photograph. I can make choices about how I take, select and edit digital images. I can compose, review and refine pieces of digital music.	identify that there are patterns in music understand how music is made from a series of notes. Pupils will create music for a specific purpose and review and refine their work. In Yr3, pupils will build upon this understanding when the focus on digital animation and desktop publishing. In Yr1, cross curricular links can be made with the Time and Place Curriculum in which pupils are required to understand geographical similarities and differences through studying the human and physical geography of a small area of the United Kingdom. Pupils can use digital photography as a means of collecting information which can be used to develop geographical understanding. Further cross curricular links can be made with the Design and the Arts Curriculum in which pupils are required to experiment with, create, select and combine sounds using the inter-related dimensions of music.	Light source focus Filter Effect Colour Pattern Tempo Pitch Note Volume Rhythm Percussion Instrument Tune
	Data and Information: Pictograms I can create and interpret tally charts and pictograms. I can select objects and people according to their attributes. I can effectively present information using a computer.	In Yr1, pupils learned about grouping data. Pupils learned to count, compare and group objects according to observable features. Pupils also leaned to label and answer questions about groups. In Yr2, pupils will build upon this understanding when they learn to compare objects using tally charts and pictograms. Pupils learn to select objects by attribute and make comparisons between them. In Yr3, pupils will build upon this understanding when they learn to produce branching databases. In Yr1, cross curricular links can be made with the Mathematics Curriculum in which pupils are required to make and interpret pictograms and tally charts.	Data Tally chart Pictogram More than Less than Most Least Attribute

Year 3

Curriculum Area	Coverage	Curriculum Progression and Linkage	Skills of Enquiry	Key Concepts and Vocabulary	
Science	**Animals including Humans** I can identify that animals, including humans, need the right types and amount of nutrition and that they cannot make their own food. I can identify that humans and some other animals have skeletons and muscles for support, protection and movement.	In Yr1 pupils learned to name and identify the functions of parts of the body. In Yr2 pupils learned about the importance of diet, exercise and hygiene. In Yr3 pupils extend their understanding to include the functions of the musculoskeletal system. They also deepen their understanding of how diet effects bodily function. Pupils will develop their understanding even further in Yr4 when they learn about the digestive system, in Yr5 with the reproductive system and in Yr6 when they learn about the circulatory system and the effect of exercise, drugs and lifestyle on how their body's function. In Yr3, cross curricular links can be made with the Sports, Exercise and Health curriculum in which pupils experience first hand the role that their own skeletons and muscles play in the support, protection and movement of their bodies. Further cross curricular links can be made when pupils learn to follow a recipe to prepare a healthy snack and to identify food which, if consumed in excess, are unhealthy.	I can describe my own scientific ideas related to topics in the national curriculum. I can ask my own questions about the scientific phenomena we are studying, and select and plan the most appropriate ways to answer these questions, or those of others. Including: • observing changes over different periods of time • noticing patterns • grouping and classifying things • carrying out comparative tests I can use a range of scientific equipment to take accurate and precise measurements or readings. I can record data and results using scientific diagrams and labels, tables, bar graphs. I can present findings and draw conclusions in different forms. I can use appropriate scientific language and ideas from the national curriculum to explain and communicate my methods and findings.	**Animals** vertebrate invertebrate endoskeleton exoskeleton hydrostatic muscles tendons joints protect movement support contract relax skull clavicle scapula ribcage vertebrae radius ulna pelvis femur tibia fibula healthy nutrients energy carbohydrate protein fibre fat vitamin minerals water pupil retina **Plants**	**Energy and Power** light light source dark shadow reflection reflect ray wave amplitude wave length force air resistance water resistance friction gravity surface push pull magnet magnetic magnetic field poles repel attract **Materials** opaque transparent translucent hard soft durable permeable
	Light I recognise that we need light in order to see things and that dark is the absence of light. I notice that light is reflected from surfaces. I recognise that light from the sun can be dangerous and that there are ways to protect our eyes. I recognise that shadows are formed when the light from a light source is blocked by an opaque object. I can find patterns in the way that the size of shadows change.	In EYFS, Yr1 and Yr2 pupils will have gained a variety of personal experiences relating to light. In Yr1, pupils identified parts of the human body and senses responsible for seeing. In Yr3, pupils gain practical experience of light and the absence of light. Pupils explain using scientific vocabulary how shadows are made. They explore how light travels and how it can reflect off surfaces. Pupils will use and apply this understanding in Yr5 when they explain the causation of night and day. Pupils will revisit and deepen their understanding of light in Year 6 when they explore reflection in more detail and are introduced to the concept of refraction. In Yr3, cross curricular links can be made with the Design and the Arts curriculum in which pupils build and experiment with shadow puppets. Further cross curricular links can be made with the Statistics component of the Maths curriculum in which pupils are taught to interpret and use bar charts and tables. These tools can be			

