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Key:

- Blue = title of unit and narrative as to how it links with previous learning
- Purple = national curriculum statements
- Black = learning objectives to further challenge learning building on national curriculum
- Green = scientific skills focus
- Pink – how our science curriculum links to GROW

Pre-teaching: Unit has been placed here as it links to future teaching during this academic year or the next.
Current links: Unit has been placed here as it links to something relevant that is happening during this term.
Retrieval: Unit has been placed here as it revisits teaching from earlier in this academic year or from a previous year group

PHASE	Autumn	Spring	Summer
Nursery	Autumn Theme 1: Marvellous Me! Links to GROW: G Respect and care for God's creation **Scientific focus points:** - Autumn vegetables **Texts:** Oliver's Vegetables, It was a Cold, Dark Night, I'm a very helpful hedgehog, Harvest Festival, Why do leaves change colour? **Key vocabulary:** autumn , harvest ,taste ,smell ,see, feel ,cut ,chopping board ,blender / soup maker ,chop, hibernate, migrate **Vocabulary linked to KS1 and KS2:** seasons, temperature, senses, nutrition, vitamin **End points:** Child explore and describe autumnal veg using their senses – taste, sight, smell, touch (link to	Spring Theme: How Does Your Garden Grow? Links to GROW: G Respect and care for God's creation **Scientific focus points:** - Types of flowers and beans - Sleep routine - Oral hygiene **Lives of a significant person in the past:** **Key Texts:** Jasper's beanstalk, A seed in Need, Jack and the Beanstalk, Seed to Sunflower, all about Plants, Titch, The Tiny Seed, minibeasts, What the Ladybird Heard **Vocabulary:** soft, hard, smooth, rough, prickly, minibeasts, insects, habitat, Petal, stem, roots, seed, spring, grow	Summer Theme 1: It's a Pirate's life for us! Links to GROW: O Develop subject specific knowledge, skills and understanding **Scientific focus points:** - Floating and sinking - Stretching, snapping, bending and twisting - What is the difference between living and non-living? **Key Texts:** Sounds all around, Floating and Sinking, Billy's bucket **Vocabulary:** sink, float, push, pull, force, overflow, press, suck, swing, living, tree, ripple, noise, vibration **Vocabulary linked to KS1 and KS2:** pitch, vibration, force **End points:** Explore how different materials float and sink. Investigate what happens when they apply a

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	harvest). Combine different ingredients and cook them to make vegetable soup. Discuss healthy living making right food choices. Create a healthy food display. Children learn what foods are good for: red fruits- heart, green fruits- brain, yellow/orange fruits- skin • I can use my senses to explore different vegetables • I can name several types of vegetables • I can answer 'why' questions exploring materials and material states **Pre-teaching:** Learning in this unit will link to Year 1 'About Me' unit Autumn Theme 2: Let's Celebrate! Links to GROW: O Develop subject specific knowledge, skills and understanding **Scientific focus points:** - Lights and shadows - - Freezing and melting **Texts:** It was a Cold, Dark Night, Amy's light, Oscar and the moth **Key vocabulary:** light, dark, shadow, transparent, melt, freeze, melt, freeze, cold, set, mould **Vocabulary linked to KS1 and KS2:** transparent, translucent, opaque, shadow, state **End points:**	**Vocabulary linked to KS1 and KS2:** lifecycle, habitat, classify, environment **End points:** Children to identify and recognise 5 types of flowers - daffodil, sunflowers, bluebells, tulips, snowdrops. Create a tuff tray full of different natural materials for children to explore using their senses- seeds, leaves, compost. Children use a wide range of vocabulary to describe the materials Children grow sunflowers (for Mother's Day) and runner beans and observe how they change. Create life cycles of beans. Children are taught the importance of sleep, how much sleep they need and what a good bedtime routine looks like. Children role-play putting babies to sleep. Children learn about the importance of good oral Hygiene • I can use my senses to explore natural materials • I can describe the life cycle of a runner bean • I know what a good sleep routine looks like **Pre-teaching:** Learning in this unit will link to Year 1 and Year 2 units on 'Plants'	force to objects in water. Children try other floating experiments. E.g., flatten modelling clay out and compare it to clay as a ball, a blown-up balloon and not blown up- do they sink or swim? Investigate materials to see which will stretch, snap, bend, twist. Use vocabulary to describe what happened to the materials • I can explain what float and sink means and I can group objects based on whether they float or sink • I can use the words stretch, snap, bend and twist **Pre-teaching:** Learning in this unit will link to Year 1 learning about 'Properties of Materials' Summer Theme 2: God's Wonderful World Links to GROW: G Respect and care for God's creation **Scientific focus points:** - What is the difference between living and non-living? **Key Texts:** Ten Little Caterpillars, The Last Tree in the City **Vocabulary:** Change, grow, cocoon, chrysalises, caterpillar, butterfly, egg, observe, Sycamore, Horse Chestnut, Silver Birch, Oak, Ash **Vocabulary linked to KS1 and KS2:** germination

