
rocket
CAUTION!
ASTRONAUTS
ONLY

Planning for a World Class Curriculum

Areas of Learning

Languages
English and MFL

Mathematics
Mathematics

Science and Technology
Science, Design Technology and Computing

Humanities
RE, History and Geography

The Arts
Music and Art & Design

Physical Education
Physical Education

British Values
Social, Thinking, Democracy, Rule of Law , Independence, Tolerance and respect (Moral, Cultural and Spiritual Development)

Appendix – *Engagement Activities, Curriculum Enrichment, Narrative and Learning Environment planning templates*

Planning for a World Class Curriculum

National Curriculum 2014 Programmes of Study KEY

Key Stage 1 (Year 1-2)

Lower Key Stage 2 (Year 3-4)

Upper Key Stage 2 (Year 5-6)

Key Stage 2 (Year 3-6)

Planning for a World Class Curriculum

Science and Technology

- Biology
- Chemistry
- Physics
- Working Scientifically
- Design Technology
- Computing

Science & Technology Biology	Skills					Teaching and learning
	EYFS (40-60 months)	KS1	LKS2	UKS2	KS3	
Living things and their habitats • to compare the differences between things that are living, dead, and things that have never been alive • to identify that most living things live in habitats to which they are suited • to identify and name a variety of plants and animals • to describe how animals obtain their food from plants and other animals • to recognise that living things can be grouped • to explore and use classification keys to help group, identify and name a variety of living things • to recognise that environments can change and that this can sometimes pose dangers to living things • to compare the life cycles of different animals • to describe reproduction in plants and animals • to give reasons for classifying plants and animals **Plants** • to identify a variety of wild and garden plants • to describe the basic structure of flowering plants/tree • to observe and describe how seeds grow • to find out and describe how plants need water, light and a suitable temperature to grow • to name and describe functions of flowering plants • to explore the requirements of plants for life • to investigate how water is transported in plants • to explore the part that flowers play in the life cycle **Animals, including humans** • to identify and name a variety of animals including fish, amphibians, reptiles, birds and mammals • to identify and name a variety of common animals that are carnivores, herbivores and omnivores • to describe/compare the structure of some animals • to identify and name the basic parts of the human body and say which is associated with each sense • to notice that animals have offspring which grow • to explain the basic needs of animals for survival • to describe the importance of exercise, eating the right amounts of different types of food, and hygiene • to identify that animals need the right nutrition and that this comes from what they eat • to identify that some animals have skeletons and muscles for support, protection and movement • to describe the main parts of the digestive system • to explore the different types of teeth in humans • to construct and interpret a variety of food chains • to describe changes as humans develop to old age • to explain the human circulatory system in detail and impact of diet, exercise, drugs and lifestyle • to describe how nutrients are transported in the body **Evolution and inheritance** • to recognise that living things change over time and that fossils provide information about this • to identify how animals and plants are adapted to suit their environment in different ways	***Health and Self Care*** • I eat a healthy range of foodstuffs and understand the need for variety in food • I understand that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health **Early Learning Goal** • I know the importance for good health of physical exercise and a healthy diet • I talk about ways to keep healthy and safe	**Living things and their habitats** • I can describe how habitats provide for the basic needs of different animals and plants and how they depend on each