SCIENCE OVERVIEW

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
EYFS UW Natural World	• Look at changes in the weather/ trees etc (Autumn link)	• **Nursery:** talk about natural materials using vocabulary linked to all senses. • **Reception**: describe what I see, hear and feel outside. • Talk about forces I feel / differences in materials. Look at changes in the weather/ trees etc (Autumn/Winter link)	• **Nursery:** Can talk about things that they have observed such as plants, animals, natural and found objects. • Developing and understanding of growth, decay and changes over time. • **Reception**: Make observations of animals and plants and explain why some things occur, talk about changes. Look at changes in the weather/ trees etc (Winter/Spring link)	• **Nursery:** Is curious and interested to explore new and familiar experiences in nature: grass, mud, puddles, plants, animal life. • Notices detailed features of objects in their environment. • **Reception:** Comments and asks questions about aspects of their familiar world • Developing an understanding of growth, decay and changes over time. • Looks closely at similarities, differences, patterns and change in nature Look at changes in the weather/ trees etc (Spring link)	• **Nursery:** Can talk about some of the things that they have observed, such as plants, animals, natural and found objects. • **Reception:** ELG explore the world around them, making observations and drawing pictures of animals and plants. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	• **Nursery:** Notices detailed features of objects in their environment. • Shows care and concern for living things and the environment. • **Reception:** Makes observations of animals and plants and explains why some things occur and talks about changes. • ELG explore the world around them, making observations and drawing pictures of animals and plants. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.
KS1 CYCLE A	Seasons (Y1) Name the seasons and know about the type of weather in each season	Animals including humans (Y1) Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds Know and classify animals by what they eat (carnivore, herbivore and omnivore) Know how to sort by living and non-living things	All living things and their habitats (Y2) Classify things by living, dead or never lived -Know how a specific habitat provides for the basic needs of things living there (plants and animals) -Match living things to their habitat -Name some different sources of food for animals -Know about and explain a simple food chain		Plants (Y2) -Know and explain how seeds and bulbs grow into plants -Know what plants need in order to grow and stay healthy (water, light & suitable temperature)	Animals including humans (Y2) -Know the basic stages in a life cycle for animals, (including humans) -notice that animals, including humans, have offspring which grow into adults

PHYSICS	BIOLOGY	CHEMISTRY

SCIENCE OVERVIEW

KS1 CYCLE B	Materials (Y1) -know the name of the materials an object is made from -know about the properties of everyday materials -set up a test to see which materials keeps things the warmest.	Animals including humans (Y2) -Know why exercise, a balanced diet and good hygiene are important for humans	Plants (Y1) -Plants Identify and name a variety of common, wild and green plants, including deciduous and evergreen trees; -Identify and describe the basic structure of a variety of common flowering plants, including trees. - Know the names of a variety of common trees Know the difference between deciduous and evergreen trees		Animals including Humans (Y1) Identify and name a variety of common animals, including fish, amphibians, reptiles, birds and mammals; Know the name of parts of the human body that can be seen Measures (within Year 1 mathematical limits) to help find out more about the investigations undertaken	Everyday Materials (Y2) Know why a material might or might not be used for a specific job Know how materials can be changed by squashing, bending, twisting and stretching
LKS2 CYCLE A	Rocks Year 3 - Compare and group rocks based on their appearance and physical properties, giving reasons - Know how soil is made and how fossils are formed - Know about and explain the difference between sedimentary, metamorphic and igneous rock	Animals including Humans Year 3 - Know about the importance of a nutritious, balanced diet - Know how nutrients, water and oxygen are transported within animals and humans - Know about the skeletal and muscular system of a human	Sound - Know how sound is made associating some of them with vibrating - Know how sound travels from a source to our ears - Know the correlation between pitch and the object producing a sound - Know the correlation between the volume of a sound and the strength of the vibrations that produced it - Know what happens to a sound as it travels away from its source	Electricity - Identify and name appliances that require electricity to function - Construct a series circuit - Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers) - Predict and test whether a lamp will light within a circuit - Know the function of a switch in a circuit - Know the difference between a conductor and an insulator; giving examples of each	Forces and Magnets -Know about and describe how objects move on different surfaces -Know how a simple pulley works and use to on to lift an object -Know how some forces require contact and some do not, giving examples -Know about and explain how magnets attract and repel -Predict whether magnets will attract or repel and give a reason	Plants - Know how water is transported within plants - Know the plant life cycle, especially the importance of flowers - Know the function of different parts of flowing plants and trees
LKS2 CYCLE B	Changes of state -Group materials based on their state of matter (solid, liquid, gas) -Know about and explore how some materials can change state -Know the temperature at which materials change state	All living things and their habitats -Grouping living things -Use classification keys to group, identify and name living things -Adaptation of living things -Know how changes to an environment could endanger living things.	Animals (including humans) -What happens to the food we eat? -Use classification keys to group, identify and name living things -Identify and name the parts of the human digestive system -Know the functions of the organs in the human digestive system -Identify and know the different types of teeth that humans have -Know the functions of different human teeth		Light -Know that dark is the absence of light -Know that light is needed in order to see and is reflected from a surface -Know and demonstrate how a shadow is formed and explain how a shadow changes shape	