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	Investigate which materials are the best to create a dark den – explore how light can shine through some materials and not others. Look at changes in materials – e.g. Know how water can change depending on the temperature- ice melts and water freezes. Children perform simple tests (ice cube race experiment) to see which ice cube melts the quickest. • **I can answer 'why' questions exploring materials and material states** **Pre-teaching:** Learning in this unit will link to Year 1 learning about 'Properties of Materials' and Year 3 unit on 'Light'		**End points:** Observations of caterpillars / butterfly life cycle. Children learn about living things which are animals **I know the difference between living and non-living** • **Pre-teaching:** Learning in this unit will link to Year 1 learning about 'Animals Including Humans (About Animals)**
Reception	Autumn Theme 1: Marvellous Me! Links to GROW: W Value themself as a unique individual with special qualities and strengths Links to GROW: G Respect and care for God's creation **Scientific focus points:** - Autumn vegetables **Texts**: Oliver's Vegetables, It was a Cold, Dark Night, I'm a very helpful hedgehog, Harvest Festival, Why do leaves change colour? **Don't Hog the Hedge** **Key vocabulary:** autumn , harvest ,taste ,smell ,see, feel ,cut ,chopping	Spring Theme: How Does Your Garden Grow? Links to GROW: G Respect and care for God's creation **Scientific focus points:** - Types of flowers and beans - Sleep routine - Oral hygiene - **Lives of a significant person in the past:** **Key Texts**: Jasper's beanstalk, A seed in Need, Jack and the Beanstalk, Seed to Sunflower, all about Plants, Titch, The Tiny Seed, minibeasts, What the Ladybird Heard **Vocabulary:** soft, hard, smooth, rough, prickly, minibeasts, insects,	Summer Theme 1: It's a Pirate's life for us! Links to GROW: O Develop subject specific knowledge, skills and understanding **Scientific focus points:** - Floating and sinking - Stretching, snapping, bending and twisting - What is the difference between living and non-living? **Key Texts:** Sounds all around, Floating and Sinking, Billy's bucket **Vocabulary:** sink, float, push, pull, force, overflow, press, suck, swing, living, tree, ripple, noise, vibration **Vocabulary linked to KS1 and KS2:** pitch, vibration, force

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	board ,blender / soup maker ,chop, hibernate, migrate **Vocabulary linked to KS1 and KS2:** seasons, temperature, senses, nutrition, vitamin **End points:** Read 'Don't hog the Hedge'. Children learn that some animals hibernate in Autumn and some birds migrate to warmer places during the winter. • I can name some animals that hibernate in autumn – hedgehogs and bats • I can understand the change in the season of autumn • I recognise some environments that are different to the ones we live in **Pre-teaching:** Learning in this unit will link to Year 1 'About Me' unit Autumn Theme 2: Let's Celebrate! Links to GROW: O Develop subject specific knowledge, skills and understanding **Scientific focus points:** - Lights and shadows - - Freezing and melting **Texts:** It was a Cold, Dark Night, Amy's light, Oscar and the moth **Key vocabulary:** light, dark, shadow, transparent, melt, freeze, melt, freeze, cold, set, mould	habitat, Petal, stem, roots, seed, spring, grow **Vocabulary linked to KS1 and KS2:** lifecycle, habitat, classify, environment **End points:** Make observations of minibeasts in the forest school- find insects and minibeasts, e.g. overturn a log and see what is living underneath! Children identify and name the insects and minibeasts they find – write down the names of these and group them – are their different types of spiders, worms, beetles? Does your insect have a hard or soft back? Does it have 6 legs (insect) or not? What groups can they be classified into? Discuss where you would find insects and minibeasts living- can children pick out typical insect habitats- woodlands, fields, ponds, garden. Children learn the life cycle of a ladybird. Children learn about the importance of good oral Hygiene • I can give some examples of minibeasts habitats e.g. under a log or under a leaf • I can name and draw the parts of an insect. **Pre-teaching:** Learning in this unit will link to Year 1 and Year 2 units on 'Plants' •	**End points:** Children make their own pirate instrument using a variety of materials. They explore materials through hitting, tapping, strumming. They learn how sound is made through ripples of vibration. They compare the sounds they make. Children think of examples of pushes and pulls. They make tug of war (1-1 so it is safe) learning that the side that exerts the most force will win. Children experiment with the amount of force needed to push a toy car over different distances. Children use either a small push, middle push or a large push to try and get their car to stop in a particular place • I can explain that different materials can make different sounds • I can observe that different materials make different sounds when hit • I can explain how to change a sound being made • To know the difference between a push and a pull • I can describe what happens when pushes and pulls oppose each other **Pre-teaching:** Learning in this unit will link to Year 1 learning about 'Properties of Materials' and future learning about forces. Summer Theme 2: God's Wonderful World Links to GROW: G Respect and care for God's creation