other • I know that living things reproduce • I can identify and name a variety of plants and animals, including microhabitats • I can use a simple food chain **Plants** • I know the name of common wild and garden plants, including trees • I can name the parts of a flowering plant • I can describe the conditions necessary for plant growth • I can describe how seeds grow into mature plants **Animals, including humans** • I can name common animals that are carnivores, herbivores and omnivores • I can describe the importance for humans of exercise, healthy eating and good hygiene • I can describe and compare the structure of a variety of animals • I notice that animals have offspring which grow into adults	**Living things and their habitats** • I can group living things in a variety of ways • I recognise that environments can change and that this can pose dangers to living things • I use classification keys to group, identify and name a variety of living things in their environment **Plants** • I can describe the function of the parts of a flowering plant (roots, stem, leaf, stamen, carpel) • I can explore the requirements for plant growth (air, light, water, nutrients from soil, room) **Animals, including humans** • I know that animals cannot make food and get their nutrition from what they eat • I know that some animals have skeletons and muscles for support protection and movement • I can describe the simple function and basic parts of the human digestive system • I can identify the different types of teeth in humans and their basic functions • I can create and interpret simple food chains and name the producer, predator and prey **Evolution and inheritance** • I recognise that fossils provide information about living things that inhabited the Earth millions of years ago	**Living things and their habitats** • I can group living things according to common observable characteristics, including microorganisms, plants and animals • I can describe the differences in the life cycles of a mammal, a bird, an amphibian and an insect • I can describe the process of reproduction in some plants and animals **Plants** • I can explain how water and nutrients are transported in plants • I can explain the processes of fertilisation, pollination and seed dispersal **Animals, including humans** • I know that animals need the right amount of nutrition to stay healthy • I can describe changes as humans develop to old age • I can name the main parts of the human circulatory system • I recognise the impact of diet, exercise, drugs and lifestyle on the way the body functions • I can create and interpret complex food chains and name the producers, predators and prey • I can explain how changing variables within a food chain might affect the habitat **Evolution and inheritance** • I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	**Living things and their habitats** • I can describe similarities between plant and animal cells • I can describe the functions of different parts of animal and plant cells • I can describe the role of diffusion in the movement of materials in and between cells **Plants** • I can explain the process of photosynthesis • I can explain the process of reproduction in plants, including pollination, fertilisation, seed formation and seed dispersal **Animals, including humans** • I can explain, in detail, the components of a healthy diet • I can calculate energy requirements in a healthy diet • I can describe consequences of poor diet, including obesity, starvation and deficiency diseases • I can describe the process of digestion, including the role of enzymes and bacteria • I can describe the respiratory system in humans • I can describe the structure and main functions of the human skeleton • I can explain the function of muscles • I can describe the impact of exercise, asthma and smoking on the human respiratory system • I can explain the process of reproduction in humans • I can describe the effect of maternal lifestyle on the foetus • I can describe the effects of recreational drugs on behaviour, health and life processes	