		used to collect and present data when investigating patterns in shadow length. Further cross curricular links can be made with the Measurement-Time component of the Maths curriculum in which pupils are taught to tell the time to the nearest minute, use am and pm and use a 24 hour clock. These skills can be used to plan and record an investigation into shadow patterns.	root anchor absorb stem sucked up support transport leaves food (sap) photosynthesis chlorophyll flowers petals fruit seed bulb nutrients evaporation fertilisation stamen anther filament carpel stigma style ovary ovule sepal pollination pollinator germination sprout shoot seed dispersal sunlight water temperature nutrition	impermeable high density low density **Earth and Space** rock soil Igneous magma lava sedimentary sediment metamorphic fossilisation palaeontology erosion minerals air water organic matter topsoil subsoil baserock **Innovation** Mary Anning
	Forces and Magnetism I can compare how things move on different surfaces. I notice that some forces need contact between two objects, but magnetic forces can act at a distance. I can observe how magnets attract or repel each other and attract some materials and not others. I can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. I can describe magnets as having two poles. I can predict whether two magnets will attract or repel each other, depending on which poles are facing.	In EYFS, Yr1 and Yr2 pupils build an understanding of the concepts of push and pull forces built upon their everyday experiences. In Yr3 pupils extend this understanding to include other simple forces that involve contact and those that act at a distance. Pupils focus on magnetism and develop an understanding of how magnets work. Pupils build upon and extend this understanding in Yr5 when they explore forces in more detail and learn how simple mechanisms, including levers, gears and pulleys can be used to increase the effect of a force. In Yr3, cross curricular links can be made with the Sports, Exercise and Health curriculum in which pupils can explore how force is required to run at different speeds. Change direction, and throw/catch objects. Further cross curricular links can be made with the Yr2 Time and Place curriculum in which pupils identify the North and South Poles on a map. Pupils can build upon this understanding and explain the magnetic properties of the Earth. Further cross curricular links can be made with the Statistics component of the Maths curriculum in which pupils are taught to interpret and use bar charts and tables. These tools can be used to collect and present data when investigating forces and magnetism. Further cross curricular links can be made with the Measurement- Length and Perimeter component of the Maths curriculum in which pupils are taught to measure and compare lengths in mm, cm and m. Pupils are also taught to perform calculations using lengths. These skill can be used to collect and analyse data when investigating forces and magnetism.		

		Further cross curricular links can be made with the Measurement-Time component of the Maths curriculum in which pupils are taught to measure time in minutes and second. These skills can be used to record data investigating forces and magnetism.			
	Plants I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. I can investigate the way in which water is transported within plants. I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	In Yr2 pupils learn how plants are suited to their environments. Pupils also gained theoretical and practical experience of what what plants need for successful growth. In Yr3, pupils will extend their understanding by learning about the functions of each part of the plant- including reproduction. Pupils will build upon this understanding in Yr5 when they learn about reproductive cycles in animals and in Yr6 when explore how adaptation may lead to evolution in future generations. In Yr3, cross curricular links can be made with the Outdoor Learning curriculum in which pupils learn to understand and care for their immediate and wider environment. Understanding the reproductive cycle of flowers can help pupils to gain an understanding of how to protect the environment. Further cross curricular links can be made with the Measurement-Mass and Capacity component of the Maths curriculum in which pupils are taught to measure and calculate capacity. These skills can be used to record and analyse data relating to an investigation on how water is transported within plants. Further cross curricular links can be made with the English and Communication curriculum in which pupils demonstrate their understanding of plants by creating a non-chronological report on them.			
	Rocks I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	In EYFS, Y1 and Y2 pupils build an understanding of the concepts of Rocks and Soils. In Yr2, pupils learned how to categories materials according to their properties and observable features. In Yr3, pupils extend this understanding as they gain a practical and theoretical understanding of how the Earth is constructed. They sort and group rocks on the basis of their observable features and material properties. Pupils focus on fossil construction and investigate the pioneers of fossil hunting. Pupils focus on soil and gain an understanding what it			

	I can describe in simple terms how fossils are formed when things that have lived are trapped within rock. I recognise that soils are made from rocks and organic matter.	is made from. Pupils will build on this understanding in Yr4 when they learn about reversible and irreversible reactions. Pupils will also extend their understanding of the composition of the Earth in Yr5. In Yr3, cross curricular links can be made with the Outdoor Learning curriculum in which pupils learn to understand and care for their immediate and wider environment. Understanding rocks and soils can help pupils to gain an understanding of how to protect the environment. Further cross curricular links can be made with the Time and Place curriculum in which pupils describe and understand key aspects of volcanoes. By doing so, pupils will develop a firm understanding of how igneous rock is formed. Further cross curricular links can be made with the Statistics component of the Maths curriculum in which pupils are taught to interpret and use tables. These tools can be used to collect and present data relating to the physical properties of rocks and soils.			

Computing	**Programming:** Sequence in Music, Events and Actions I can explore and use a new programming environment. I can use sequences of commands to create a project that matches a task description. I can create a programme to move a sprite. I can fix bugs and add and features to my programme.	In Yr2, pupils learned about robot algorithms and quizzes. Pupils learned to give and receive sequences of instructions.and predicted the outcome of algorithms. Pupils learned to create and debug programmes and made decisions about how to implement improvements to their project. In Yr3 children will build upon this learning by exploring a new programming environment. They will identify that commands have an outcome and that a program has a start. They will learn to recognise that a sequence of commands can have an order and they will learn to change the appearance of their projects and create projects from a task description. In Yr3, pupils will also learn to explain how a sprite moves in an existing project. They will create a program to move a sprite in four directions and adapt a program to suit a new context Pupils will develop their program by adding features and by fixing bugs within a program. Pupils will design and create a maze-based challenge. In Yr4, pupils will build upon this understanding by programming repetition in Shapes and Games. In Yr3 cross curricular links can be made with the Design and the Arts Curriculum in which pupils are required to reproduce sounds from aural memory and begin to develop an understanding of musical composition.	Object Scratch Sprite Backdrop Block Code Action Sound Command Sequence Notes Program Algorithm Debug Run (execute) Task Description Character Maze Keys Feature
	Computing Systems and Networks: Connecting Computers I can identify and explain the function of devices. I can understand the impact of digital devices on the way we work. I can identify and explain how devices can share information and become part of a network.	In Yr2, pupils learned about the use of Information Technology in the world around us. Pupils learned to recognise and use the key features of IT around the school and in the wider world. They also learned to understand how IT can be used safely. In Yr3, pupils will build upon this understanding by explaining how digital devices function. Pupils learn to identify input and output devices and to recognise how digital devices can change the way we work. Pupils focus on explaining how a computer network can be used to share information and how digital devices can be connected. Pupils will also learn to recognise the physical components of a network. In Yr4, pupils will build upon this understanding by earning about The Internet. In Yr3, cross curricular links can be made with the Wellbeing Curriculum in which pupils explain how to make wise choices online.and why limiting screen time is a good idea.	Browser System Device Input Input device Output Output device Process Digital Non-digital Network Switch Server Wireless access point (WAP) Connections Hardware Software Stored Router Internet WiFi