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	Vocabulary linked to KS1 and KS2: transparent, translucent, opaque, shadow, state **End points:** Children make Christmas chocolates for gifts. They discuss how the chocolate turned from a liquid into a solid and what process happened. They explore what happens to the melting chocolate as it starts to cool. Children explore different sources of light. Children make their own shadow puppets. Challenge them to think about what a shadow is and how it is made. Will the shadow change if we add holes to the puppet? Ask children why they can see light holes on the shadow. • I can use a mould to make Christmas chocolates; • I can use the language of solid and liquid to describe different states of chocolate • I can recognise when a shadow has been made and can tell you various sources of light **Pre-teaching:** Learning in this unit will link to Year 1 learning about 'Properties of Materials' •		**Scientific focus points:** - What is the difference between living and non-living? **Key Texts:** Ten Little Caterpillars, The Last Tree in the City **Vocabulary:** Change, grow, cocoon, chrysalises, caterpillar, butterfly, egg, observe, Sycamore, Horse Chestnut, Silver Birch, Oak, Ash **Vocabulary linked to KS1 and KS2:** germination **End points:** Identify and recognise 5 types of trees – sycamore, oak, birch, ash, chestnut. Name the key parts of a tree. Children learn that trees are living things and how they started as a seed. • I can identify and recognise several types of trees • Children know names of some trees e.g. oak, sycamore, birch, ash, chesnut • know that trees are living things and started as a seed **Pre-teaching:** Learning in this unit will link to Year 1 learning about 'Animals Including Humans (About Animals)
Year 1 Long term observation: Take photos of the same two plants to compare throughout the year. Children write observations and annotate changes e.g. leaves falling off tress,	Seasonal Changes Key investigative focus/Scientific skills: observational skills –observation over time, measure and record findings (reading a simple thermometer –	Animals including Humans Unit 1 – About Me **Vocabulary:** sight, smell, exercise, healthy, design, baby, grow, bones	Plants Key investigative focus/Scientific skills: observational skills – close observation and over time In plant investigation – identifying what is being changed and what being

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buds opening. Relate to seasonal change/observe and identify weather associated with the winter season.

Pupils should use the local environment throughout the year to explore and answer questions about plants growing in their habitat. Where possible, they should observe the growth of flowers and vegetables that they have planted.

Pupils should use the local environment throughout the year to explore and answer questions about animals in their habitat. They should understand how to take care of animals taken from their local environment and the need to return them safely after study.

E-safety Computing Links - for research in lessons

- know / understand that they can encounter a range of things online including things we like and don't like as well as things which are real or make believe / a joke. (Managing information online)
- know how to get help from a trusted adult if they see content that makes us feel sad, uncomfortable worried or frightened. (Managing information online)
- Know the rules to keep myself safe when using technology both in and beyond the home. (Smart rules from Smartie the Penguin) (Health, well-being and lifestyle)

ordering temperatures etc.), use key vocabulary

Vocabulary:

spring, summer, autumn, winter, weather, temperature, thermometer, forecast

Sequence of learning and end points:

1. Recognise different types of weather

Observe and describe weather associated with the four seasons (spring, summer, autumn and winter) and how day length varies

2. Learn about clouds and rainfall

Explain how clouds are formed and recall where rain comes from

3. Recognise the different types of cold weather
4. Explain how to keep safe during thunderstorms
5. Look at different types of weather and how it affects places on Earth
6. Identify the four seasons -

Observe changes across the four seasons

Links to GROW: G
Respect and care for God's creation

Current Link: Learning in this unit will link to geography learning in this half-term (Introduction to Human and Physical Features)

Sequence of learning and end points:

1. Learn about the senses: sight, taste and touch

Describe what the senses can help us to do and which parts of the body are linked with the senses

2. Learn about the senses of hearing and smell
3. Identify, name, draw and label the basic parts of the human body

Identify, name, draw and label the basic parts of the human body (head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth)

4. Learn about the changes in your body since you were a baby
5. Understand the importance of taking care of your body
6. Show how humans mimic nature

Links to GROW: W
Value themself as a unique individual with special qualities and strengths

Retrieval: Children should have some understanding of senses from Reception unit 'Marvellous Me'

Unit 2 - About Animals

Key investigative focus/Scientific skills: grouping and classifying in a variety of ways, using magnifying glasses.

kept the same. Use magnifying glasses to compare and contrast familiar plants, identify and group them and draw diagrams.