PHYSICS	BIOLOGY	CHEMISTRY

SCIENCE OVERVIEW

	-Know the part played by evaporation and condensation in the water cycle		-Use and construct food chains to identify producers, predators and prey		-Know about the danger of direct sunlight and describe how to keep protected.	
UKS2 CYCLE A	Earth and Space -Know about and explain the movement of the Earth and other planets relative to the sun -know about and explain the movement -know and demonstrate how night and day are created -describe the Sun, Earth and Moon (spherical)	Forces and Magnets -know what gravity is and its impact on our lives -identify and know the effect of air and water resistance -identify and know the effect of friction -explain how levers, pulleys and gears allow a smaller force to have a greater effect	Electricity -Electrical components - Simple circuits - Fuses and voltage - Compare and give reasons for why components work and do not work in a circuit - Draw circuit diagrams using correct symbols -Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer Working Scientifically: systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit.	Animals including humans -know, identify and name that main parts of the circulatory system -know the function of the heart, blood vessels and blood -know the impact of diet, exercise, drugs and lifestyle have on health -know the ways in which nutrients and water are transported in animals, including humans	Evolution and Inheritance -Identical and non-identical offspring -Fossil evidence and evolution Adaptation and evolution -Know how the Earth and living things have changed over time Know how fossils can be used to find out about the past -Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) -Know how animals and plants are adapted to suit their environment -Link adaptation over time to evolution Know about evolution and can explain what it is	
UKS2 CYCLE B	Light -How light travels -Reflection -Ray models of light - Know how light travels -Know and demonstrate how we see objects -Know why shadows have the same shape as the object that casts them -Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.	Properties and changes in materials -Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating) Know and demonstrate that some changes are reversible and some are not Know how some changes result in the formation of a new material and that this is usually irreversible	Animals including humans y5 -changes as humans develop from birth to old age - create a timeline to indicate stages of growth in humans		Living things and their habitats y5 -Know the life cycle of different living things eg mammal, amphibian, insect and bird -know the differences between different life cycles -know the process of reproduction in plants -know the process of reproduction in animals	Living things and their habitats Y6 classify living things into broad groups according to observable characteristics based on similarities and differences -know how living things have been classified -Give reasons for classifying planets and animals in a specific way

WORKING SCIENTIFICALLY

PHYSICS	BIOLOGY	CHEMISTRY

SCIENCE OVERVIEW

YEAR 1
❑ Ask questions such as: • Why are flowers different colours? • Why do some animals eat meat and others do not?
❑ Set up a test to see which materials keeps things warmest, know if the test has been successful and can say what has been learned
❑ Explain to someone what has been learned from an investigation they have been involved with and draw conclusions from the answers to the questions asked
❑ Measures (within Year 1 mathematical limits) to help find out more about the investigations undertaken
YEAR 2
❑ Ask questions such as: • Why do some trees lose their leaves in Autumn and others do not? • How long are roots of tall trees? • Why do some animals have underground habitats?
❑ Use equipment such as thermometers and rain gauges to help observe changes to local environment as the year progresses
❑ Use microscopes to find out more about small creatures and plants
❑ Know how to set up a fair test and do so when finding out about how seeds grow best
❑ Classify or group things according to a given criteria, e.g. deciduous and coniferous trees
❑ Draw conclusions from fair tests and explain what has been found out
❑ Use measures (within Year 2 mathematical limits) to help find out more about the investigations they are engaged with

YEAR 3	
❑ Ask questions such as: • Why does the moon appear as different shapes in the night sky? • Why do shadows change during the day? • Where does a fossil come from?	❑ Use a thermometer to measure temperature and know there are two main scales used to measure temperature
	❑ Gather and record information using a chart, matrix or tally chart, depending on what is most sensible
❑ Observe at what time of day a shadow is likely to be at its longest and shortest	❑ Group information according to common factors e.g. plants that grow in woodlands or plants that grow in gardens
❑ Observe which type of plants grow in different places e.g. bluebells in woodland, roses in domestic gardens, etc.	❑ Use bar charts and other statistical tables (in line with Year 3 mathematics statistics) to record findings
❑ Use research to find out how reflection can help us see things that are around the corner	❑ Know how to use a key to help understand information presented on a chart
❑ Use research to find out what the main differences are between sedimentary and igneous rocks	❑ Be confident to stand in front of others and explain what has been found out, for example about how the moon changes shape
❑ Test to see which type of soil is most suitable when growing two similar plants	❑ Present findings using written explanations and include diagrams when needed
❑ Test to see if their right hand is as efficient as their left hand	❑ Make sense of findings and draw conclusions which help them to understand more about scientific information
❑ Set up a fair test with different variables e.g. the best conditions for a plant to grow	❑ Amend predictions according to findings
❑ Explain to a partner why a test is a fair one e.g. lifting weights with right and left hand, etc.	❑ Be prepared to change ideas as a result of what has been found out during a scientific enquiry