Science & Technology Chemistry	Skills					Teaching and learning
	EYFS (40-60 months)	KS1	LKS2	UKS2	KS3	
Everyday materials ▪ to distinguish between an object and the material from which it is made ▪ to identify and name a variety of everyday materials, including wood, plastic, glass, metal and water ▪ to describe the properties of a variety of materials ▪ to compare and group a variety of materials on the basis of their simple physical properties ▪ to identify and compare the suitability of a variety of everyday materials for particular uses ▪ to find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching **Rocks** ▪ to compare and group different kinds of rocks on the basis of appearance and simple physical properties ▪ to describe in simple terms how fossils are formed when things that have lived are trapped within rock ▪ to recognise that soils are made from rocks and organic matter **States of matter** ▪ to compare and group solids, liquids and gases ▪ to 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) ▪ to identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature **Properties and changes of materials** ▪ to compare and group together everyday materials on the basis of their properties, including hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets ▪ to know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution ▪ to use knowledge of solids, liquids and gases to separate mixtures, including through filtering, sieving and evaporating ▪ to give reasons, based on evidence from comparative and fair tests, for uses of everyday materials, including metals, wood and plastic ▪ to demonstrate that dissolving, mixing and changes of state are reversible changes ▪ to 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	***The World*** • I look closely at similarities, differences, patterns and change **Early Learning Goal** • I know about similarities and differences in relation to objects, materials and living things • I can talk about changes	**Everyday materials** • I can describe an object including the material it is made from • I can name a variety of common materials • I can talk about the properties of different materials • I can compare materials and sort them into groups, explaining my reasons. • I compare the suitability of materials for particular uses • I can describe the changes to some materials by squashing, bending, twisting and stretching. • I can describe ways to sort materials *e.g. gas/liquid/solid.* • I can recognise that some changes can be reversed (reversible) and others cannot (non-reversible) • I can identify magnetic materials and state what they have in common	**Rocks** • I can group rocks according to their appearance and simple physical properties • I can describe in simple terms how fossils are formed (living things trapped between rocks) • I know that soils are made from rocks and organic matter **States of matter** • I can classify and describe materials according to whether they are solids, liquids or gases • I can say how some materials change state when they are heated or cooled • I can measure or research the temperature at which a specific material changes state • I know how evaporation and condensation play a part in the water cycle • I know how the rate of evaporation in the water cycle is linked to temperature • I describe the differences between the properties of different materials. • I can make predictions about whether changes are reversible or not. • I know how to separate some simple mixtures e.g. filtering, sieving, evaporation	**Properties and changes of materials** • I can group materials according to their properties • I can name some materials that will dissolve in liquid to form a solution • I can describe how to get back a material from a solution • I can describe how mixtures could be separated • I can give scientific reasons for the uses of everyday materials • I can demonstrate reversible changes • I can discuss some irreversible changes • I can describe some properties of metal. • I can describe the properties of a range of solids. • I can explain the relationship between liquids, solids and gases. • I can identify a range of contexts in which condensation and evaporation take place. • I know how to separate a range of mixtures	**Properties and changes of materials** • I can discuss simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography • I can use the pH scale to measure acid and alkali • I can represent simple chemical reactions using equations **Materials** • I can describe properties of ceramics, polymers and composites • I can describe each of the processes of melting, freezing, evaporation, sublimation, condensation and dissolving • I can describe detailed similarities and differences between solids, liquids and gases • I can explain the differences between chemical and physical changes • I can describe the differences in the arrangement and motion of particles explaining changes of state, shape and the anomaly of ice-water transition • I can identify the chemical symbols for some elements **Earth and atmosphere** • I can talk about the composition of the Earth • I can describe the structure of the Earth • I can describe the rock cycle and the formation of igneous, sedimentary and metamorphic rocks	