Vocabulary:

seed, root, flower, stem, crop, leaf, fruit, grain

Sequence of learning and end points:

1. Understand what a plant needs in order to grow well

Understand the basic needs of a plant

2. Know the basic parts of a plant
3. Identify and describe a variety of common flowering plants and trees

Identify and describe the basic structure of a variety of common flowering plants and trees

4. Understand the difference between an evergreen and deciduous plant

Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees

5. Know about different sources of food grown by farmers
6. Know how plants change over time

They should become familiar with common names of flowers, examples of deciduous and evergreen trees, and plant structures (including leaves,

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	Exploring Everyday Materials Key investigative focus/Scientific skills: performing simple tests **Vocabulary:** flight, structure, transparent, opaque, translucent, flexible, rigid, oil **Sequence of learning and end points:** 1. Identify the materials that objects are made from e.g. money – metal, windows – glass, clothes – fabric Distinguish between an object and the material from which it is made 2. Describe some simple physical properties of materials Describe the simple physical properties of a variety of everyday materials 3. Group together materials by their physical properties Compare and group together a variety of everyday materials on the basis of their simple physical properties 4. Explore everyday materials which are opaque or transparent 5. Know the story of Wilbur and Orville Wright 6. Explore everyday materials which are absorbent or non-absorbent Links to GROW: R	**Vocabulary:** pet, mammal, offspring, care, bird, fish, reptile, amphibian **Sequence of learning and end points:** 1. Understand what animals need in order to grow 2. Know where birds live and what they need 3. Explore how animals need to be cared for differently 4. Discover how an animal's offspring is the same as its parent 5. Identify a variety of animals including fish, amphibians, reptiles, birds and mammals Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals 6. Identify a variety of common animals that are carnivores, herbivores and omnivores 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 (fish, amphibians, reptiles, birds and mammals, including pets)** Links to GROW: G Respect and care for God's creation	flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem). Links to GROW: G Respect and care for God's creation **Retrieval:** Prior knowledge from 'How does your garden grow?' topic in Reception will be useful to draw upon in this topic Uses of Everyday Materials *(not National Curriculum)* Know every day uses of magnets; recognise a variety of widely used materials; understand why materials are chosen for specific tasks; understand that magnets only attract certain materials; understand that magnets have a north and south pole; know how to test materials for their strength, understand that some materials are natural and some are man-made Key investigative focus/Scientific skills: performing simple tests **Vocabulary:** magnet, metal, wood, plastic, paper, man-made, natural, recycle **Sequence of learning and end points:**

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	(5. Know the story of Wilbur and Orville Wright) Embrace new challenges and overcome them **Current Links:** The learning in this unit is vital to understand the 'Uses of Everyday Materials' topic in the summer term	**Retrieval:** Children should have some understanding of senses from Reception unit 'God's Wonderful World'	1. Recognise a variety of widely used materials **Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock** **Compare and group together a variety of everyday materials on the basis of their simple physical properties** 2. Understand why materials are chosen for specific tasks **Distinguish between objects/the materials from which objects are made and give reasons for material choices** 3. Know everyday uses of magnets 4. Understand that magnets only attract certain metals 5. Understand that magnets have a north and south pole 6. Know how to test materials for their strength; understand that some materials are naturals, and some are man-made Links to GROW: O Develop subject specific knowledge, skills and understanding **Retrieval:** Autumn unit on 'Properties of Materials' - children should have a secure understand of everyday materials and apply this to learning about uses of materials and magnets.

