	Seasons	Materials	Plants	Animals inc humans	Living things & habitats	Forces (and magnets)	Light	Rocks	Sound	States of matter	Electricity	Earth and space	Evolution and inheritance
Year 1													
Year 2													
Year 3													
Year 4													
Year 5													
Year 6													

EYFS	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Explore the natural world around them**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Explore the natural world • Use all their senses in hands-on exploration of natural materials (N) • Explore collections of materials with similar and/or different properties (N) • Talk about what they see, using a wide vocabulary (N) • Explore the natural world around them (R) Cross curricular links/books Here I am. Jack and the Beanstalk Brown Bear, Brown Bear – What can you see? The Scarecrows Wedding – Julia Donaldson The Very Hungry Caterpillar – Eric Carle I really wonder what plant I'm growing – Lauren Child The Enormous Turnip – Aleksei Tolstoy https://www.twinkl.co.uk/ https://www.stem.org.uk/ Outdoor science area/Forest School/Oxleas Woods/Avery Hill Winter Garden/Greenwich Park	Children will access scientific topics and vocabulary through 'Understanding the World' ready for topic to be revisited in Year 1.	Leaf Plant Stem Flower Petal Sun Water Soil Twig Branch Trunk Seed Grow Egg Cocoon Butterfly Lifecycle	Early learning goal Children at the expected level of development will: - Explore the natural world around them, making observations and drawing pictures of animals and plants

EYFS	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Changes in the natural world**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Changes in the natural world • Plant seeds and care for growing plants (N) • Understand the key features of the life cycle of a plant and an animal(N) • Begin to understand the need to respect and care for the natural environment and all living things (N) • Understand the effect of changing seasons on the natural world around them (R) Cross curricular links/books A Stroll through the Seasons The Tiny Seed The Very Hungry Caterpillar Goodbye Winter, Hello Spring Here I am. We're going on a Bear Hunt Yucky Worms https://www.bbc.co.uk/teach/school-radio https://www.bbc.co.uk/cbeebies Outdoor science area/Forest School/Oxleas Woods/Avery Hill Winter Garden/Greenwich Park	Children will access scientific topics and vocabulary through 'Understanding the World' ready for topic to be revisited in Year 1.	Seasons Spring Summer Autumn Winter Weather	Early Learning Goal Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

EYFS	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Contrasting Environments**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Changes in the natural world • Talk about the differences between materials and changes they notice (N) • Explore and talk about different forces they can feel (N) • Describe what they see, hear and feel whilst outside (N) • Recognise some environments that are different from the one in which they live (R) Cross curricular links/books Leaf Here I am. Harry saves the ocean. Rhythm of the rain. Over and under the pond. Yucky Worms https://www.bbc.co.uk/teach/school-radio https://www.bbc.co.uk/cbeebies Outdoor science area/Forest School/Oxleas Woods/Avery Hill Winter Garden/Greenwich Park	Children will access scientific topics and vocabulary through 'Understanding the World'. vocabulary ready for year 1 where this topic will be revisited.	Habitat Home Environment Outside Different Natural Man-made	Early Learning Goal Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class

Year 1	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**PLANTS**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Plants Pupils will be taught to: • identify and name a variety of common wild flowers and common plants, including deciduous and evergreen trees • identify and describe the basic structure of a variety of common flowering plants, including trees **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.greatplanthunt.org/teachers http://www.opalexplorenature.org/sites/default/files/7/file/OPAL-Tree-chart-web.pdf http://www.bbc.co.uk/learningzone/clips/how-plants-are-different/2482.html Outdoor science area/Forest School/Oxleas Woods/Avery Hill Winter Garden/Greenwich Park/Natural History Museum/Kew Gardens/Science Museum Joseph Banks, Carl Linnaeus, George Forrest Plants classification system	Pupils will learn about plants in more depth with specific themes and areas. Relevant vocabulary will be introduced. It will recall and build on knowledge from Reception relating to 'Understanding the World'. Children will be able to use the local area and the outdoor science area to learn first-hand about common plants and trees and prepare them for Year 2 where the topic of plants will be re-visited. **Historical/Geographical links** Did you know… • Sir Francis Drake introduced potatoes to England when he returned from his voyage circumnavigating the world. • Carrots originated in Iran and Afghanistan and first evidenced in 3000BC. • Although Tulips are linked to Holland, they were originally cultivated in Turkey and imported to Holland in the 16th century.	Roots Stem Flower Petals Leaves Trunk Bud Bark Ash Oak Rose Daisy Deciduous Evergreen Spruce Yew Horse chestnut Maple Silver Dandelion	identify and name a variety of common wild flowers and common plants, including deciduous and evergreen trees identify and describe the basic structure of a variety of common flowering plants, including trees

Year 1	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Knowledge/Significant people/Significant events/Visits	**ANIMALS including humans**		
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Animals, including humans Pupils will be taught to: • Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles and mammals, and including pets). • Identify, name draw and label the basic parts of the human body and say which parts of the body is associated with each sense. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.bbc.co.uk/nature/animals/ http://www.bbc.co.uk/radio4/science/birdsong.shtml http://www.wildsong.co.uk/species.html www.rspb.org.uk/wildlife/birdidentifier/ http://www.mammal.org.uk/ http://www.bats.org.uk/) Greenwich Park, London Zoo, Oxleas Woods, Science Museum Amy Vedder, Salim Ali	Children will broaden their basic knowledge of animals and humans through the introduction of a variety of common animals and an assortment of resources and experiences. Children will have the opportunity to identify and group animals seen through these resources as well as use of school outdoor areas and visits to the local green areas and London. The Sensory Garden and outdoor classroom can be used to experience the use of the senses, allowing the children to link the human body parts directly. This will prepare them for the continuation of this topic in Year 2. **Historical/Geographical links** Did you know: • Amy Vedder established the Mountain Gorilla Project. • The Black Death started with a disease carried by fleas and spread by rats. • The Great Fire of London killed thousands of animals being auctioned and sold at markets at the time.	Birds Fish Amphibian Reptile Mammal Vertebrate Invertebrate Carnivore Herbivore Omnivore Feathers Scales Gills Fins Hair Skeleton Wings Legs Fur Teeth Animal Plant Sense Head	Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles and mammals, and including pets). Identify, name draw and label the basic parts of the human body and say which parts of the body is associated with each sense.