Science & Technology Physics	Skills					Teaching and learning
	EYFS (40-60 months)	KS1	LKS2	UKS2	KS3	
Earth and Space • to observe and describe weather associated with the seasons and how day length varies • to describe the movement of the Earth and other planets relative to the sun in the solar system • to describe the movement of the moon and Earth • to describe the sun, Earth and moon as spherical • to explain the process of day and night • to explain that objects fall to Earth due to gravity **Light** • to recognise that they need light in order to see things • to notice that light is reflected from surfaces • to recognise that light from the sun can be dangerous • to recognise that shadows are formed when the light from a light source is blocked by a solid object • to find patterns in the way that size of shadows change • to recognise that light travels in straight lines • to explain that we see things because light travels from light sources to our eyes (or via reflections) • to explain why shadows have the same shape as the objects that cast them **Sound** • to identify how sounds are made, associating some of them with something vibrating • to recognise that vibrations from sounds travel through a medium to the ear • to find patterns between the pitch of a sound and features of the object that produced it • to find patterns between the volume of a sound and the strength of the vibrations that produced it • to recognise that sounds get fainter as the distance from the sound source increases **Electricity** • to identify common appliances that run on electricity • to construct a simple circuit, naming its basic parts • to identify whether a circuit is complete • to recognise some common conductors and insulators, and associate metals with being good conductors • to associate lamp brightness or volume of a buzzer with the number/voltage of cells in the circuit • to use recognised symbols in a simple circuit diagram **Forces and magnets** • to compare how things move on different surfaces • to notice that some forces need contact between 2 objects, but magnetic forces can act at a distance • to observe how magnets attract or repel each other • to compare and group together materials on the basis of whether they are attracted to a magnet • to describe magnets as having 2 poles • to predict whether 2 magnets will attract or repel • to explain effects of air/water resistance and friction • to recognise that some mechanisms allow a smaller force to have a greater effect	***The World*** • I look closely at similarities, differences, patterns and change **Early Learning Goal** • I know about similarities and differences in relation to objects and materials • I can talk about changes	**Earth and space** • observe and describe weather associated with the seasons and how day length varies **Light** • I can compare the brightness of different light sources. • I recognise that light is needed to see things and that dark is the absence of light **Electricity** • I can sort everyday appliances into those that light up, heat, up, produce sounds or moves. • I can make a circuit using a bulb, battery and wires **Forces** • I compare how things move on different surfaces • I recognise that magnets will attract or repel some materials and not others • I can compares the way an object moves *e.g. faster, slower, changes in direction.* **Sound** • I can compare loud and soft, high and low sounds. • I recognise that sounds are caused by vibrations	**Light** • I recognise that light is necessary to see things • I notice that light is reflected from some surfaces • I recognise that light from the sun can be dangerous and that there are ways to protect eyes • I recognise that shadows are formed when light is blocked by a solid object • I can explain how shadow length changes according to the position of light source (including the position of the sun) **Sound** • I recognise that vibrations from sounds travel through a medium to the ear • I can suggest how a range of sounds are made. • I recognise that sounds get fainter as the distance from the sound source increases **Electricity** • I can make a simple series electrical circuit and name the basic parts of cells, wires, bulbs, switches and buzzers • 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 use a simple switch in a circuit that opens and closes and identify whether or not a lamp lights in a simple series circuit • I can name some common conductors and insulators and know that metals are good conductors **Forces and magnets** • I recognise that some forces need contact between 2 objects, but magnetic forces can act at a distance • I can group a variety of everyday materials according to their magnetic properties • I can describe magnets as having 2 poles • I can predict whether 2 magnets will attract or repel each other, depending on which poles are facing • I can describe some of the factors which increase/reduce how fast or slow things move.	**Earth and Space** • I can describe the movement of the Earth and other planets relative to the sun • I can describe the movement of the moon and the Earth • I can describe the sun, Earth and moon as spherical • I can explain the process of day and night • I can explain that objects fall to Earth due to gravity **Sound** • I can explain how differences in vibrations are linked to loudness and pitch **Light** • I recognise that light travels in straight lines • I can explain that we see things because light travels from light sources to our eyes (or via reflections) • I can describe the way the Sun's (and shadows) position changes through the day • I can explain that shadows have the same shape as the objects that cast them **Electricity** • I understand the difference between electrical conductors and insulators • I understand how lamp brightness and buzzer volume is affected by the voltage in a circuit • I use recognised symbols in a simple circuit diagram **Forces and magnets** • I can explain the effects of air and water resistance and friction • I recognise that some mechanisms allow a smaller force to have a greater effect • I can describe the effects of a variety of forces *e.g. magnetism, friction and gravity.* • I can describe how friction affects the movement of objects	**Earth and Space** • I can research and explain gravitational differences between planets and stars, the Moon and the Sun • I can explain why Earth has seasons and variations in day length at different times of the year • I can describe the light year as a unit of astronomical distance **Sound** • I recognise that sound needs a medium to travel • I can explain how sound is produced by vibrations of objects • I can explore the auditory range of humans and animals. **Light** • I can explore the transmission of light through materials • I can use a different models, such as a pinhole camera, convex lens, the human eye to describe the movement of light • I can explore the use of prisms and comment of the different frequencies of light **Energy** • I can compare energy values of different foods from labels • I compare power ratings of appliances in watts (W, kW) • I can compare domestic fuel bills, fuel use and costs **Forces and magnets** • I can use the relationship with distance and time to calculate speed • I can explain that forces are pushes or pulls, arising from the interaction between two objects • I can use force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces • I can measure forces in newtons • I can explain the non-contact forces of gravity, magnetism and static electricity. • I understand how the direction and size of a force can alter movement • I can describe magnetic poles • I can describe the Earth's magnetism **Electricity** • I can measure electric current in series and parallel circuits • I can measure difference in resistance between conducting and insulating components	