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Year 2 Take photos of the same two plants to compare throughout the year (different species to Y1). Children write observations and changes. Relate to seasonal change in summer (revision of Y1 topic). Pupils should raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat and observe how living things depend on each other, for example, plants serving as a source of food and shelter for animals. Pupils should use the local environment throughout the year to observe how plants grow. Pupils should be introduced to the requirements of plants for germination, growth and survival, as well as the processes of reproduction and growth in plants. E-safety Computing Links for research lessons • use simple keywords in search engines. (Managing information online)	Animals including Humans (Growth) *The focus at this stage should be on questions that help pupils to recognise growth; they should not be expected to understand how reproduction occurs.* *The following examples might be used: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, adult.* Key investigative focus/Scientific skills: Are arms longer if a child is taller? Comparing and ordering lengths Presenting data in an ordered way leading to a conclusion Vocabulary: birth, growth, reproduction, death, life cycle, generation, child, adult Sequence of learning and end points: 1. Learn the life cycle of birth, growth, reproduction and death Explore and compare the differences between things that are living, dead, and things that have never been alive	Animals including Humans – Diet and Health survival, need for water, exercise, food, hygiene Key investigative focus/Scientific skills: using equipment correctly; presenting data in a variety of ways including block charts etc. Vocabulary: exercise, hygiene, healthy, nutrition, portion, balanced diet, measuring, temperature Sequence of learning and end points: 1. Describe the needs of animals, including humans, for survival Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) 2. Describe how animals obtain their food from other animals 3. Learn about the importance of nutrition for humans 4. Explore what's in your packed lunch 5. Understand why exercise, a healthy diet, and hygiene is important Describe the importance for humans of exercise, eating the right amounts	Plants – Growth and Care Key investigative focus/Scientific skills: prediction, deeper understanding of fair testing with comparing growth using different soil types; apply learning about measurement – comparing growth Vocabulary: germinate, nutrient, produce, bulb, seed, fertilised, dormant, pollen Sequence of learning and end points: 1. Understand what plants need in order to thrive Find out and describe how plants need water, light and a space to grow and stay healthy 2. Explore why plants need water, light and a suitable temperature to grow well 3. Understand the difference between a bulb and a seed 4. Discover how plants make their own food Understand that plants make their own food through photosynthesis which is the process plants use to convert energy from the sun to chemical energy

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• know how to get help from a trusted adult if they see content that makes us feel sad, uncomfortable worried or frightened. (Managing information online) • Know the rules to keep myself safe when using technology both in and beyond the home. (Refer to class online rules created in My Online Life unit) (Health, well-being and lifestyle)	2. Learn about reproduction and growth in animals **Understand that animals, including humans, have offspring which grow into adults** 3. Learn how humans grow by looking at how babies grow into adults 4. Describe the stages of life from adulthood to old age 5. Compare generations of families to help understand how characteristics are inherited 6. Know the life cycle of a frog 7. Describe the life cycle of a butterfly Links to GROW: W Value themself as a unique individual with special qualities and strengths **Pre-teaching:** Secure understanding of the life cycle of a human is needed to gain an in depth understanding of spring topic - Diet and Health Use of Everyday Materials Key investigative focus/Scientific skills: What can be measured? Appropriate standard units? What can be timed etc.? Vocabulary: force, absorbent, waterproof, stretch, repel, squash, properties, invention	**of different types of food, and hygiene** 6. Know how to keep healthy through daily exercise Links to GROW: G Respect and care for God's creation Links to GROW: O Developing subject specific knowledge, skills and understanding **Retrieval:** Pupils will have learned what animals need to grow and survive in Year 1 Living Things and their Habitats Key investigative focus/Scientific skills: sorting, identifying and classifying, conducting simple tests Vocabulary: habitat, desert, woodland, producer, root vegetable, living, excrete, microhabitat Sequence of learning and end points:	5. Know how plants grow from a seed to a plant **Observe and describe how seeds and bulbs grow into mature plants** 6. Recognise the importance of flowers and seeds Links to GROW: G Respect and care for God's creation **Retrieval:** Understanding of plants from Year 1 - pupils should know the basic parts of a plant and what plants need to grow Living things and their Habitats (Habitats around the world) (Possible link to the Explorers/ Meerkat) Key investigative focus/Scientific skills: identifying and classifying; conducting a simple test e.g. how to conditions under a log affect the number of animals that live there; use observations and ideas to suggest answers to questions Vocabulary: microhabitat, habitat, minibeast, survive, producer, consumer, food chain Sequence of learning and end points:

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	Sequence of learning and end points: 1. Compare the uses of everyday materials 2. Explain why we use certain materials Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses 3. Investigate squashing, bending, twisting and stretching Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching 4. Explore the work of Charles Macintosh; understand how the properties of materials can be changed 5. Know about John McAdam's invention, recognise that new materials are constantly being invented Links to GROW: O Develop subject specific knowledge, skills and understanding Links to GROW: R (Exploring the work of scientists) Embrace new challenges and overcome them **Retrieval:** This unit links back to Year 1 learning on properties and uses of materials and this prior knowledge	1. Explore the differences between things that are living, dead and things that have never been alive Explore and compare the differences between things that are living, dead, and things that have never been alive 2. Identify and name a variety of plants and animals in a microhabitat Identify and name a variety of plants and animals in their habitats, including microhabitats 3. Describe how animals obtain their food from plants 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 4. Understand the journey food makes from the farm to the supermarket 5. Identify and name different sources of healthy food 6. Learn about the food chain Links to GROW: O Develop subject specific knowledge, skills and understanding **Retrieval:** Strong links to Reception topic - 'How does my garden grow?' and Year 1 learning about plants.	1. Know that living things live in environments to which they are suited 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 2. Appreciate that environments are constantly changing 3. Describe life in the ocean 4. Explore the dangers to ocean life 5. Discover the Arctic and Antarctic habitat 6. Explore the rainforest and its problems **Explore the effects of pollution, deforestation and poaching on the biodiversity of the rainforest** 7. Understand desert, underground and ocean habitats **Describe different habitats and understand how they vary** Links to GROW: G Respect and care for God's creation **Current Link: This unit links to the geography unit from the previous half term (Continents and Oceans)**

