Subject: SCIENCE LTP *2021-2022*
Coit is a member of ASE subject Association

Colours refer to the 3 natural sciences physical biological and chemical See also additional Science Sheet - Working Scientifically

	A1	*A2*	*SP1*	*SP2*	*SU1*	*SU2*
FS	**Science Strands for EYFS (The Natural World)** In reception children will: ● Draw information from a simple map. ● Explore the natural world around them. ● Describe what they see, hear and feel whilst outside. ● Recognise some environments that are different to the one in which they live. ● Understand the effect of changing seasons on the natural world around them. ● Early learning Goal 'The Natural World': ● Explore the natural world around them, making observations and drawing pictures of animals and plants ● 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 ● Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. In Early Years Foundation Stage (EYFS) children will start to gain the science knowledge that they'll build on throughout their primary school years, such as developing their skills of observation, prediction, critical thinking and discussion. Science at Foundation Stage is introduced indirectly through activities that encourage the children to explore, problem solve, observe, predict, think, make decisions and talk about the world around them.					
	Linked to topic: 'I wonder why I am special'	**Linked to topic: 'I wonder what sparkles in the sky'** **Seasons** -Autumn – what has changed? What do we celebrate in Autumn? How can we tell that it is nearly Winter? -Weather -Clothing **Enquiry Types:** Observing over time Researching Identifying and classifying	**Linked to Topic: I wonder when the snow falls**	**Linked to Topic: What's in the box? (Toys)** I **Materials and forces (toys)** -identifying different materials of toys - Comparing and sorting toys -looking at how toys are powered (batteries, electric) - Forces used to power toys **Enquiry Types:** Sorting Identifying and classifying	**Linked to Topic: What's growing in the garden?** **Growing – minibeast/plants** Lifecycles, sequences Lifecycle of a butterfly Observations over time **Enquiry Types:** Observing over time Identifying, classifying and grouping Researching	**Linked to Topic: I wonder** **Seasons** Spring/ summer – what has changed? Weather Comparing to autumn and winter- what is the same and what is different? **Growing and changing** - How have we changed? -What we are looking forward to in Year 1? Enquiry Types:

	Our body -Labelling body parts -Beginning to distinguish how we are different to each other by identifying features of each other (eye colour, hair colour) -How to stay healthy/looking after our bodies (including oral health) -How we have changed from a baby to now (links to history) **Seasons** Autumn – How can we identify autumn? What happens in autumn? Weather Clothing **Enquiry Types:** Pattern Seeking Researching Identifying and classifying Sorting		**Changes in states** Changing states of matter – water, freezing Observations over time **Seasons** Winter – what has changed? Weather Comparing to autumn - what is different? What is the same? Sorting and matching items to seasons **Animal Adaptation** -Why do some animals only live in the Arctic? Why do they survive there? **Enquiry Types:** Observing over time Identifying, classifying and grouping Researching Sorting			Observing over time Identifying, classifying and grouping Researching
Y1	**Autumn 1+2 - Materials:** We will distinguish between an object and the material from which it is made We will identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock We will describe the simple physical properties of a variety of everyday materials		**Spring 1+ 2 – Humans/ senses** We will focus on the names of all body parts and the body parts that we use as senses. We will be exploring our senses. **Working scientifically** • Asking questions • Identifying		**Summer 1- Plants and growth – link to Spring time** We will identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees. **Summer 2 – Animals**	

	- Compare and group together a variety of everyday materials on the basis of their simple physical properties **Working scientifically** • Asking questions • Identifying • Classifying • Testing • Predicting • Data		• Classifying • Predicting Cross curricular links Primary Geography 101 Finding Geography through the senses sensory stories/mapping/building/connections		-We will identify and name a variety of common animals and classify them into birds, reptiles, mammals, amphibians, and fish. -We will identify and name a variety of common animals that are carnivores, herbivores and omnivores We will describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) **Working scientifically** • Asking questions • Testing • Predicting • Identifying • Classifying Primary Science 168 Teaching Adaptation
	Seasonal Changes: We will investigate the four seasons of the year with a focus on how Autumn transitions into Winter. We will observe the changes in the weather during the different seasons. This will include how day length varies as the seasons change. We compare and contrast this season to spring and summer and autumn. We investigate day and night and how the length of the day changes throughout the year.				
Y2	**Materials** We will identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass,	**Animals (inc Humans) Offspring and survival** **We will consider:** What is meant by offspring?	**Living things and their habitats** We will identify what things are alive/dead/never been	**Living things and their habitats (cont)** We will identify and name a variety of plants and animals in their	**Plants** We will observe and describe how seeds and bulbs grow into mature plants

	brick, rock, paper and cardboard for particular uses We will find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching **Working scientifically** • Asking questions ● Identifying ● Classifying ● Testing ● Predicting ● Data	Why do animals reproduce? How and why do animals change as they grow? What are their basic survival needs? **Working scientifically** • Asking questions ● Identifying ● Classifying ● Testing ● Predicting ● Data	alive? We will explore and compare these We will 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 **Working scientifically** • Asking questions ● Identifying ● Classifying ● Testing ● Predicting ● Data	habitats, including microhabitats -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 **Working scientifically** • Asking questions ● Identifying ● Classifying ● Testing ● Predicting ● Data Primary Science 168 Teaching Adaptation	**We will find out and describe how** plants need water, light and a suitable temperature to grow and stay healthy **Working scientifically** • Asking questions ● Identifying ● Classifying ● Testing ● Predicting ● Data
Y3	**Rocks and Fossils** We will compare and group together different kinds of rocks on the basis of their appearance and simple physical properties We will describe in simple terms how fossils are formed when things that have lived are trapped within rock We will recognise that soils are made from rocks and organic matter	**Forces and Magnets** We will compare how things move on different surfaces We notice that some forces need contact between 2 objects, but magnetic forces can act at a distance We can observe how magnets attract or repel each other and attract some materials and not others	**Animals Including Humans** We will 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 We will identify that humans and some other animals have skeletons and muscles for support,	**Plants** We will identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers We will explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant	**Light** We will recognise that they need light in order to see things and that dark is the absence of light We will notice that light is reflected from surfaces We will recognise that light from the sun can be dangerous and that there are ways to protect their eyes We will recognise that shadows are formed when the light from a light source is blocked by an opaque object We will find patterns in the way that the size of shadows change **Working scientifically**