	Creating Digital Media: Animation and Desktop publishing I can plan, create and review a piece of computer animation. I can create, review and edit a piece of desktop publishing.	In Yr2, pupils focused on digital photography and music. Pupils used digital devices to take and edit photographs. They made choices about how to take, select and edit digital images. They also learned to compose, review and refine pieces of digital music. In Yr3 children will build upon this understanding by explaining that animation is a sequence of drawings or photographs. Pupils will plan an animation and work consistently and carefully to do so. Pupils will review and improve animation and evaluate the impact of adding other media to an animation. In Yr3, pupils will also learn to recognise how text and images convey information and to recognise that text and layout can be edited. Pupils will choose appropriate page settings and add content to a desktop publishing publication. Pupils will consider how different layouts can suit different purposes and consider the benefits of desktop publishing. In Yr4, pupils will build upon this understanding by focusing on audio and photo-editing. In Yr3, cross curricular links can be made with the English and Communication curriculum in which pupils write for a range of purposes. Pupils can use desktop publishing to transcribe/redraft sections or entire pieces of writing.	Animation Flip-book Stop-frame Setting Character Event Storyboard Frames Onion-skinning Media Film Font style Font size Font colour Text Edit Template Page orientation Placeholder Paste Layout Desktop publishing Software Stored
	Data and Information: Branching Databases I can use the attributes of objects to collect data sets. I can use Yes/No questions to create and use a branching database.	In Yr2, pupils learned about presenting data and information using pictograms. Pupils created and interpreted tally charts and pictograms. Pupils selected objects and people according to their attributes. They also effectively presented information using a computer. In Yr3, children will build upon this understanding by utilising questions with yes/no answers to create branching databases. Pupils will learn to identify objects using a branching database and to compare the information shown in a pictogram with a branching database. In Yr4, pupils will build upon this understanding by learning about data logging. In Yr3, cross curricular links can be made with the Mathematics curriculum in which pupils collect sets of data to create tables, pictograms and bar charts.	Group Attribute Object Branching Database Tree Structure Pictogram Data

Year 4

Curriculum Area	Coverage	Curriculum Progression and Linkage	Skills of Enquiry	Key Concepts and Vocabulary	
Science	**Electricity** I can identify common appliances that run on electricity I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. I can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. I can recognise some common conductors and insulators, and associate metals with being good conductors.	In EYFS, Y1, Y2 and Yr3 pupils build an understanding of the concepts of Electricity. In Yr4 pupils learned about light and how electricity could be used to create light energy. Pupils learn how to use circuits to harness the power of electricity to perform specific functions. Pupils build and manipulate series circuits and develop an understanding of conductors and insulators. Pupils will develop this understanding further in Yr6 when they begin to create parallel circuits and extend their understanding of electrical current.	I can describe and evaluate my own scientific ideas related to topics in the national curriculum. I can ask my own questions about the scientific phenomena we are studying, and select and plan the most appropriate ways to answer these questions, or those of others, Including: • observing changes over different periods of time, • noticing patterns, • grouping and classifying things, • carrying out comparative • finding things out using a wide range of secondary sources of information I can use a range of scientific equipment to take accurate and precise measurements or readings, with repeat readings where appropriate. I can record data and results using scientific diagrams and labels, classification keys, tables, and bar graphs. I can present findings and draw conclusions in different forms.	**Animals** organism life processes respiration sensitivity reproduction excretion nutrition habitat environment endangered species extinct classification vertebrates invertebrates specimen characteristics food chain food web producer consumer primary consumer secondary consumer tertiary consumer predator mammals birds fish invertebrates reptiles amphibians digestive system digest	**Changes** states of matter solid vibrate liquid flow gas water vapour particles melt freeze evaporate condense condensation precipitation water cycle reversible irreversible natural change human change deforestation pollution urbanisation interdependence **Power** energy generate renewable non-renewable appliances battery circuit complete incomplete bulb motor buzzer
	Sound I can identify how sounds are made, associating some of them with something vibrating. I can recognise that vibrations from sounds travel through a medium to the ear.	In EYFS, Y1, Y2 and Yr3, pupils build an understanding of the concepts of Sound. In Yr1 then learn to associate different parts of the body with the creation and hearing of sound. In Yr3 pupils learn about light and how it travels in waves from a light source. In Y4, pupil identify how sounds are made, how they travel and experiment with making sounds in order to create generalised statements about pitch and volume. Pupils will develop this understanding further in KS3. In Yr4, cross curricular links can be made with the Making Music component of the Design and the Arts curriculum.			