Year 1	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**MATERIALS and their properties**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Everyday materials Pupils will be taught to: • Distinguish between an object and the material from which it is made. • Identify and name a variety of everyday materials, including wood, plastic, glass, water and rock. • Describe the simple physical properties of a variety of everyday materials. • Compare and group together a variety of everyday materials on the basis of their physical properties. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://inventors.about.com/library/inventors/blJohnMcAdam.htm http://www.rampantscotland.com/inventors/inventions_waterproof.htm http://www.ulsterhistory.co.uk/johndunlop.htm Science Museum, local area, Natural History Museum Charles Macintosh, John Boyd Dunlop Development of the rubber tyre	Pupils will already have a knowledge of some materials and their use. Children will broaden their knowledge and understanding of different materials through exploration of the school and its surrounding area and through experimentation to become more experienced with materials and their properties. Use and handling of everyday objects will enable them to learn how certain materials feel (hard/soft etc.) and reinforce best materials for certain functions in preparation for year 2. **Historical/Geographical links** Did you know: • Charles Macintosh designed one of the first waterproof materials (early Victorian era). • Copper does not rust but other metals do • You can compare Macintosh to clothing worn by astronauts (Tim Peak)	Wood Plastic Metal Glass Rock Water Sponge Oil Gas Paper Wool Plastic	Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, water and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their physical properties.

Year 1	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Knowledge/Significant people/Significant events/Visits	**SEASONS**		
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Seasonal changes Pupils will be taught to: • observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.sciencemuseum.org.uk/onlinestuff/people/john%20dalton.aspx http://inventors.about.com/od/fstartinventions/a/Fahrenheit.htm http://iwaswondering.org/inez_homepage.html http://www.bbc.co.uk/learningzone/clips/making-weekly-weather-recordings/11176.html http://www.bbc.co.uk/learningzone/clips/measuring-wind-speed-using-an-anemometer/11172.html Science Museum, outdoor science area John Dalton Gabriel Fahrenheit Invention of mercury thermometer	Pupils will already have some knowledge of weather and will learn about weather changes during the different seasons. By keeping a weather diary, children can directly observe the weather over a period of time and record findings, making comparisons to other seasons. Apart from investigations how day length varies, understanding why will enhance their understanding, links can be made with plants topic, understanding how weather affects plants and trees. **Historical/Geographical links** Did you know: • John Dalton kept a weather diary for 57 years. • Gabriel Fahrenheir invented the first mercury-in-glass thermometer. • According to NASA reports, Antarctica receives the least rainfall and is considered to be the driest place in the world with annual rainfall rate of zero • Experiments first took place in the 1800's investigating climate change	Winter Summer Spring Autumn Dry Snow Rain Windy Wet Sunny Clear Fog Short daytime Medium daytime Long daytime Short night time Medium night time Long day night time	Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies

Year 2	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Living things and their habitats**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • explore and compare the differences between things that are living, dead, and things that have never been alive • 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 • identify and name a variety of plants and animals in their habitats, including micro-habitats • 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 **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ The Great Plant Hunt identikit – (www.greatplanthunt.org/teachers) – scroll down the menu www.opalexplorenature.org/sites/default/files/7/file/OPAL-Tree-chart-web.pdf http://butterfly-conservation.org/121/habitat-advice.html http://bumblebeeconservation.org/get-involved/ Forest School, Outdoor science area, local parks and green areas, Science Museum, Natural History Museum Kate Humble, Steve Backshall, Chris Packham	Pupils may already have some knowledge in this area from the year 1 topic 'Animals including humans' so they should be encouraged to ask questions and understand that there may be a variety of answers to their questions. They will be given the opportunity to use the key skills required (observe closely, using simple equipment, perform simple tests, and develop identifying and classifying skills) ready for KS2. Pupils will extend their knowledge and understanding of all things, recognising the differences between them. They will use Forest School, the outdoor science area and the local area to observe habitats. These areas will also give pupils the chance to observe and name a variety of plants. **Historical/Geographical links** **Did you know:** • Kate Humble, Steve Backshall and Chris Packham are all current day naturalists and BBC presenters. • Dian Fossey spent almost 18 years with gorillas in Rwanda. • Steve Irwin is well known for his work with wildlife but particularly crocodiles. • Dame Jane Morris spent 45 years in Tanzania in search of chimpanzees. • The oceans are considered the largest habitats on earth	Organism Animals Plants Habitat Survive Movement Respiration Sensitivity Getting rid of waste Eating Reproduction Growth Food chain Food web Consumer Producer Predator Prey Living Dead Never been alive Suited Forest Sea	explore and compare the differences between things that are living, dead, and things that have never been alive 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 identify and name a variety of plants and animals in their habitats, including micro-habitats 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