Science & Technology Working Scientifically	Skills					Teaching and learning
	EYFS (40-60 months)	KS1	LKS2	UKS2	KS3	
• to ask simple questions and recognising that they can be answered in different ways • to observe closely, using simple equipment • to perform simple tests • to identify and classifying • to use their observations and ideas to suggest answers to questions • to gather and record data to help in answering questions • to ask relevant questions and use different types of scientific enquiries to answer them • to set up simple practical enquiries, comparative and fair tests • to make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • to gather, record, classify and present data in a variety of ways to help in answering questions • to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • to identify differences, similarities or changes related to simple scientific ideas and processes • to use straightforward scientific evidence to answer questions or to support their findings. • to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • to use test results to make predictions to set up further comparative and fair tests • to report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations • to identify scientific evidence that has been used to support or refute ideas or arguments	***Technology*** **Early Learning Goal** • I can select and use technology for particular purposes	• I can make suggestions about how to find things out e.g. What test could you do? • I find information from books or other printed sources. • I can make suggestions about what I think might happen • I can use some scientific vocabulary to explain my observations • I can use simple equipment eg; magnifying glass • I can use simple tables where appropriate e.g. blocks graphs, pictograms • I compare observations using scientific vocabulary. • I say whether what happened was what I expected.	• I can collect data to answer my questions • I can put forward my own ideas about how to answer a question • I can make simple predictions • I can carry out a fair test and explain why it is fair. • I use scientific vocabulary to describe my observations. • I can make measurements and observations using simple equipment to complete a simple graph or chart • I give reasons for my observations. • I can provide explanations for patterns e.g. identify pattern on graph • I can suggest ways of improving my work	• I recognise that scientific ideas are based on evidence. • I decide on the most appropriate approach to an investigation • I can select appropriate equipment. • I can describe how to vary one factor while keeping others the same. • I can make accurate predictions • I select information to help me plan • I make observations using materials and equipment that are right for the task. • I can use and interpret tables and bar charts • I plot points to make line graphs. • I use my data to interpret patterns in my data. • I use the convention of '**er**' words to describe results • I relate my conclusions to the hypothesis and results. • I use appropriate scientific language. • I suggest improvements to my work and give reasons.	• I describe how experimental evidence and creative thinking combine to provide a scientific explanation • I select from a range of sources of information • I can identify key factors to be considered in a fair test. • I make predictions based on my scientific knowledge and understanding. • I select apparatus and plan to use it effectively. • I use the computer to collect data (data logging). • I record observations and measurements systematically. • I present (where appropriate) data as line graphs. • I use appropriate scientific language and conventions to communicate data. • I repeat observations and measurements and offer explanations for any differences • I draw conclusions that are consistent with the evidence and relate these to scientific knowledge. • I make practical suggestions about how my working methods can be improved.	