	I can find patterns between the pitch of a sound and features of the object that produced it. I can find patterns between the volume of a sound and the strength of the vibrations that produced it I recognise that sounds get fainter as the distance from the sound source increases.	Further cross curricular links can be made with the the Science and Computing curriculum in which pupils are taught to use a computer to record and edit audio. Further cross curricular links can be made with the Science and Computing curriculum in which data loggers can be used to record and analyse sound levels.	I can use appropriate scientific language and ideas from the national curriculum to explain and communicate my methods and findings.	tongue teeth mouth saliva gland oesophagus liver stomach gall bladder pancreas duodenum large intestine small intestine rectum anus teeth incisor canine premolar molar decay dentist fluoride	wire conductor insulator sound source vibration sound wave volume amplitude pitch **Materials** soundproof
	States of Matter I can compare and group materials together, according to whether they are solids, liquids or gases. I can observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	In Yr1 and Yr2, pupils learn about different materials and material properties. In Yr2 and Yr3, pupils learn to sort materials according to their observable characteristics and/or properties. In Yr3, pupils learned about Lava, magma and igneous rock. In Yr4, pupils gain an understanding of the material properties of solids, liquids and gasses. Pupils create working definitions to support them to categorise materials into these three groups. Pupils learn how and why these changes took place. Pupils explore evaporation and condensation and begin to develop and understanding of reversible and irreversible changes. Pupils will build upon this understanding in Yr5 when they learn about dissolving. In Yr4, cross curricular links can be made with the Time and Place curriculum in which pupils learn to describe and understand the key aspects of the water cycle. Further cross curricular links can be made with the English and Communication curriculum in which pupils create a non-chronological report on States of Matter. Further cross curricular links can be made with the Information Technology component of the Science and Computing curriculum in which pupils collect and record data. Further cross curricular links can be made with the Statistics component of the Maths curriculum in which pupils are taught to interpret and create line graphs.			

	Living Things and Habitats I can recognise that living things can be grouped in a variety of ways. I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. I can construct and interpret a variety of food chains, identifying producers, predators and prey. I can explain how environmental changes may have an impact on living things.	In Yr2, pupils learned how to construct simple food chains and how different sections of the food chain were dependent upon each other. In Yr2 and Yr3, pupils learn to sort materials according to their observable characteristics and/or properties. In Yr4, pupils will build upon this understanding to classify living things and create more complex food chains and webs. Pupils will explore the concept of interdependence and consider how changes to the environment can have a significant impact up and down the food chain. Pupils will explore how natural and human changes can impact on living things. Pupils will extend this understanding in Yr6 when they learn about micro-organisms. In Yr4, cross curricular links can be made with the Outdoor Learning curriculum in which pupils learn to share their understanding of how to care for and protect the wider natural environment. Understanding how to classify living creatures and understanding interdependence, and the impact of environmental change can support pupils to do so.			
	Animals Including Humans I can describe the simple functions of the basic parts of the digestive system in humans. I can identify the different types of teeth in humans and their simple functions.	In Yr1, pupils learned about the parts of the human body. In yr2, pupils explored the importance of a healthy diet. In Yr3, pupils learned about the musculoskeletal system. In Yr2 and 4, pupils learn about food chains and webs. In Yr4, pupils build an understanding of how the human body digests and processes food. Pupils focus on the role of teeth and the digestive system. Pupils will build upon their understanding of the human body in Year 5 when they learn about the reproductive system and in Year 6 when they learn about the circulatory system. In Yr4 cross curricular links can be made with the Sports, Exercise and Health curriculum in which pupils explore the concept of a balanced diet.			

Computing	**Programming:** Repetition in Shapes and Games I can create a programme using a text-based system. I can use and modify a count-controlled loop to produce a given outcome. I can use an infinite loop to produce a given outcome. I can design a program with multiple loops.	In Yr3, pupils learned about sequence in music, events and actions. Pupils were introduced to and explored a new programming environment. They used sequences of commands to create a project that matched a task description. Pupils created a program to move a sprite and fixed bugs and added features to their program. In Yr4, pupils will build upon this learning by identifying that accuracy in programming is important. Pupils will create a program in a text-based language and explain what 'repeat' means. Pupils will modify a count-controlled loop to produce a given outcome and decompose a task into small steps. Pupils will create a program that uses count-controlled loops to produce a given outcome. In Yr4, pupils will also develop the use of count-controlled loops in a different programming environment. Pupils will explore the use of infinite loops and count controlled loops. Pupils will develop a design that includes two or more loops which run at the same time. Pupils will create a project that includes repetition. In Yr5 pupils will build upon this understanding when they learn about selection in physical computing and quizzes. In Yr4, cross curricular links can be made with the Mathematics curriculum in which pupils are taught to recognise and describe 2D shapes. Pupils also learn about angles, triangles, quadrilaterals and symmetry. Pupils can use and apply this understanding when exploring repetition in shapes.	Repetition Repeat Count-controlled loop Procedure Actions Chunks Debug Design Program Code Code Snippet Infinite loop Object Sprite Algorithm
	Computing Systems and Networks: The Internet I can explain how computer networks are made and how networked devices make up the internet. I understand how content can be added and accessed via the WWW. I can evaluate the impact of unreliable content on the internet.	In Yr3, pupils learned about connecting computers. Pupils learned to identify and explain the function of devices and developed an understanding of the impact of digital devices on the way we work. Pupils identified and explained how devices can share information and become part of a network. In Yr4, pupils built upon this understanding by describing how networks physically connect to other networks. they will learn how networked devices make up the internet and outlined how websites can be shared via the World Wide Web (WWW). Pupils will describe how content can be added and accessed on the World Wide Web (WWW) and to recognise how the content of the WWW is created by people. Pupils will also learn to evaluate the consequences of unreliable content. In Yr5, pupils will build upon this understanding when learning about how computers can be used to share information. In Yr4, cross curricular links can be made with the Time and Place curriculum in which pupils explore Ancient Rome and Britain's settlement by Anglo-Saxons and Scots. Pupils can use and apply their understanding of reliable/unreliable content on the internet to support their research. Further cross curricular links can be made with the Wellbeing Curriculum in which pupils show understanding of the different ways that the internet can be dangerous and identify ways to avoid harm while online.	Network Internet Device World Wide Web Website Webpage Upload Media Online services Online content Reliable Unreliable Honest Dishonest Accurate Inaccurate Legal Illegal