Year 2	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Plants**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • observe and describe how seeds and bulbs grow into mature plants • find out and describe how plants need water, light and a suitable temperature to grow and stay healthy **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ The Great Plant Hunt identikit – (www.greatplanthunt.org/teachers) – www.opalexplorenature.org/sites/default/files/7/file/OPAL-Tree-chart-web.pdf http://butterfly-conservation.org/121/habitat-advice.html http://bumblebeeconservation.org/get-involved/ Outdoor science area/Forest School/Oxleas Woods/Avery Hill Winter Garden/Greenwich Park/Natural History Museum/Kew Gardens/Science Museum Gregor Mendel . Barbara McClintock, fossils of the earliest land plants discovered in Argentina	Children will build on their knowledge from year 1 of naming plants and flowers and labelling parts of a flower. They will be able to observe seeds and bulbs growing through the cycle from seed through to adult using the outdoor science area. This area will also allow pupils to grow plants from seeds/bulbs and evidence the need for water, light and appropriate temperature in order to grow. They will use the key skills required, particularly observation over time. **Historical/Geographical links** Did you know: • It is illegal to dig up wild plants and flowers. Removing any plant or part of a plant without a landowner's permission is illegal. • Seeds that can be collected from trees in autumn can be used in spring to study how they grow. You can collect seeds from trees such as beech, oak and horse chestnut (conkers). • Almost half the world's bluebells are found in the UK, they're quite rare in the rest of the world	Seed Bulb Water Light Temperature Soil Roots Leaves Stem Germinate Soil Shade	observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy

Year 2	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Animals inc Humans**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • notice that animals, including humans, have offspring which grow into adults • find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • describe the importance for humans of exercise, eating the right amount of different types of food, and hygiene **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.kidzone.ws/animals/lifecycle.htm http://www.greengardener.co.uk/product.asp?id_pc=34&cat=75 http://www.insectlore-europe.com/ http://www.wwb.co.uk/ Science Museum, Natural History Museum, London Zoo David Attenborough, Marie.M.Daly First ever American Liger born 1948	Children will build on their knowledge of this topic from Year 1 moving on from naming and labelling to a more in-depth understanding of animals including recognising their basic needs. They should have the opportunity to observe the growth of each other as well as study offspring of animals and siblings of each other. Links will be made with 'Walk to School' and the schools 'Healthy Eating' initiative. In preparation for KS2, children be given the opportunity to use the key skills required. **Historical/Geographical links** **Did you know:** • David Attenborough's favourite animal is the human being. • Butterflies live on every continent except Antartica • Asia and South America have more endangered mammals than the other continents.	Water Food Air Offspring Adult Exercise Healthy food Keeping clean Sleep Child Baby Sugar Fats Cub Calf Spawn Puppy Kitten Teenager Germs Toddler	notice that animals, including humans, have offspring which grow into adults find out about and describe the basic needs of animals, including humans, for survival (water, food and air) describe the importance for humans of exercise, eating the right amount of different types of food, and hygiene

Year 2	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Use of everyday materials**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.strangematterexhibit.com/popup.html?asset=whatis_panel&page=videowhatis http://www.chemheritage.org/discover/online-resources/chemistry-in-history/themes/petrochemistry-and-synthetic-polymers/synthetic-polymers/baekeland.aspx Local Tudor buildings, Severndroog Castle, Science Museum, outdoor school science area, Alexander Parkes, Invention of plastic, Stone Age Man began to use gold to make jewellery	Children will build on their knowledge of objects and the materials they are made from by acknowledging the reasons why these materials are best suited for their purpose. They will be given the opportunity to change materials using many resources available within school, the outdoor Science area as well as the local community. Although this topic is not revisited specifically until UKS2, they will learn about states of matter in Year 4, where they will be introduced to solids, liquids and gases and understand that they can also change state/shape. **Historical/Geographical links** Did you know: • Most Tudor houses were made of wood and wattle and daub. • Castles were mostly made from stone because of the risk of fire • The Romans recycled bronze coins into statues. • Alexander Parkes invented plastic in 1862 and exhibited his creation at the Great Exhibition.	Wood Plastic Metal Glass Rock Water Sponge Oil Gas Paper Wool Fabric Stretch Squash Twist Bend Strong Weak Hard Soft Floats Sinks Transparent Opaque	identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

Year 3	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Plants**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Identify and describe the functions of different parts of plants; roots, stem, leaves and flowers. • Explore the requirements of plants for life and growth (air, light, nutrients from soil and room to grow) and how they vary from plant to plant. • Investigate the ways in which water is transported within plants. • Explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ The Great Plant Hunt identikit – (www.greatplanthunt.org/teachers) – scroll down the menu www.opalexplorenature.org/sites/default/files/7/file/OPAL-Tree-chart-web.pdf http://butterfly-conservation.org/121/habitat-advice.html http://bumblebeeconservation.org/get-involved/ Science Museum, Natural History Museum, Outdoor science area, local green areas, George Forrest, Charles Henry Turner, Scientists at the Royal Botanic Gardens, Kew, discovered and named more than 100 new plants in 2018	Children will extend on their knowledge of plants and flowers by looking into more detail at the requirements of plants, their parts and function. The use of the outdoor science area and local green areas, will provide the opportunity for children to observe and understand the difference between these plants and flowers and what they need to thrive. The allotment and garden will allow the children to grow plants from seed and witness these variations. They will be given the opportunity to use the key skills required. **Historical/Geographical links** Did you know: • George Forrest was a Scottish botanist, who became one of the first western explorers of China's South-Western province. • Around a third of the food we eat is estimated to be dependent on insect and bee pollination. • Flowers aren't just plants…they are complex reproductive systems. • Bees are found throughout the world except at the highest altitudes, in polar regions, and on some small oceanic islands.	Roots Stem Bud Trunk Leaf Petal Stamen Petal Anther Filament Stigma Ovary Carpel Ovule Pollination Germination Fertilisation Pollen Seed Bee Dispersal Xylem Requirements Function	Identify and describe the functions of different parts of plants; roots, stem, leaves and flowers. Explore the requirements of plants for life and growth (air, light, nutrients from soil and room to grow) and how they vary from plant to plant. Investigate the ways in which water is transported within plants. Explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal

Year 3	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Animals inc Humans**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat • Identify that humans and some animals have skeletons and muscles for support, protection and movement. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://iwaswondering.org/diane_homepage.html http://www.bbc.co.uk/learningzone/clips/a-healthy-diet-for-zoo-animals/2291.html http://www.bbc.co.uk/learningzone/clips/why-do-we-need-to-eat/2288.html http://www.bbc.co.uk/learningzone/clips/the-animal-skeleton/2302.html Science Museum, Natural History Museum, Diane France the skeleton of Richard III was discovered in Leicester in 2013	Children will build on their knowledge and understanding of the importance of exercise and food from year 2, moving on to the types of nutrition that are better for the body. Further links can be made with the schools 'Healthy Eating' initiative. Research will be used to identify which animals have a skeleton and which do not. The use of the full size skeleton will enable children to recognise the individual bones of a skeleton and where they can be found within the body. **Historical/Geographical links** Did you know: • Diane France solved mysteries and crimes by deciphering the stories bones tell her. • Found in west Africa, the Emperor Scorpion has its skeleton on the outside of its body for protection (exoskeleton) • The brown bear is an omnivore whereas the polar bear is a carnivore.	Nutrition Diet Healthy Unhealthy Salt Sugar Fat Protein Carbohydrates Grow Move Balanced Skeleton Ribs Skull Spine Function Protect Move Support Muscles Heart Biceps Triceps	Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Identify that humans and some animals have skeletons and muscles for support, protection and movement.

Year 3	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Rocks**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • Describe in simple terms how fossils are formed when things that have lived are trapped within rock • Recognise that soils are made from rocks and organic matter. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.discoveringfossils.co.uk/ https://www.bgs.ac.uk/data/mapViewers/home.html http://www.geologists.org.uk/famous-geologists/ http://iwaswondering.org/inez_homepage.html http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/dorothea-bate/index.html Science Museum, Natural History Museum, Marie Tharp, Dorothea Bate, first sighting of Ayres Rock 1872, Birbal Sahni	This topic allows the children to use and extend on their knowledge of rock from their topic of 'Use of everyday materials' in Year 2 focusing on rocks in more detail. They will learn to recognise different rocks based on their appearance and properties. They will be able to observe soil and rocks in the outdoor science area as well as in the local community, particularly the green areas. **Historical/Geographical links** Did you know: • Marie Tharp created the first scientific map of the Atlantic Ocean floor. • Most of the dinosaur fossils and the greatest variety of species have been found in the deserts of North America, in China and Argentina. • Rocks can be classified into three categories: sedimentary, igneous and metamorphic. Ayers Rock is a massive sandstone rock covering an area of 3.3 square kilometres, and is 9.4 kilometres around its base.	Rocks Soil Mineral Clay Sandy Silt Dead organic matter Granite Slate Marble Chalk Limestone Sandstorm Basalt Flint Diamond Quartz Amethyst Crystals Hard Soft Permeable Impermeable Fossil Ammonite Belenmite Trilobite Dinosaur Earthquake Volcano Tsunami Mountain Igneous Metamorphic Sedimentary Obsidian	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Describe in simple terms how fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter.

Year 3	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Light**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Recognise that they need light in order to see things and that dark is the absence of light • Notice that light is reflected from surfaces • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes • Recognise that shadows are formed when the light from a light source is blocked by a solid object **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.clerkmaxwellfoundation.org/html/who_was_maxwell_.html http://www.bbc.co.uk/learningzone/clips/how-does-light-create-shadows/2172.html http://www.bbc.co.uk/learningzone/clips/how-shadows-are-made-shadow-puppets/2175.html http://www.bbc.co.uk/learningzone/clips/how-do-different-materials-affect-shadows/6663.html Outdoor school science area, Science Museum, Local area, playground, James Clerk Maxwell, first torch invented	The children will use the general knowledge of light, built up over previous years to build on and learn about light in more scientific detail. They will evidence their understanding by learning and using the correct vocabulary and terms for this general knowledge. The playground provides the ideal area to investigate and evidence how shadows are formed. **Historical/Geographical links** Did you know: • James Clerk Maxwell (1831- 1879) is known for his ground-breaking electro-magnetism work • The lunar eclipse is defined as the earth casted a shadow on moon. • Shadow is divided in several types; antumbra, penumbra and umbra.	Light Light source Reflection Absence of light Travels Shadow Opaque Translucent Transparent Reflects Blocks Dark	Recognise that they need light in order to see things and that dark is the absence of light Notice that light is reflected from surfaces Recognise that light from the sun can be dangerous and that there are ways to protect their eyes Recognise that shadows are formed when the light from a light source is blocked by a solid object

Year 3	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Forces and Magnets**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Compare how things move on different surfaces • Notice that some forces need contact between two objects, but magnetic forces can act at a distance • Observe how magnets attract or repel each other and attract some materials and not others • 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 • Describe magnets as having two poles • Predict whether two magnets will attract or repel each other, depending on which poles are facing. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://news.nationalgeographic.co.uk/news/2009/08/090814-hans-christian-orsted-oersted-who.html http://www.bbc.co.uk/history/historic_figures/gilbert_william.shtml http://www.bbc.co.uk/learningzone/clips/examples-of-friction-no-narration/2177.html http://www.bbc.co.uk/learningzone/clips/mice-using-magnets-animation/2188.html http://www.sciencekids.co.nz/gamesactivities/detectivescience/magnets.html Science Museum, Natural History Museum, Hans Christian Oersted , William Gilbert, First made magnetic compass in China from 221 to 206 BCE.	Children will recognise magnets and be aware that they pick up certain objects. They will learn appropriate vocabulary and be given the opportunity to investigate, experiment and observe magnetic force in action. Children will be given the opportunity to learn about forces and the connection with magnets, acknowledging the difference between them. **Historical/Geographical links** Did you know: • William Gilbert was the first man to research the properties of magnetic iron ore • Hans Christian Oersted found the first connection found between electricity and magnetism. • The world's most powerful magnets**:** The two biggest magnets reside at Los Alamos National Laboratory in New Mexico and Florida State University (FSU).	Force Newton Friction Magnet Attract Repel Magnetic Non-magnetic North Pole South Pole Metal Iron Rubber Paper Sponge Metal Plastic Wood Glass Rock Water	Compare how things move on different surfaces Notice that some forces need contact between two objects, but magnetic forces can act at a distance Observe how magnets attract or repel each other and attract some materials and not others 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 Describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing.