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	should lead to a secure understanding of how materials are suitable to different		
Year 3 OBSERVATIONS IN THE LOCAL ENVIRONMENT: Pupils will study and raise questions about their local environment through the year. They will identify how the habitat changes over the course of a year. Key Investigative focus this year: Children should know how to represent data in different ways and be able to choose appropriately from a selection of tables etc.; they should begin to recognise patterns in data and begin to draw conclusions, using scientific language to explain their results.	Light 6 WEEKS Key investigative focus/Scientific skills: asking relevant questions, making systematic and careful observations, taking accurate measurements using a range of equipment including thermometers and data logger. Investigating shadows. 3 weeks revision of previous learning including plants. Vocabulary: transparent, opaque, reflection, fluorescent, UV rays, periscope, shadow, sun protection Sequence of learning and end points: 1. Explain how shadows are formed	Animals including Humans 6 WEEKS Key investigative focus/Scientific skills: to identify a question and turn it into a form that can be tested making a prediction; to decide precisely what body measurement to make, and to make it; to use bar charts or pictograms to present measurements; to say what the evidence shows and whether it supports the prediction investigating the human skeleton Vocabulary: skeleton, tendon, involuntary muscles, voluntary muscles, balanced diet Sequence of learning and end points: 1. Know how to keep healthy through diet Identify that animals, including humans, need the right types and amount of nutrition, and that they	Plants – Exploring the world of plants (6 WEEKS) Key investigative focus/Scientific skills: making observations and comparisons drawing conclusions; recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and labels. Vocabulary: germination, non-vascular, asexual reproduction, fungi, insectivorous, deforestation, biodiversity, fertilisation Sequence of learning and end points: 1. Describe the process of germination in seeds and bulbs

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	Recognise that shadows are formed when the light from a light source is blocked by an opaque object 2. Explore light Explain that they need light in order to see things and that dark is the absence of light 3. Understand different types of mirrors Recognise that light is reflected from surfaces and compare the difference between plain, convex and concave mirrors 4. Know what a periscope is and how it is used 5. Explain how reflective surfaces help keep us safe 6. Know light from the sun can be dangerous and ways to protect your eyes Understand that light from the sun can be dangerous and that there are ways to protect their eyes Links to GROW: O Develop subject specific knowledge, skills and understanding **Retrieval:** Children should have some understanding of senses from Reception when they learned about lights and shadows Plant life Cycles 6 WEEKS Vocabulary:	cannot make their own food; they get nutrition from what they eat 2. Design a healthy dinner for Tim Peak in space **Explore the different food groups and identify ways to eat a balanced diet** 3. Learn about voluntary and involuntary muscles 4. Introduction to the skeleton 5. Know about the skeleton - tendons and ligaments 6. Explore how skeletons and muscles are used for support, protection and movement Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Links to GROW: W Value themself as a unique individual with special qualities and strengths Links to GROW: R (Exploring the work of Tim Peake) Develop the confidence to embrace new challenges and overcome them **Current Link:** Learning in this unit links to music topic ('The Human Body') **Pre-teaching** Secure understanding of food groups needed to access Year 4 topic 'Food and Digestion' and to access Year 4 D.T. topic 'Making Healthy Bread' Forces and Magnets	**Explain how a seed becomes a plant** 2. Explain how water and food moves around a plant Describe the route water takes through a vascular plant 3. Asexual reproduction in plants 4. Describe the features of non-vascular plants **Explain the difference between vascular and non-vascular plants** *(non-vascular plants, like moss, move water and nutrients from one cell to another inside themselves because they do not have phloem or xylem)* 5. Explore extraordinary plants and fungi 6. Explore the rainforest and its problems **Describe the effects of deforestation, pollution and poaching on the biodiversity of the rainforest** Links to GROW: G Respect and care for God's creation **Retrieval:** Children should have some understanding of how plants grow and the importance of a seed from Year 2 unit on plants. Autumn term Y3: Revisit learning from autumn (the different ways that seeds spread etc.) **Pre-teaching** Secure understanding of biodiversity and rainforests needed to access learning in Year 4 (in spring/summer terms, English, science