	Creating Digital Media: Audio and Photo Editing I can record and edit an audio file. I can combine different types of audio and evaluate my editing choices. I can use photo-editing software to make improvements to digital images.	In Yr3, pupils learned about animation and desktop publishing. Pupils learned to plan, create and review a piece of computer animation. They also learned to create, review and edit a piece of desktop publishing. In Yr4 pupils will build upon this understanding to identify that sound can be digitally recorded and to use a digital device to record sound. Pupils will explain that a digital recording is stored as a file and that audio can be changed through editing. Pupils will learn that different types of audio can be combined and played together. In Yr4, pupils will also learn that digital images can be changed. Pupils will carefully consider composition and describe how images can be changed for different uses. Pupils will learn to recognise that not all images are real and to evaluate how changes can improve an image. In Yr5, pupils will build upon this understanding when they learn about video editing and vector drawing. In Yr4 cross curricular links can be made to the speaking and listening component of the English and Communication curriculum. In Yr4, cross curricular links can be made with the Sound component of the Science and Computing curriculum in which pupils learn how sound is made, how it travels and how its pitch and volume can be manipulated. Such principles can be used and applied when recording and editing sound.	Digital device Sound Record Play Input Output Podcast File Edit Open Editing tools Export Share Composition Effect Retouch Fake Real Original Image Completed publication
	Data and Information: Data logging I can collect date over a period of time to answer questions and draw conclusions.	In Yr3 pupils learn about branching databases. Pupils learn to use the attributes of objects to collect data sets and focus on using Yes/No questions to create and use a branching database. In Yr4, pupils will build upon this understanding to explain that data gathered over time can be used to answer questions and to use a digital device to collect data automatically. Pupils will learn how a data logger works and identify the data needed to answer questions. Pupils will use the collected data to answer questions. Pupils will build upon this understanding in Yr5 when they learn to create flat-file databases. In Yr4, cross curricular links can be made with the States of Matter component of the Science and Computing curriculum in which pupils collect data relating to the temperature that at which temperatures change state. Further cross curricular links can be made with the Sound component of the Science and Computing curriculum in which data loggers can be used to record and analyse sound levels.	Data Data set Sensor Input device Interval Import Capture Data logger Logged data Interpret Conclude Conclusion

Year 5

Curriculum Area	Coverage	Curriculum Progression and Linkage	Skills of Enquiry	Key Concepts and Vocabulary	
Science	**Earth and Space** I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system. I can describe the movement of the Moon relative to the Earth I can describe the Sun, Earth and Moon as approximately spherical bodies I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	In Yr1, pupils made observations about day, night and seasonal changes. In Yr2, pupils made made comparisons with a location with contrasting seasonal patterns In Yr3, pupils learned about light and the explored the composition of the Earth. In Yr5, pupils learn about the Earth in terms of its place in the Universe. Pupils will learn about the causation of day/night and the seasons. They will explain Earth's position and movement in relation to other celestial bodies. Pupils will also investigate the fundamental differences between geocentric and heliocentric models of the universe. Pupils will build upon this knowledge in KS3. In Yr5, cross curricular links can be made with the Geometry- Position and Direction component of the Maths curriculum in which pupils can place the concept of rotation into the context of other types of movement such as translation and reflection. Further cross curricular links can be made with the Statistics component of the Maths curriculum in which pupils are taught to interpret and create line graphs. Pupils can use these skills to interpret and represent phenomenon relating to the Earth, Sun, Moon and other celestial bodies. Further cross curricular links can be made with the Time and Place curriculum in which pupils will learn about the Mayan model of the universe and compare it with later geocentric and heliocentric models.	I can describe and evaluate my own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources. I can ask my own questions about the scientific phenomena we are studying, and select and plan the most appropriate ways to answer these questions, or those of others, recognising and controlling variables where necessary. Including: • observing changes over different periods of time, • noticing patterns, • grouping and classifying things, • carrying out comparative and fair tests, • finding things out using a wide range of secondary sources of information I can use a range of scientific equipment to take accurate and precise measurements or	**Earth and Space** sun star moon planet sphere spherical bodies satellite Mercury Venus Earth Mars Jupiter Saturn Uranus Neptune Pluto orbit rotate axis geocentric model heliocentric model astronomer celestial bodies **Materials** insulator conductor soluble insoluble transparent translucent opaque **Power** force air resistance	**Innovation** Copernicus Galileo Newton **Changes** states of matter solid vibrate liquid flow gas water vapour particles melt freeze evaporate condense condensation precipitation water cycle reversible irreversible dissolve solute solution suspension mix particles reactant sieving filtering evaporating **Changes** life cycle prenatal infancy childhood
	Properties of Materials I can compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. I know that some materials will dissolve in liquid to form a	In Yr1 and Yr2, pupils learned about everyday materials and in Yr3 they gained and understanding of rocks and soils. In Yr2 and Yr3, pupils learned to sort and categorise materials according to their observable features and material properties. In Yr4. Pupils learned about states of matter- including reversible changes such evaporation and condensation. In Yr4 pupils were introduced to the concept of conductors and insulators. In Yr5, pupils use this understanding to group and classify materials according to their properties. In Yr5, pupils also develop an understanding of reversible and irreversible reactions. Pupils develop an understanding of dissolving and investigate a range of different			