Year 4	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Animals inc Humans**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Describe the simple functions of the basic parts of the digestive system in humans • Identify the different types of teeth in humans and their simple functions • Construct and interpret a variety of food chains, identifying producers, predators and prey. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.e-learningforkids.org/Courses/Liquid_Animation/Body_Parts/Digestive_System/ http://www.bbc.co.uk/learningzone/clips/the-digestive-system/4180.html http://www.learnnc.org/lp/media/uploads/2010/02/digestion.pdf http://www.bbc.co.uk/nature/animals/ http://diet.yukozimo.com/ Science Museum, Natural History Museum, Charles Elton, Al-Jahiz, Samuel Stockton, Colgate mass-produced the first toothpaste.	Children will continue to build on their previous knowledge in this area understanding what happens to the food they consume and the functions of the parts of the body that process this food. Building on their learning from Year 2, they will look in more depth at predators and their prey, enabling them to create food chains, evidencing this understanding. They will be able to recognise teeth in humans and their function, making comparisons with peers and what happens to these teeth over time. **Historical/Geographical links** Did you know: • Natural bristle brushes were invented by the ancient Chinese, who made toothbrushes with bristles from the necks of cold climate pigs. • William Beaumont (November 21, 1785 – April 25, 1853) was a surgeon in the U.S. Army who became known as the "Father of Gastric Physiology" following his research on human digestion.	Teeth Incisors Canines Molars Premolars Function Digestive system Oesophagus Stomach Small intestine Large intestine Anus and rectum Digest Acid Food chain Food web Producer Consumer Secondary consumer Predator Prey Saliva Pancreas Liver	Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions Construct and interpret a variety of food chains, identifying producers, predators and prey.

Year 4	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**States of matter**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Compare and group materials together, according to whether they are solids, liquids or gases • 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) • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.bbc.co.uk/learningzone/clips/properties-of-solids-liquids-and-gases/10587.html http://www.brainpop.com/science/matterandchemistry/statesofmatter/ http://www.bbc.co.uk/learningzone/clips/the-water-cycle/11070.html http://www.nobelprize.org/alfred_nobel/ Science Museum, Natural History Museum, , outdoor classroom Science area, local green areas Alfred Barnhard Nobel, , invention of dynamite 1864, 8th century porcelain invented in China	This topic enables children to build on their prior knowledge of materials from Years 1 and 2, looking at each in more depth, recognising the difference between them. Materials in and around school will be used to investigate and observe changes in their state, including the use of the outdoor science area where the water cycle will be observed in a more natural surroundings. **Historical/Geographical links** Did you know: • Alfred Nobel invented dynamite following the death of his brother • A new state of matter was discovered in 2015 called 'Jahn-Teller metals' • The most abundant metal in the Earth's crust is aluminum.	Evaporation Condensation Solid Liquid Gas State Melt Solidify Freeze Heat Temperature Degrees celcius Water Ice Water vapour Water cycle Precipitation Materials Change Reversible Evaporates Condenses	Compare and group materials together, according to whether they are solids, liquids or gases 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) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Year 4	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Sound**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Identify how sounds are made, associating some of them with something vibrating • Recognise that vibrations from a sound travel through a medium to the ear. • Find patterns between the pitch of a sound and features of the object that produced it • Find patterns between the volume of a sound and the strength of the vibrations that produced it. • Recognise that sounds get fainter as the distance from the sound source increases. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.bbc.co.uk/learningzone/clips/the-effect-of-distance-on-sound/2418.html http://www.bbc.co.uk/learningzone/clips/how-does-sound-travel-through-the-air/1608.html http://www.bbc.co.uk/learningzone/clips/how-does-sound-move-through-the-air/1607.html http://www.bbc.co.uk/learningzone/clips/how-sound-waves-work-and-why-nothing-can-be-heard-in-a-vacuum/7913.html http://www.bbc.co.uk/learningzone/clips/what-makes-noise-sound-higher-or-lower/7911.html Science Museum, Natural History Museum Heinrich Hertz, Emile Berliner, Jagadish Chandra Bose, 1979 Sony introduces the Walkman. 1886 first gramophone.	Children will revisit their learning from Year 1 on the senses and the ear and its function. They will understand sound and how it is created making links to vibration and pitch and the objects that produce it. The outdoor areas around school will provide the opportunity and space to experiment and investigate sound travelling. **Historical/Geographical links** Did you know: • The unit of frequency used for all kinds of waves and vibrations is named after Heinrich Hertz. • The Walkman was a palm-sized stereo cassette tape player and the first 'travelling sound' device. • Following the introduction of the disc gramophone, it would take 70 years before sound quality improved	Vibration Loudness Pitch Loud Quiet High Low Strength Speed Source Ear Travels Harder Softer Quicker Slow Frequency Solid Liquid Gas Decibels Hertz Hit Blow	Identify how sounds are made, associating some of them with something vibrating Recognise that vibrations from a sound travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases.