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	transpiration, photosynthesis, carbon dioxide, pollination, dispersal, xylem, phloem, glucose **Sequence of learning and end points:** 1. Describe how plants soak up water 2. Describe the life cycle of a plant Outline the stages of life a flowering plant goes through 3. Explain how plants make their own food Outline the process of photosynthesis 4. Name the parts of the flower and describe what they do Name the key organs of the plant and describe what they do: roots, stem/trunk, leaves and flowers 5. Describe the process of pollination Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal 6. Describe the different ways plants share their seeds Links to GROW: O Develop subject specific knowledge, skills and understanding **Retrieval:** Children should have some understanding of how plants grow and the importance of a seed from Year 2 unit on plants. **Pre-teaching:** Ensure a secure understand of how plants share their	6 WEEKS Key investigative focus/Scientific skills: identifying differences, similarities or changes related to simple scientific ideas and processes; gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Investigating how balls roll on different surfaces **Vocabulary:** lodestone, horseshoe magnet, bar magnet, attract, repel, compass, magnetic needle, pendulum **Sequence of learning and end points:** 1. Understand magnetism Understand what magnets are and describe magnets as having two poles 2. Learn about the different types of magnets 3. Learn about magnetic fields; learn about the law of magnetic attraction Identify that 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	and computing units all link to rainforests/endangered animals) Rocks 6 WEEKS Key investigative focus/Scientific skills: setting up simple practical enquiries, comparative and fair tests Investigating soil, using magnifying glasses/microscopes to observe rocks and identify grains or crystals and identify whether any fossils in them. **Vocabulary:** metamorphic rock, igneous rock, sedimentary rock, soil types, weathering, acid rain, fossil, mineral **Sequence of learning and end points:** 1. Describe how mountains are formed 2. Recognise the differences between igneous, sedimentary and metamorphic rock Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties 3. Understand what fossils are Describe in simple terms how fossils are formed when things that have lived are trapped within rock 4. Describe what soils are made of Recognise that soils are made from rocks and organic matter.

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	seeds/the process of pollination ahead of Spring term topic on plants. 2 WEEKS - OBSERVATIONS IN THE LOCAL ENVIRONMENT: Pupils will study and raise questions about their local environment through the year. They will identify how the habitat changes over the course of a year.	4. Know that magnetic needles always point magnetic north 5. Compare how things move on different surfaces 6. Explore different forces between 2 objects Notice that some forces need contact between two objects, but magnetic forces can act at a distance Links to GROW: O Develop subject specific knowledge, skills and understanding **Retrieval** Through Reception and Year 1 (Everyday Materials) pupils will have an understanding of what magnets are and how they work to develop on	5. Observe rocks, including those used in buildings and gravestones 6. Classify different types of gravestone weathering Links to GROW: G Respect and care for God's creation **Pre-teaching** Secure understanding of different types of rock/how mountains are formed is essential for learners to fully access Year 4 geography learning on volcanoes and earthquakes.
Year 4 OBSERVATIONS IN THE LOCAL ENVIRONMENT: Pupils will study and raise questions about their local environment through the year. They will identify how the habitat changes over the course of a year. Key Investigative focus this year: Children should know how to represent data in different ways and be able to choose appropriately from a selection of tables etc.; they should begin to recognise patterns in data and begin to	States of Matter 6 WEEKS *Pupils should explore a variety of everyday materials and develop simple descriptions of the states of matter (solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container).* Key investigative focus/Scientific skills: making observations and measurements and presenting these; identifying patterns in results, suggesting explanations for observations and conclusions in terms of scientific knowledge and understanding.	Animals including Humans (Food and Digestion) 6 WEEKS Vocabulary: salivary gland, oesophagus, intestines, food pyramid, nutrient, vitamin, digest, decomposer Sequence of learning and end points: 1. Understand salivary glands and taste buds 2. Know the different types of teeth Identify the different types of teeth in humans and their simple functions 3. Understand the intestines	Living Things and their Habitats (Europe and local) 12 WEEKS Unit one: Classifying Living Things and their Habitats Unit two: Nature and the Environment Key investigative focus/Scientific skills: identifying differences, similarities or changes related to simple scientific ideas and processes. Investigating how the human body changes temperature.