	solution, and describe how to recover a substance from a solution I can use my knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. I can demonstrate that dissolving, mixing and changes of state are reversible changes. I can explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	methods for separating mixtures and solutions. Pupils will build on this understanding in KS3. In Yr5, cross curricular links can be made with the Statistics component of the Maths curriculum in which pupils are taught to interpret and create line graphs and two-way tables. Pupils can use these skills to collect and present data relating to investigations focusing on the properties of different materials. Further cross curricular links can be made with the Time and Place curriculum in which pupils understand aspects of the distribution of natural resources. Pupils can use their scientific understanding to evaluate why certain materials are so sought after and valuable.	readings, with repeat readings where appropriate. I can record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. I can present findings and draw conclusions in different forms, and raise further questions that could be investigated, based on their data and observations. I can use appropriate scientific language and ideas from the national curriculum to explain, evaluate and communicate their methods and findings.	water resistance air resistance water resistance streamlined aerodynamic air pressure water pressure buoyancy up-thrust friction gravity gravitational pull weight mass surface push pull mechanism pulley lever pivot gear cog magnet magnetic magnetic field	adolescence early adulthood middle adulthood late adulthood puberty menstruation life expectancy larynx pubic hair breasts scrotum testes penis **Animals** mammal amphibian reptile bird
	Forces I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces. I can recognise that some mechanisms, including levers,	In Yr4, pupils learn about forces and magnetism. In Yr5, they build upon their understanding of forces that involve contact such as friction, air/water resistance, air/water pressure as well as forces which act at a distance such as magnetism and gravity. Pupils also build on their Yr5 understanding of Earth and Space to deepen their understanding of gravity. In Yr5, pupils explore how mechanisms such as levers, gears and pulleys can increase the effect of a force. Pupils also explore the real-wold application of these mechanisms. Pupils will extend this learning further in KS3. In Yr5 cross curricular links can be made with the Measurement component of the Maths curriculum. Further links to the Yr6 Maths curriculum can be made by exploring pulleys and levers in terms of ratio.			

	pulleys and gears, allow a smaller force to have a greater effect.	Further cross curricular links can be made with the Statistics component of the Maths curriculum in which pupils are taught to interpret and create line graphs. Pupils can use these skills to collect and present data relating to investigations focusing on forces.			
	Animals Including Humans I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. I can describe the life process of reproduction in some plants and animals.	In Yr2, pupils developed an understanding of plant and animal life-cycles. In Yr3 pupils explored the reproductive cycle of flowering plants. In Yr5, pupils extend this understanding to the reproductive systems of plants and animals. They explore in detail the different stages of human development from fertilisation through to death. Pupils learn to compare the human life cycle with that of amphibians/insects/birds. Pupils will extend this learning further in KS3. In Yr5, cross curricular links can be made with the Wellbeing Curriculum in which pupils learn about key facts about the menstrual cycle.			

Computing	**Programming:** Selection in Physical Computing and Quizzes To create programmes which include count and controlled conditioned loops. To design, create and evaluate a program which uses selection. To design a program that includes selection and controls a physical computing element.	In Yr4, pupils learned about repetition in shapes and games. Pupils created a programme using a text-based system. They used and modified a count-controlled loop to produce a given outcome. They used an infinite loop to produce a given outcome and designed a program with multiple loops. In Yr5 pupils built upon this understanding to control a simple circuit connected to a computer and to write programmes that include count-controlled loops. Pupils will learn to explain that a loop can stop when a condition is met and that a loop can be used to repeatedly check whether a condition has been met. They will design a physical project that includes selection and create a program that controls a physical computing project. In Yr5 pupils will explain how selection is used in computer programmes and relate that a conditional statement connects a condition to an outcome. Pupils will explain how selection directs the flow of a program and design/create a program which uses selection. In Yr6, pupils will build upon this understanding to learn about variables in games and sensing.	Simple circuit Microcontroller Infinite loop LED Switch Output Component Count controlled loop Condition Conditioned loop Action Selection Flow Test Debug Algorithm Outcome Branch Setup code
	Computing Systems and Networks: Sharing Information I can explain the role of computer systems. I can recognise and explain how the internet can be used to share information and allow people in different places to collaborate. I can contribute to a shared online project.	In Yr4, pupils learned about The Internet. Pupils explain how computer networks are made and how networked devices make up the internet. They developed an understanding of how content can be added and accessed via the WWW. They also evaluated the impact of unreliable content on the internet. In Yr5, pupils will build upon this understanding by explaining that computers can be connected together to form systems. Pupils will recognise the role of computer systems in our lives and how information is transferred over the internet Pupils will learn to explain how sharing information online lets people in different places work together. Pupils will contribute to a shared project online and evaluate different ways of working together online. In Yr6, pupils will develop this understanding by focusing on digital communication. In Yr5, cross curricular links can be made with the Speaking and Listening component of the English and Communication curriculum. Further cross curricular links can be made with the Wellbeing Curriculum in which pupils identify a range of potential dangers when online and can suggest specific strategies for keeping safe.	Computer System Input Output Processors Data transfer Network Packets Shared file Online working Collaboration Public Private