Science & Technology Design Technology	Skills					Teaching and learning
	EYFS (40-60 months)	KS1	LKS2	UKS2	KS3	
Design • to use research to design purposeful, functional, appealing, innovative products for themselves, others and particular audiences based on design criteria • to generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups, annotated sketches, corss sectional and exploded diagrams, prototypes and, where appropriate, information and communication technology **Make** • to select from and use a wide range of tools and equipment to perform practical tasks accurately • to select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics, functional properties and aesthetic qualities • to build structures, exploring how they can be made stronger, stiffer and more stable • to apply their understanding of how to strengthen, stiffen and reinforce more complex structures • to explore and use mechanisms [for example, levers, sliders, wheels and axles] in their products • to understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] • to understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] • to apply their understanding of computing to program, monitor and control their products **Evaluate** • to explore, evaluate, investigate and analyse a range of existing products • to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • to understand how key events and individuals in design and technology have helped shape the world **Cooking** • to use and apply the basic principles of a healthy and varied diet to prepare dishes • to understand where food comes from • to prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • to understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed	***Exploring and using media and mateirals*** • I can manipulate materials to achieve a planned effect • I construct with a purpose in mind, using a variety of resources • I can use simple tools and techniques competently and appropriately • I can select appropriate resources and adapt my work where necessary • I can select tools and techniques needed to shape, assemble and join materials I am using **Early Learning Goal** • I can safely use and explore a variety of materials, tools and techniques • I experiment with design, form and function ***Technology*** **Early Learning Goal** • I recognise that a range of technology is used in places such as homes and schools • I select and use technology for particular purposes ***Moving and handling*** • I use simple tools to effect changes to materials • I handle tools, objects, construction and malleable materials safely and with increasing control • I show a preference for a dominant hand **Early Learning Goal** • I handle equipment and tools effectively	**Design** • I use my knowledge of materials and components to design products • I can design products for myself • I base my designs on simple design criteria • I present my ideas using words, pictures and models. • I use ICT to communicate my ideas **Make** • I select the appropriate tools and equipment from a limited range • I make accurate measurements • I select from and use a wide range of materials and components in my products • I can describe properties of the materials that I use • I combine materials so that the joins are strong • I can make a product which does the job it was made for • I can make a product that uses movement • I build simple structures, exploring how they can be made stronger • I cut materials with some accuracy • I use my art skills to add detail to my products **Evaluate** • I can evaluate a range of existing products • I can describe what I have done well • I suggest things I could do in the future. **Cooking** • I prepare food safely and hygienically • I can describe where different foods come from • I use my knowledge of food to plan a healthy meal	**Design** • I use research to help me design products • I can design products for myself and another identified audience • I base my designs on a range of design criteria • I make realistic plans to achieve my aims. • I think ahead about my work and plan ahead • I present my ideas using annotated sketches and models **Make** • I select from a range of tools and equipment • I measure accurately using a range of equipment (mm, cm, g, Kg) • I select materials according to their functional properties • I apply my knowledge to strengthen complex structures • I can apply my knowledge to strengthen and reinforce complex structures • I can make a product that uses mechanisms (wheels, levers, sliders) • I work in a safe and hygienic way. • I use sharp scissors accurately to cut materials • My designs evolve as work proceeds • I use my art skills to apply texture or design to my product. • I select the most appropriate techniques to make my product. • I have made a product that uses electrical components. • My product has a good finish so that a user will find it both useful and attractive. **Evaluate** • I can investigate and analyse a range of products • I can identify where my evaluations have led to improvements **Cooking** • I can use a selection of ingredients to meet an identified need	**Design** • I use research to design purposeful, functional and appealing products • I can design products for a wide audience • I take the views of users' into account when designing my products. • I produce clear step-by-step plans • I present my ideas using exploded diagrams **Make** • I select from a wide range of tools and equipment • I measure accurately from a range of scales • I select materials according to their aesthetic qualities • I can make a product that uses complex mechanisms (pulleys, cams, gears) • My work incorporates the views of intended users' • I apply a high quality finish to my products • I have chosen components that can be controlled by switches or by ICT equipment. • I can improve after testing. • My methods of working are precise so that products have a high quality finish. **Evaluate** • I evaluate my designs based on the original design criteria **Cooking** • I can use a range of cooking techniques to prepare and cook food • I can describe the 'journey' of individual foods • My food is well presented and packaged using other DT skills.	**Design** • I draw on research and my own knowledge to design innovative products • I can design products for any audience • I work from my own detailed plans, modifying them where appropriate. • I present my ideas with prototypes and cross sectional diagrams **Make** • I work with autonomy when selecting tools and equipment • I make precise measurements so that joins, holes and openings are in exactly the right place. • I create my products with an awareness of commercial appeal. • When choosing materials, I consider a number of factors, such as cost, appeal and suitability • I use refined art skills to add colour and texture to my work. • I mark out using my own patterns and templates • My products have a high degree of precision and do the intended job well • I use my science skills to alter the way my electrical products behave. • I use precise electrical connections. • My product is well received by intended users. **Evaluate** • I test and evaluate my products in the context of their intended use • I am aware that resources may be limited (budget, time, availability) • I understand how key events and individuals in DT have helped to shape the world **Cooking** • I use my science knowledge of micro-organisms to store and prepare food properly. • I use my science knowledge of irreversible changes to create food products that combine to make a new material, that I can then describe using its sensory qualities.	