	Working scientifically Asking questions Identifying, classifying Testing Predicting Data -collection, presentation, evaluation Using scientific evidence to support findings	We can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials We describe magnets as having 2 poles We can predict whether 2 magnets will attract or repel each other, depending on which poles are facing **Working scientifically** Asking questions Identifying, classifying Testing Predicting Data -collection, presentation, evaluation Using scientific evidence to support findings	protection and movement **Working scientifically** Asking questions Identifying, classifying Testing Predicting Data -collection, presentation, evaluation Using scientific evidence to support findings	We will investigate the way in which water is transported within plants We will explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal **Working scientifically** Asking questions Identifying, classifying Testing Predicting Data -collection, presentation, evaluation Using scientific evidence to support findings	Asking questions Identifying, classifying Testing Predicting Data -collection, presentation, evaluation Using scientific evidence to support findings

Y4	**Animals including humans** We will describe the simple functions of the basic parts of the digestive system in humans We can identify the different types of teeth in humans and their simple functions We will construct and interpret a variety of food chains, identifying producers, predators and prey **Working scientifically** Asking questions Identifying Classifying Predicting Using Scientific evidence to support findings Primary Science 168 Food	**Sound** We will identify how sounds are made, associating some of them with something vibrating We will recognise that vibrations from sounds travel through a medium to the ear-We find patterns between the pitch of a sound and features of the object that produced it We will find patterns between the volume of a sound and the strength of the vibrations that produced it We will recognise that sounds get fainter as the distance from the sound source increases **Working scientifically** Asking questions Identifying Testing Predicting Data -collection, presentation, evaluation Using Scientific evidence to support findings	**States of Matter** We will compare and group materials together, according to whether they are solids, liquids or gases We will 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) We will identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature **Working scientifically** Asking questions Identifying, Classifying Testing Predicting Data -collection, presentation, evaluation Using Scientific evidence to support findings	**Electricity** We will identify common appliances that run on electricity We will construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers We will 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 We will recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit We will recognise some common conductors and insulators, and associate metals with being good conductors **Working scientifically** Asking questions Identifying, classifying Testing	**Living things and their habitats** We will recognise that living things can be grouped in a variety of ways We will explore and use classification keys to help group, identify and name a variety of living things in our local and wider environment We will recognise that environments can change and that this can sometimes pose dangers to living things **Working scientifically** Asking questions Identifying, classifying Testing Predicting Data -collection, presentation, evaluation Using Scientific evidence to support findings

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Y5	**Properties and changes in materials** We will 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 We will use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating We will give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic **-Ruth Benerito** **Working scientifically** Identifying Classifying Testing Predicting Data presentation Data evaluation	**Properties and changes in materials** We will learn that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution We will demonstrate that dissolving, mixing and changes of state are reversible changes We will 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 **-Stephanie Kwolek** **Working scientifically** Asking questions Identifying Classifying Testing Predicting Data collection Data presentation	**Earth and Space** We will describe the movement of the Earth, and other planets, relative to the Sun in the solar system We will describe the movement of the Moon relative to the Earth We will describe the Sun, Earth and Moon as approximately spherical bodies We will use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. **Working scientifically** Asking questions Predicting Using scientific evidence to support findings STEM Resources https://www.stem.org.uk/elibrary/collection/4144 Great British Space Dinner www.stem.org/exomars	**Forces** We will explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object We will identify the effects of air resistance, friction, that act between moving surfaces We will recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. **-Isaac Newton** **Working scientifically** Asking questions Testing Predicting Data collection Data presentation Data evaluation Using scientific evidence to support findings	**Living things and their habitats** We will explain the differences in the life cycles of a mammal, an amphibian, an insect and a bird We will explain the life process of reproduction in some plants and animals **-Jane Goodall** **Working scientifically** Asking questions Identifying Classifying Using scientific evidence to support findings	**Animals (including humans)** We will explain how humans change as we develop to old age **Working scientifically** Asking questions Identifying Classifying Using scientific evidence to support findings

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Y6	**Animals including Humans** We identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood We recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function We describe the ways in which nutrients and water are transported within animals, including humans. **William Harvey** **Working scientifically** Asking questions Predicting Data presentation Data evaluation Primary Science 168 O2	**Living Things** -We describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals We give reasons for classifying plants and animals based on specific characteristics. **Carl Linnaeus** **Working scientifically** Classifying Data presentation	**Electricity** -We associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit We 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 We use recognised symbols when representing a simple circuit in a diagram. **James Watt** Name electrical components Compare different circuits Explain impact of changing components **Working scientifically** Testing Predicting Asking questions Using scientific evidence	**Evolution** 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. **Charles Darwin** **Mary Anning** **Working scientifically** Identifying Classifying Data presentation Primary Science 168 Teaching Adaptation	**Light** We recognise that light appears to travel in straight lines We 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 We 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 We use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. **Thomas Edison** **Working scientifically** Data collection Data presentation Using scientific evidence to support findings