	Creating Digital Media: Video editing and Vector drawing I can plan, capture and edit video. I can combine shapes to create vector drawings that consist of multiple layers.	In Yr4, pupils learned about audio and photo editing. Pupils learned to record and edit an audio file, combine different types of audio and evaluate their editing choices. Pupils also used photo-editing software to make improvements to digital images. In Yr5, pupils will build upon this understanding by explaining what makes a video effective. Pupils will identify digital devices that can record video and capture video using a range of techniques. Pupils will create a storyboard and identify that video can be improved through reshooting and editing. Pupils will consider the impact of the choices made when making and sharing a video. In Yr5, pupils will also identify that drawing tools can be used to produce different outcomes. Pupils will create a vector drawing by combining shapes and use tools to achieve a desired effect Pupils will recognise that vector drawings consist of layers and will learn to group objects to make them easier to work with. In Yr6, pupils will develop this understanding by learning about web page creation and 3D modelling.	Video Visual media Camera angle Digital recording device Microphone Filming techniques Save Scenes Reshooting Editing Tools Store Retrieve Export Vector drawing Paper-based drawing Drawing tools Move Resize Rotate Object Duplicate Alignment grids Resize handlers Zoom Layers Front layer Back layer
	Data and Information: Flat-file databases I can record data digitally. I can use grouping and sorting to answer questions. I can use data bases to answer real-world questions	In Yr4, pupils learned about data logging. Pupils collected date over a period of time to answer questions and draw conclusions. In Yr5, pupils will build upon this understanding by using a form to record information. Pupils will compare paper and computer-based databases and outline how grouping and then sorting data allows us how to answer questions. Pupils will explain that tools can be used to select specific data. Pupils will explain that computer programs can be used to compare data visually and apply their knowledge of a flat-file database to ask and answer real-world questions. In Yr6, pupils will build upon this understanding by learning about spreadsheets. In Yr5, cross curricular links can e made with the Mathematics curriculum in which pupils read and interpret graphs and tables.	Database Flat-file database Questions Field Value Record Order Sort Group Data cards Criteria Data selection 'and' 'or' Chart Filter

Year 6

Curriculum Area	Coverage	Curriculum Progression and Linkage	Skills of Enquiry	Key Concepts and Vocabulary	
	Light I recognise that light appears to travel in straight lines. I can use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. I can explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them I can explain how light can be refracted.	In Yr3, pupils gain practical experience of light and the absence of light. Pupils explain using scientific vocabulary how shadows are made. They explore how light travels and how it can reflect off surfaces. In Yr6, pupils focus on explaining the concepts of reflection and shadow formation with more detail and precision. Pupils use their understanding of the way that light travels and reflection to explain how we see objects. Pupils also explore refraction and the way in which rays of light can be separated using prisms. Pupils will build on this understanding in KS3. In Yr6, cross curricular links can be made with the Design and the Arts curriculum in which pupils explore the role that light and dark play in representing form. Further cross curricular links can be made with the Geometry-Property of Shape component of the Maths Curriculum in which pupils learn about angles and can use and apply this understanding to measure and/or calculate the angle of incidence and the angle of refraction.	I can describe and evaluate my own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources. I can ask my own questions about the scientific phenomena we are studying, and select and plan the most appropriate ways to answer these questions, or those of others, recognising and controlling variables where necessary. Including: • observing changes over different periods of time, • noticing patterns, • grouping and classifying things, • carrying out comparative and fair tests,	**Power** light light source shadow reflection reflect ray incident ray reflected ray wave amplitude wave length refraction visible spectrum prism energy generate renewable non-renewable appliances battery cell circuit symbol complete incomplete switch bulb motor buzzer wire conductor insulator current amps voltage resistance electrons	**Changes** offspring inheritance inherited traits variations characteristics adaption adaptive traits habitat environment evolution natural selection species fossil **Innovation** Charles Darwin Evolution of the Species Alexander Fleming **Animals** circulatory system blood plasma red blood cells platelets white blood cells oxygen carbon dioxide water vapour heart blood vessels veins arteries capillaries oxygenated
	Electricity I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. I can compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.	In Yr4 pupils learned about light and how electricity could be used to create light energy. Pupils learn how to use circuits to harness the power of electricity to perform specific functions. Pupils build and manipulate series circuits and develop an understanding of conductors and insulators. In Yr6, pupils cement and extend their understanding and use more precise vocabulary to explain their thinking. Pupils experiment with and explain the performance of appliances and create generalised statements to explain their thinking. Pupils also begin to explore the limitations of series circuits and begin to explore the benefits of working with parallel circuits. Pupils will build on this understanding in KS3.			

	I can use recognised symbols when representing a simple circuit in a diagram. I can build series and parallel circuits and assess their usefulness.		• finding things out using a wide range of secondary sources of information I can use a range of scientific equipment to take accurate and precise measurements or readings, with repeat readings where appropriate I can record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. I can present findings and draw conclusions in different forms, and raise further questions that could be investigated, based on their data and observations. I can use appropriate scientific language and ideas from the national curriculum to explain, evaluate and communicate my methods and findings.	particles flow	deoxygenated nutrients drug alcohol smoking mammals birds fish invertebrates reptiles amphibians micro-organisms characteristics classify taxonomist key microscope species salmonella yeast virus fungi penicillin Innovation
	Evolution and Inheritance I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	In Yr1 to Yr5, pupils have gained an extensive understanding of living things including plants and animals. In Yr2 pupils learned how plants and animals adapted to suit their environment. In Yr3 and Yr5 pupils learned about the reproductive cycles of plans and animals. In Yr6, pupils will explore how adaptive and inherited traits contribute to the evolution of a species. Pupils will learn about some of the scientists who contributed to the theory of evolution. Pupils learned about fossil formation in Yr3. They will build on this knowledge to develop an understanding of how we can find out about what living creatures looked like in the past. Pupils will build on this understanding in KS3. In Yr6, cross curricular links can be made with the Wellbeing Curriculum in which pupils identify the external genitalia and internal reproductive organs in males and females and explain how the process of puberty relates to human reproduction.			
	Animals including humans I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.	In Yr1 and Yr2, pupils learned about the human body and the importance of a healthy lifestyle that they gained. In Yr3, pupils learned about the musculoskeletal system. In Yr4 pupils learned about the digestive system. In Yr5 pupils learned about the reproductive system. In Yr6, pupils develop an understanding of the circulatory system. Pupils gain an understanding of how the heart and associated blood vessels transport blood and nutrients around the body and the purpose that this system serves. Pupils gain a deeper understanding of how to lead a healthy life style and investigate how diet, exercise, drug use and smoking can impact the bodies function. Pupils will build upon this learning in KS3. In Yr6, cross curricular links can be made with the Sport, Exercise and Health curriculum in which pupils gain first hand experience of the			