Year 4	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Electricity**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Identify common appliances that run on electricity • Construct a simple series electrical circuit, identifying and naming its basic parts, including 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 • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit • Recognise some common conductors and insulators, and associate metals with being good conductors. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.bbc.co.uk/learningzone/clips/the-dangers-of-electricity/1646.html http://www.bbc.co.uk/learningzone/clips/the-use-of-electricity-no-narration/2407.html http://www.bbc.co.uk/learningzone/clips/a-simple-electrical-circuit/2190.html http://www.bbc.co.uk/learningzone/clips/an-introduction-to-electricity/10596.html Science Museum, Natural History Museum, Alessandro Volta, Andre-Marie Ampere, 1800 invention of the first battery, 1705 accidental discovery of neon light	Children will mostly use their general knowledge as a starting point for this topic with a focus on everyday objects and their need for electricity in order to function. The focus will then move onto circuits and their parts with the understanding that these components should complete a loop in order to be successful. The necessary vocabulary will be introduced, used and revisited in order to prepare children for this topic in year 6. **Historical/Geographical links** Did you know: • The volt, the unit of electromotive force, is named after the inventor of the first battery. • The U.K used 309 billion units of electricity in 2014 • Coal is the world's biggest source of energy for producing electricity.	Electricity Circuit Appliances Mains Battery Components Lamp Cell Wire Motor Buzzer Conductor Insulator Lamp holder Light Sound Movement Change temperature Brighter Duller Faster Slower	Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including 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 Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Recognise some common conductors and insulators, and associate metals with being good conductors.

Year 4	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Living things and their habitats**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Recognise that living things can be grouped in a variety of ways • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment • Recognise that environments can change and that this can sometimes pose dangers to living things. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.bbc.co.uk/nature/collections/p00fxg0m#p007vh74 http://www.bbc.co.uk/learningzone/clips/how-to-make-a-bug-home/12981.html http://www.bbc.co.uk/learningzone/clips/woodland-pond-and-ditch-habitats-within-a-garden/2309.html http://www.bbc.co.uk/learningzone/clips/changing-ecosystems-the-deforestation-of-britain/3234.html , Local green areas, outdoor classroom, science area, Science museum, Natural History Museum Carl Linnaeus, David Attenborough, Australian bushfires 2020	Pupils will already have some knowledge in this area from Year 2 and will recap prior learning from this time to ensure they have enough knowledge to move forward. They will use the outdoor science area and local green areas to support the identifying and naming of living things found there. Through research, children will understand how and why environments can change, threatening the living things that inhabit these environments. This will prepare them for a more specific focus on certain living things in Year 5. **Historical/Geographical links** Did you know: • Habitat loss is probably the greatest threat to the variety of life on this planet today • Australian fires have incinerated the habitats of up to 100 threatened species • The largest habitat on earth is the marine habitat.	Classification Organism Animals Plants Fungi Algae Vertebrate Invertebrate Class Mammal Bird Fish Amphibian Reptiles Ecology Ecosystem Environment Classification key Flowering plants Ferns Mosses Lichen	Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things.

Year 5	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Living things and their habitats**	Mammals Amphibians Insect Bird Sperm Egg Embryo Spawn Tadpole Cub Chick Juvenile Adult Eft Froglet Larva Pupa Reproduce Pollen Stamen Anther Filament Stigma Style Ovary Ovules Life cycles Pollination Pollinator Germination Fertilisation Pollen tube Flowering plants Flower Dispersal Seed	Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • Describe the life process of reproduction in some plants and animals.	Much of the learning of this topic from previous years focuses on identifying and grouping. In year 5, the children will focus more specifically on certain groups of animals and their own life cycles, making comparisons to others. This focus allows for a cohesive transition to reproduction. The outdoor science area will be used to evidence both through the observation of flowers and plants, amphibians in the pond and caterpillars and butterflies.		Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals.
Useful websites and resources Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.badger.org.uk/content/home.asp http://www.farmsforschools.org.uk/index.htm http://butterfly-conservation.org/121/habitat-advice.html http://www.bbc.co.uk/nature/adaptations/Maternal_effect http://www.bbc.co.uk/nature/adaptations/Metamorphosis Science Museum, Natural History Museum, Outdoor Science area, local green areas, Greenwich Park	**Historical/Geographical links** Did you know: • Badgers were eaten in Britain during World War II and the 1950s**.** • It's not just humans who live in towns and cities. Even in the middle of the 'concrete jungles', wildlife lives alongside us. • Scientists estimate that there are approximately 12-15,000 species of butterflies.		

Year 5	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Properties and change of material**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • 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 • Understand that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • Demonstrate that dissolving, mixing and changes of state are reversible changes • 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. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.bbc.co.uk/learningzone/clips/heat-and-insulation/2166.html http://www.bbc.co.uk/learningzone/clips/drysuits-wetsuits-and-insulation/2169.html Science Museum, British Museum, Natural History Museum, outdoor science areas, Marie Curie, Charles Goodyear developed vulcanised rubber	Children will use their general knowledge as well as revisit prior learning in order to progress into the specific requirements of this topic. This knowledge will enable them to group materials based on all of their properties, including their conductivity. The children will have the opportunity to investigate and experiment with resources from in and around school, including the outdoor classroom and science area, enabling them to view changes caused by dissolving and mixing. Opportunities will be given to observe these changes over time, further recognising reversible and irreversible change. **Historical/Geographical links** Did you know: • Ancient civilisations (Mayans) in Mexico and Central America made rubber 3000 years ago before Charles Goodyear. • Although stone is known to be the most durable building material, igneos rock is the most resistance to weather. This can be found all over the world but particularly near volcanic hot spots.	Materials Properties Transparent Translucent Opaque Electrical conductor Electrical insulator Hard Soft Thermal conductor Thermal insulator Magnetic Dissolve Solution Solute Solvent Change Reversible change Irreversible change Separate Sieve Filter Evaporate States of matter Non-magnetic Solid Liquid Gas Burn Heat React Combine Mixture	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 Understand that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic

			Demonstrate that dissolving, mixing and changes of state are reversible changes 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.