Science & Technology Computing	Skills					Teaching and learning
	EYFS (40-60 months)	KS1	LKS2	UKS2	KS3	
• to understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions • to create and debug simple programs • to use logical reasoning to predict the behaviour of simple programs • to use technology purposefully to create, organise, store, manipulate and retrieve digital content • to recognise common uses of information technology beyond school • to use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies • to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • to use sequence, selection, and repetition in programs; work with variables and various forms of input and output • to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • to understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration • to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • to select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	***Technology*** • I can complete a simple program on a computer • I use ICT hardware to interact with age appropriate computer software **Early Learning Goal** • I recognise that a range of technology is used in places such as homes and schools • I select and use technology for particular purposes	**Multimedia and Word Processing** • I can word process a range of short texts • I can use editing skills to improve my work • I select different presentational features • I can save, print and retrieve my work • I can use the mouse, arrow keys or touchscreen to insert text • I can use graphics, video and sound to enhance my work • I can talk about how my use of graphics, sound and video enhance the mood • I can use different layouts and templates for different purposes **Digital Media** • I can use ICT to source, generate and amend ideas for their art work • I can talk about the advantages and disadvantages of using a graphics package over paper based art activities • I can use a variety of skills using a range of tools and techniques to communicate a specific idea or artistic style /effect • I can choose an art programme or APP for a purpose and explain my choice • I can manipulate digital stills or video • I can select and edit and change images • Begin to change or enhance photographs and pictures (crop, re-colour) • I can use a sequence of still images which together form a short animated sequence • I can create a simple animation to illustrate a story or idea • I can upload images to a safe website, blog, iCloud or server **Programming** • I can talk about how everyday devices can be controlled • I can control actions on screen by sequences of instructions • I can create a sequence of instructions to control a programmable robot to include direction, distance and turn • I can use a range of control devices and programmes/APPs • I can control music software through sequencing icons • I can talk about how to improve/change their sequence of commands **Communication and Collaboration** • I can contrast the different ways that messages can be sent • I can contribute/respond to emails, forums and blogs • I can talk about benefits of using online communications with a wider audience • I can look and talk about other people's contributions on the learning platform • I consider who can see their contributions on the learning platform **Data** • I can present data in range of ways • I can use a graphing package to record information, adding labels and numbers • I can use ICT to edit and change the information quickly. • I can talk about how ICT helps them to organise their information **e-Safety** • I demonstrate the school's e-safety rules in all aspects of my ICT work	**Multimedia and Word Processing** • I can evaluate a range of electronic multimedia • I can plan the structure and layout of a document/presentation • I can select and import graphics from digital media and the Internet • I can select and import sounds and video/ visual effects • I choose freely from a range of text styles • I use more than two fingers to enter text **Digital Media** • I can import photos and explore effects • I can use visual effects such as filters, hues and painting over photographs. • I can create patterns and montages • can plan and create audio for a podcast **Programming** • I can navigate a programming APP • I can create a sprite for a game. • I can add inputs to control my sprite. • I can use conditional statements (if… then) within my game. • I can create a 3D digital world for a game with land, water and scenery. • I can program my sprite to navigate my 3D world • I can use conditional statements ('if…then') to give objects behaviours **Communication and Collaboration** • I can select my best work to organise and save • I can use different online communication methods to share my work • I can discuss advantages and disadvantages of different communication methods • I can use different levels of formality when I communicate with different people online **Data** • I can enter data into a graphing package to create a range of graphs, and to interpret data across