	I can describe the ways in which nutrients and water are transported within animals, including humans.	physiological effects of endurance events, explain how to prepare for, and recover from, physical activities and explain how different types of exercise contribute to their fitness and health Pupils also learn to interpret the nutritional information on food packaging, make informed judgments on how it fits into a balanced diet and plan/prepare a meal plan that provides a balanced diet over a period of time. Further cross curricular links can be made with the Wellbeing curriculum in which pupils show understanding of the risks and effects of legal drugs common to everyday life (e.g. cigarettes, e-cigarettes/ vaping, alcohol and medicines) and their impact on health;			
	All Living Things and their Habitats I can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals I can give reasons for classifying plants and animals based on specific characteristics.	In Yr1 to Yr5, pupils have already learned about the main categories that animals are split into- mammals, birds, reptiles, amphibians, invertebrates, fish. In Yr6, pupils extend their understanding to micro-organisms. Pupils become more skills and knowledgable when classifying living things and explore different types of micro-organisms and investigate their scientific application. Pupils will build on this learning in KS3. In Yr6, cross curricular links can be made with the Statistics component of the Maths curriculum in which pupils are taught to understand and calculate percentages and to read, interpret and draw pie charts. Pupils can use these skills to collect and present data depicting classification of living things on the planet.			

Computing	**Programming:** Variables in Games and Sensing I can plan, design and evaluate a project involving variables. I can design, create and develop a programme that utilises selection on a controllable device.	In Yr5, pupils learned about selection in physical computing and quizzes. Pupils created programmes which included count and controlled conditioned loops. They designed, created and evaluated a program which uses selection. They also designed a program that included selection and controlled a physical computing element. In Yr6, pupils build upon this understanding by defining a 'variable' as something that is changeable and explaining why a variable is used in a program. Pupils will choose how to improve a game by using variables and design a project that builds on a given example. Pupils will design, create and evaluate a project. In Yr6, pupils will also create a program to run on a controllable device and explain that selection can control the flow of a program. Pupils will update a variable with a user input and use a conditional statement to compare a variable to a value. Pupils will design a project that uses inputs and outputs on a controllable device and develop a program to use inputs and outputs on a controllable device.	Variable Placeholder Event Algorithm Code Game Program Emulator Controllable device Flow Selection Conditions Physical Inputs Variable Operand Debugging
	Computing Systems and Networks: Communication I can effectively use a search engine. I can recognise and evaluate different methods of digital communication.	In Yr5, pupils learned about sharing information digitally. Pupils explained the role of computer systems and explained how the internet can be used to share information and allow people in different places to collaborate. Pupils learned to contribute to a shared online project. In Yr6, pupils built upon this understanding by identifying how to use a search engine and describing how search engines select results. Pupils will explain how search results are ranked and recognise why the order of results is important, and to whom. Pupils will recognise how we communicate using technology and evaluate different methods of online communication. In Yr6, cross curricular links can be made with the Time and Place curriculum in which pupils can use and apply their understanding of search engines to support their research into Ancient Greece and WW1 and WW2. Further cross curricular links can be made with the Wellbeing Curriculum in which pupils learn to understand a range potential dangerous when online and can suggest specific strategies and general principles for keeping safe.	World Wide Web (WWW) Web Web address Web browser Web page Website Browser Search engine Web search Web crawlers Index Search term Rank relevant Digital communication Private Public Domain Name HTML Hyperlink

	Creating Digital Media: Web Page Creation and 3D Modelling I can examine and understand the structure of an existing webpage. I can plan and create my own webpage. I can use a computer to create and manipulate three-dimensional (3D) digital objects. I can plan, design and evaluate a digital model by combining 3D objects	In Yr5, pupils learned about video editing and vector drawing. Pupils planned, captured and edited video. Pupils also combined shapes to create vector drawings that consisted of multiple layers. In Yr6, pupils will build upon this understanding by reviewing existing website design and considering its structure. Pupils will plan the features of a web page and consider the ownership and use of images (copyright). Pupils will explore the need to preview and for a navigation path. Pupils will explore the implications of linking to content owned by other people. In Yr6, pupils will also use a computer to create and manipulate three-dimensional (3D) digital objects. Pupils will compare working digitally with 2D and 3D graphics and construct a digital 3D model of a physical object. Pupils will identify that physical objects can be broken down into a collection of 3D shapes. Pupils will design a digital model by combining 3D object and develop and improve their digital 3D model. In Yr6, cross curricular links can be made with the Mathematics curriculum in which pupils investigate and draw the nets of 3D shapes.	Website Webpage HTML Layout Media Fair use Copyright-free Preview Navigation path Hyperlinks 2D 3D Select Move Delete Graphical object Resize Rotate Duplicate Placeholder Model Modify
	Data and Information: Spreadsheets I can create spreadsheets that include formula. I can use a spreadsheet to help plan an event.	In Yr5, pupils learned about flat-file databases. Pupils recorded data digitally and grouped and sorted to answer questions. Pupils used data bases to answer real-world questions. In Yr6, pupils will learn to identify questions which can be answered using data and explain that objects can be described using data. Pupils will explain that formulas can be used to produce calculated data. Pupils will apply formulas to data, including duplicating. Pupils will create a spreadsheet to plan an event and choose suitable ways to present data. In Yr6, cross curricular links can be made with the Mathematics curriculum in which pupils work with formulae as part of their learning about algebra. Further cross curricular links can be made wit the Mathematics curriculum in which pupils use spreadsheets to plan the events leading up to their Young Enterprise events.	Data set Data headings Cell Spreadsheet application Item of data Formula Input Output Duplicating Graph Table