Year 5	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Animals inc Humans**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Describe the changes as humans develop from birth to old age. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ https://www.bbc.co.uk/bitesize/topics/zgssgk7 http://www.vaughns-1-pagers.com/biology/gestation-periods.htm http://www.factophile.com/show.content?action=view&pageid=6 http://news.bbc.co.uk/1/hi/health/8035784.stm http://www.nhs.uk/Livewell/puberty/Pages/Pubertyinfoforchildren.aspx Science Museum, Professor Robert Winston ,Jeanne Louise Calment, First test tube baby conceived	Children will use their general knowledge as well as revisit prior learning in order to progress into the specific requirements of this topic. Links will be made with the development of plants (seed, seedling etc) and humans with a focus on vocabulary and the correct terminology applicable. Children will be able to recognise the changes in themselves through the stages from when they were born (foetus, baby, toddler etc) as a starting point and investigate the further changes that will take place. **Historical/Geographical links** Did you know: • The oldest age of a human (that was authenticated) is 122 years and 164 days. • People living in Japan have the longest average life expectancy • Scientists believe that humans are evolutionarily programmed to find babies cute to ensure that babies are cared for	Toddler Foetus Baby Child Adolescent Adult Elderly adult Puberty Hormones Gestation period Exercise	Describe the changes as humans develop from birth to old age.

Year 5	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Earth and space**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Describe the movement of the Earth, and other planets, relative to the Sun in the solar system • Describe the movement of the Moon relative to the Earth • Describe the Sun, Earth and Moon as approximately spherical bodies • Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky **<u>Useful websites and resources</u>** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://solarsystem.nasa.gov/people/ http://www.bbc.co.uk/learningzone/clips/images-of-the-earth-sun-and-moon/1589.html http://www.bbc.co.uk/learningzone/clips/copernicus-and-galileo-the-movement-of-the-earth/5589.html http://www.enchantedlearning.com/crafts/astronomy/solarsystemmodel/ http://www.bbc.co.uk/learningzone/clips/stargazing-challenge-the-orbits-of-the-earth-and-moon/13902.html Science Museum, Natural History Museum, Galileo Galilei, Edwin Hubble, Heidi Hammel, Subrahmanyan Chandrasekhar, Cecilia Payne-Gaposchkin proved that stars are mostly made of hydrogen, Hubble's Law	Although this topic may not have been taught discretely in previous school years, links can be made to rocks, forces and seasons. Children will be encouraged to make these links independently using their general knowledge and prior learning. Children will use the outdoor playgrounds to witness and record the sun moving across the sky, which will enable understanding of the Earth rotating. Creative approaches will be used to allow the children to acknowledge size and movement of the Earth, Sun and Moon as well as the other planets **<u>Historical/Geographical links</u>** Did you know: • Uranus was discovered by William Hershel on March 13, 1781 • While the moon appears to change size throughout the month, it is always visible to someone somewhere on the earth. • One million Earths could fit inside the Sun. • The Moon is thought to have formed about 4.51 billion years ago, not long after Earth.	Solar system Universe Galaxy Sun Moon Earth Changes direction Mercury Venus Uranus Neptune Orbit Rotates Day Night Sphere Apparent Milky Way Andromeda galaxy Dusk Dawn Solid Rock Liquid Lava Gas Atmosphere Moons	Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Describe the movement of the Moon relative to the Earth Describe the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky

Year 5	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Forces**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • Identify the effects of air resistance, water resistance and friction, that act between moving surfaces • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.bbc.co.uk/history/historic_figures/archimedes.shtml http://www.design-technology.info/inventors/page11.htm http://www.bbc.co.uk/history/historic_figures/newton_isaac.shtml http://www.bbc.co.uk/learningzone/clips/gravity-and-its-effects-on-a-stunt-artist/1598.html http://www.bbc.co.uk/learningzone/clips/examples-of-friction-no-narration/2177.html Science Museum, Natural History Museum, British Museum, Sir Isaac Newton, Archimedes, Christopher Cockerell Invented the hovercraft	Children may have prior knowledge of the word gravity and what it looks like in action, without understanding that it is a force. They will therefore be taught about gravity in more details including Newton's theory of gravity and how he discovered it. Resources in school will enable the children to build their own mechanisms, testing their force in the outdoor areas within school. These outdoor spaces and areas will enable children to experiment and investigate with air and water resistance using a more hands-on creative approach. **Historical/Geographical links** Did you know: • The first electricity-generating wind turbine was invented in 1888 in Cleveland, Ohio by Charles F. Brush. • Earthquakes occur as a result of frictional instability. • Isaac Newton is best known for his theory of gravity inspired by an apple falling from a tree and the world around him.	Force Gravity Air resistance Friction Water resistance Newtons Mechanism Pulley Gear Lever Weight Balance Push Pull Energy Mass Efforts Speeds up Slows down Stops Changes shape Changes direction	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify the effects of air resistance, water resistance and friction, that act between moving surfaces Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Year 6	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Living things and their habitats**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals • Give reasons for classifying plants and animals based on specific characteristics **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/evelyn-cheesman/index.html http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/hans-sloane/index.html http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/gilbert-white/index.html Natural History Museum, Science Museum, outdoor science area, local green areas Gilbert White, Evelyn Cheesman,	Children will recap prior knowledge and learning from previous years before building on this knowledge looking more in depth at classifying. They will be able to use the science garden and outdoor area to observe animals and plants and use classifying systems and keys, working scientifically in their immediate surroundings. Children will be given the opportunity to record using a variety of methods in preparation for secondary education and KS3 Science. **Historical/Geographical links** Did you know: • The lion belongs to 7 different species groups (Animalia, Chordata, Mammalia, Carnivora, Felidae, Panthera and Leo) • Classification is needed for convenient study of living organisms. • In 1920 Evelyn Cheesman became the first woman to be hired as a curator at London Zoo.	Classification Animals Plants Micro-organisms Features Ferns Mosses Seed producing Flowering plants Lichen Vertebrate Invertebrate Mammals Birds Reptiles Amphibians Fish Funghi Broad leaved Needle leaves Insects Arachnids Molluscs Annelid Primates Non-flowering plants Non-seed-producing plants Conifers Algae Animals	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics

Year 6	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Animals inc Humans**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • Describe the ways in which nutrients and water are transported within animals, including humans **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.nhs.uk/Livewell/drugs/Pages/Drugsoverview.aspx http://www.youtube.com/watch?v=NF68qhyfcoM http://www.cyh.com/HealthTopics/HealthTopicDetailsKids.aspx?p=335&np=284&id=1494 http://www.nhs.uk/Livewell/Goodfood/Pages/water-drinks.aspx Science Museum, Natural History Museum, Louis René Lecanu, William Harvey First human heart transplant	Children will recap prior knowledge and learning from previous years before building on this knowledge, looking more in depth at the body and how it functions. Recognition of the impact a healthy lifestyle will have on the body will link with many PSHE areas and the children will be able to connect with their own lifestyle and that of those around them. Children will be given the opportunity to record using a variety of methods in preparation for secondary education and KS3 Science. **Historical/Geographical links** Did you know: • The average life expectancy in the U.K is 81.2 years. • Cholesterol was first discovered present in human blood in 1838 • The first human heart transplant took place in South Africa.	Heart Blood vessels Capillaries Veins Arteries Chambers Blood Nutrients Lifestyle Drugs Diet Exercise Lungs Oxygen Carbon dioxide Digested food Valves Chambers Red blood cells White blood cells Platelets Plasma Clot Respiration	Identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Describe the ways in which nutrients and water are transported within animals, including humans

Year 6	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Evolution and inheritance**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. • Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.bbc.co.uk/nature/adaptations http://www.greatplanthunt.org/teachers http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/charles-darwin/index.html http://dinosaurs.about.com/od/typesofdinosaurs/a/crocodilians.htmhttp://www.prehistoric-wildlife.com/species/p/purussaurus.html Natural History Museum, Science Museum, Charles Darwin, Jean-Baptiste Lamarck, Charles Darwin and his voyage aboard H.M.S. Beagle	Children will recap prior knowledge and learning from previous years before building on this knowledge. They will make links to the study of living things by being given the opportunity to focus on inherited traits, starting with an understanding of DNA and what enables us to produce offspring similar to ourselves. Children will be given the opportunity to record using a variety of methods in preparation for secondary education and KS3 Science. **Historical/Geographical links** Did you know: • Jean-Baptiste Lamarck was a pioneering French biologist is famous for his idea that acquired characteristics are inheritable • Finches helped Charles Darwin derive his theories on evolution. He proposed that all of the species of the finches on the island of Galapagos were the descendants of a single species that arrived from mainland South and Central America. • The fossilised bones of the biggest dinosaur ever discovered were found in Argentina	Evolve Adapt Feature Organism Fossil Fossilisation Offspring Inherit Habitat Survive Extinct Evolution Variation Adaption Survival of the fittest Genes Suited Chimpanzee Gibbon Orangutan Gorilla Human	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Year 6	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Light**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • recognise that light appears to travel in straight lines • 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 • 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 • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them **Useful websites and resources** Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://geology.com/articles/satellite-photo-earth-at-night.shtml http://www.bbc.co.uk/learningzone/clips/demonstrating-how-light-travels-in-straight-lines/1625.html Science Museum, British Museum, local green areas, science garden, Roger Bacon, Isaac Newton, Jean-Bernard-Leon Foucault accurately measured the speed of light	Children will recap prior learning and general knowledge from Year 3 before moving forward with this topic. They will learn about the anatomy of the eye first which will enable them to fully understand light travelling in straight lines and how we see light. The children will be given the opportunity to investigate and experiment using a variety of resources as well as the outdoor classroom and science area. Children will be given the opportunity to record using a variety of methods in preparation for secondary education and KS3 Science. **Historical/Geographical links** Did you know: • The biggest shadow in the world (235,000 miles high, 105 miles wide and 75 miles thick) was in San Diego and was created by the shadow of the moon as it crossed the face of the sun. • Isaac Newton discovered that white light can be separated into a spectrum of colours with a prism. • Throughout the animal kingdom there are many different types of eyes, for example the human eye is very different to the compound eye of a fly which is better at detecting fast movements.	Travels Straight line Shadows Opaque Reflects Translucent Transparent Light source Absence of light Dark Blocks	Recognise that light appears to travel in straight lines 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 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 Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

Year 6	Topic	Key Vocabulary Depending on topic	Assessment: Key Skills
Knowledge/Significant people/Significant events/Visits	**Electricity**		Observation over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research.
Whole School Topic TBC x 2 per year.	**Subject Rationale:**		
Pupils will be taught to: • Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • 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 • Use recognised symbols when representing a simple circuit in a diagram**.** Useful websites and resources Kent Planning and assessment https://explorify.wellcome.ac.uk/ http://www.bbc.co.uk/learningzone/clips/how-is-electricity-made/13457.html https://www.bbc.co.uk/bitesize/topics/z2882hv/articles/zcwnv9q Science Museum, Benjamin Franklin, Thomas Edison, Andre-Marie Ampere enabled people to measure the amount of electric current flowing through a circuit.	Children will recap prior learning and general knowledge from Year 4 before moving forward with this topic. They will be given the opportunity to learn which household items are electrical and where and how this electricity reaches them before moving on with circuits, how to build them and the symbols that represent them. The use of electrical circuit resources will enable children to build their own, experimenting with voltage and other components. Children will be given the opportunity to record using a variety of methods in preparation for secondary education and KS3 Science. Historical/Geographical links Did you know: • Alessandro Volta **i**nvented the first battery. The volt is named after him. • As of 2010, China took over from America as the country using the most energy of any country globally. • The world's largest light bulb can be found in New Jersey and is 13 feet tall and weighs eight tonnes.	Electricity Circuit Component Cell Battery Wire Lamp Motor Buzzer Volts Resistance Switch Symbol Circuit diagram Function Conductor Insulator Voltage Metal Brighter Duller Louder Quieter	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit 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 Use recognised symbols when representing a simple circuit in a diagram**.**