all subjects • I can compare how different graphs can be used for different purposes • I can create and use a branching database to organise and analyse information • compare the use of graphing software, branching database and card-based database for organising and interpreting data • I can explore real-life examples of branching databases, such as keys for animal indentification **e-Safety** I demonstrate the school's e-safety rules in all aspects of my ICT work	**Multimedia and Word Processing** • I can plan the structure of a presentation • I can use a multimedia program to organise, refine and present information for a specific audience • I can use a hyperlinks in my work • I can format text to indicate relative importance. • I can justify text where appropriate. • I can cut and paste between applications. • I can delete/insert and replace text to improve clarity and mood. • I can make corrections using spell check • I can use both hands when typing **Digital Media** • I can use different filming techniques and camera angles • I can plan a video or animation by drawing a storyboard • I can use sound effects, music and voice-overs to create mood/ atmosphere • I can select and edit sounds, text and movie clips to suit a purpose • I can evaluate and improve work with a view to purpose and audience • I can record and import sounds using sound editing software • I use sounds from a variety of sources • I can layer and edit sounds • I can save work as a web compatible format for uploading **Programming** • I can create a basic HTML page with head and body sections. • I can create more complex games • I can create a user controlled sprite and sprites with different behaviours. • I can shift camera angles in settings and in the code • **Communication and Collaboration** • I can register a blog: selecting a url and navigate to my blog once it is created • I can create and publish a new post • I understand that websites such as Wikipedia are made by users • I use strategies to check the reliability of information and websites • I can save/upload/download files in iCloud and on servers **Data** • I can change variables in a spreadsheet to solve problems • I can enter formulae for the four operations (+-x/) into a spreadsheet • I can use 'SUM' to calculate the total of a set of numbers in a range of cells • I can change data in a spreadsheet to answer 'what if…?' questions • I can create a simple spreadsheet model and use it to solve problems • I can plan and carry out an investigation using data logging technology • I make predictions for my investigation and know how to make it a fair test • I can interpret results and draw conclusions from my investigation **e-Safety** • I demonstrate the school's e-safety rules in all aspects of my ICT work	**Multimedia and Word Processing** • I can select appropriate software for the task/audience • I can plan structure and layout of presentation • I can evaluate and select suitable media from a range of electronic resources • I can organise and present information for a specific audience • I can use hyperlinks in a presentation • I can choose appropriate techniques to create a high quality presentation • I can evaluate presentations and give reasons for chosen techniques • I can use various display features to communicate to an audience • I can make corrections using a range of tools • I can type fluently using both hands **Digital Media** • I can use all the features of a given video editing or animation package • I can plan a storyboard for a video or animation to suit a purpose • I can film, edit and refine to ensure quality; present to an audience **Programming** • I can design a game including sprites, backgrounds, scoring and/or timers. • I can evaluate the effectiveness of my game and debug if required • I can open and test my HTML pages in internet explorer • I can add text, pictures and video to give the page structure • I can create hyperlinks to other pages and websites. **Communication and Collaboration** • I can alter the theme and appearance of my blog, adding background images etc. • I can embed photos, hyperlinks and videos into posts. • I can reorganise posts and remove posts they no longer want. • I visit and follow other blogs • I can build my blog content over time **Data** • I can identify a problem which can be solved by collecting data • I can identify which data to collect • I can collect data in an efficient and accurate way • I can organise data by designing fields and records in a database • I can interpret data by using a range of searches and graphs • I can draw conclusions from data and solve the original problem • I can present findings to a specified audience • I can justify reasons for my choices and explain why other methods were not appropriate • I can identify and enter the correct formulae into cells, modify the data, make predictions and check them • I can identify formulae and enter them into a spreadsheet **e-Safety** • I demonstrate the school's e-safety rules in all aspects of my ICT work	