PHYSICS	BIOLOGY	CHEMISTRY

SCIENCE OVERVIEW

❑ Measure carefully (taking account of mathematical knowledge up to Year 3) and add to scientific learning	

YEAR 4	
❑ Ask questions such as: • Why are steam and ice the same thing? • Why is the liver important in the digestive systems? • What do we mean by 'pitch' when it comes to sound?	❑ Gather and record information using a chart, matrix or tally chart, depending on what is most sensible
❑ Use research to find out how much time it takes to digest most of our food	❑ Group information according to common factors e.g. materials that make good conductors or insulators
❑ Use research to find out which materials make effective conductors and insulators of electricity	❑ Use bar charts and other statistical tables (in line with Year 4 mathematics statistics) to record findings
❑ Carry out tests to see, for example, which of two instruments make the highest or lowest sounds and to see if a glass of ice weighs the same as a glass of water	❑ Present findings using written explanations and include diagrams, when needed
❑ Set up a fair test with more than one variable e.g. using different materials to cut out sound	❑ Write up findings using a planning, doing and evaluating process
❑ Explain to others why a test that has been set up is a fair one e.g. discover how fast ice melts in different temperatures	❑ Make sense of findings and draw conclusions which helps them understand more about the scientific information that has been learned
❑ Measure carefully (taking account of mathematical knowledge up to Year 4) and add to scientific learning	❑ When making predictions there are plausible reasons as to why they have done so
❑ Use a data logger to check on the time it takes ice to melt to water in different temperatures	❑ Able to amend predictions according to findings
❑ Use a thermometer to measure temperature and know there are two main scales used to measure temperature	❑ Prepared to change ideas as a result of what has been found out during a scientific enquiry

YEAR 5	
❑ Set up an investigation when it is appropriate e.g. finding out which materials dissolve or not	❑ Able to present information related to scientific enquiries in a range of ways including using IT such as power-point and iMovie
❑ Set up a fair test when needed e.g. which surfaces create most friction?	❑ Use diagrams, as and when necessary, to support writing
❑ Set up an enquiry based investigation e.g. find out what adults / children can do now that they couldn't when a baby	❑ Is evaluative when explaining findings from scientific enquiry
❑ Know what the variables are in a given enquiry and can isolate each one when investigating e.g. finding out how effective parachutes are when made with different materials	❑ Clear about what has been found out from recent enquiry and can relate this to other enquiries, where appropriate
❑ Use all measurements as set out in Year 5 mathematics (measurement), including capacity and mass	❑ Their explanations set out clearly why something has happened and its possible impact on other things
❑ Use other scientific instruments as needed e.g. thermometer, rain gauge, spring scales (for measuring Newtons)	❑ Able to give an example of something focused on when supporting a scientific theory e.g. how much easier it is to lift a heavy object using pulleys

PHYSICS	BIOLOGY	CHEMISTRY

SCIENCE OVERVIEW

❑ Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs	❑ Keep an on-going record of new scientific words that they have come across for the first time
❑ Make predictions based on information gleaned from investigations	❑ Able to relate causal relationships when, for example, studying life cycles
❑ Create new investigations which take account of what has been learned previously	❑ Frequently carry out research when investigating a scientific principle or theory

YEAR 6	
❑ Know which type of investigation is needed to suit particular scientific enquiry e.g. looking at the relationship between pulse and exercise	❑ Use a range of written methods to report findings, including focusing on the planning, doing and evaluating phases
❑ Set up a fair test when needed e.g. does light travel in straight lines?	❑ Clear about what has been found out from their enquiry and can relate this to others in class
❑ Know how to set up an enquiry based investigation e.g. what is the relationship between oxygen and blood?	❑ Explanations set out clearly why something has happened and its possible impact on other things
❑ Know what the variables are in a given enquiry and can isolate each one when investigating	❑ Aware of the need to support conclusions with evidence
❑ Justify which variable has been isolated in scientific investigation	❑ Keep an on-going record of new scientific words that they have come across for the first time and use these regularly in future scientific write ups
❑ Use all measurements as set out in Year 6 mathematics (measurement), including capacity, mass, ratio and proportion	❑ Use diagrams, as and when necessary, to support writing and be confident enough to present findings orally in front of the class
❑ Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs	❑ Able to give an example of something they have focused on when supporting a scientific theory e.g. classifying vertebrate and invertebrate creatures or why certain creatures choose their unique habitats
❑ Make accurate predictions based on information gleaned from their investigations and create new investigations as a result	❑ Frequently carry out research when investigating a scientific principle or theory
❑ Able to present information related to scientific enquiries in a range of ways including using IT such as power-point, animoto and iMovie	

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