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draw conclusions, using scientific language to explain their results. E-safety computing links for research lessons • use key phrases in search engines to gather accurate information online. Managing information online) • know how to can get help from a trusted adult if they see content that makes them feel sad, uncomfortable worried or frightened. (Managing information online) • Know the rules to keep myself safe when using technology (SMART Rules on class created rules) • know how to search for information within a wide group of technologies and make a judgement about the probable accuracy (Managing information online) (YEAR 4)	Vocabulary: water cycle, molecule, solute, solvent, evaporation, water vapour, condensation, distillation Sequence of learning and end points: 1. Compare and group solids, liquids and gases Compare and group materials together, according to whether they are solids, liquids or gases 2. Investigate the effect temperature has on changing state 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) 3. Understand diluting and dissolving 4. Explore evaporation and condensation 5. Understand the water cycle Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 6. Describe melting and freezing Links to GROW: O	Describe the simple functions of the basic parts of the digestive system in humans 4. Understanding the food pyramid and why it is important 5. Know about vitamins and minerals 6. Understand the food chain, know how natural cycles work Construct and interpret a variety of food chains, identifying producers, predators and prey. Links to GROW: O Develop subject specific knowledge, skills and understanding **Retrieval:** Pupils learned about the different food groups in Year 3 and can apply this to new learning on the food pyramid **Current Link:** Links to D.T. topic – Making Healthy Bread (understanding of the food pyramid needed to design healthy food options) Electricity 6 WEEKS Key investigative focus/Scientific skills: setting up simple practical enquiries; comparative and fair tests; reporting on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions	Unit one: Classifying Living Things and their Habitats Vocabulary: classify, vertebrate, invertebrate, cold-blooded, warm-blooded, sample, exoskeleton, creature Sequence of learning and end points: 1. Understand habitats **Describe the habitats of different animals and how an animal's habitat must meet its individual needs** 2. Know how scientists classify animals 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 3. Understand the difference between vertebrate and invertebrate 4. Know about cold-blooded amphibians and reptiles 5. Know about warm-blooded birds and mammals 6. Understand how fish are different from amphibians and reptiles Links to GROW: O

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	Develop subject specific knowledge, skills and understanding Retrieval: This unit of work should build on the understanding developed in Years 1 and 2 (Everyday Materials and Uses of Everyday Materials) Sound 6 WEEKS Key investigative focus/Scientific skills: asking relevant questions and using different types of scientific enquiries to answer them; gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Investigating soundproofing. **Vocabulary:** vibration, speed of sound, soundproof, sound wave, frequency, decibel, eardrum, pitch **Sequence of learning and end points:** 1. Explain what causes sound Identify how sounds are made, associating some of them with something vibrating 2. Describe how sound travels	Investigating conductors **Vocabulary:** series circuit, circuit diagram, parallel circuit, conductor, insulator, loop, switch, resistance **Sequence of learning and end points:** 1. Know how to work safely with electricity 2. Explore how electricity is transported 3. Describe the basic parts of a circuit Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers 4. Identify when a lamp will light in a simple series circuit 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 5. Explain how to recognise electrical conductors and insulators Recognise some common conductors and insulators, and associate metals with being good conductors 6. Understand the difference between a series and parallel circuit Links to GROW: O Develop subject specific knowledge, skills and understanding **Pre-teaching** Secure understanding of the components of simple circuits and	Develop subject specific knowledge, skills and understanding Links to GROW: G Respect and care for God's creation **Current links:** Links to English text (Where the Forest Meets the Sea) and Computing topic 'Endangered Animals' Unit two: Nature and the Environment **Vocabulary:** habitat, ecology, bacteria, interdependent, wetland, ecosystem, environment, climate change, pollution, deforestation, conserve, drought **Sequence of learning and end points:** 1. Know about the balance of nature 2. Describe ecosystems and how they are affected by changes in environment Recognise that environments can change and that this can sometimes pose dangers to living things. 3. Understand human impact on the environment 4. Explore air pollution 5. Understand water pollution

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	Recognise that vibrations from sounds travel through a medium to the ear 3. Compare the speed of sound and the speed of light 4. Describe high- and low-pitched sounds Find patterns between the pitch of a sound and features of the object that produced it 5. Explore acoustics and how sound travels through solids, liquids and gases 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. 6. Explain how to protect your ears Links to GROW: O Develop subject specific knowledge, skills and understanding **Retrieval:** Links to music (what causes sound and how sound travels/can change)	how to construct a circuit is needed ahead of learning in UKS2 on Electricity.	Explain the impact of pollution on living things 6. Explore methods that can be used to conserve water Explore solutions to the damage that can be caused by pollution to help reduce negative impact on the environment Links to GROW: G Respect and care for God's creation **Current links:** Links to English text last half term (Where the Forest Meets the Sea) and Computing topic 'Endangered Animals' 2 WEEKS - OBSERVATIONS IN THE LOCAL ENVIRONMENT: Pupils will study and raise questions about their local environment through the year. They will identify how the habitat changes over the course of a year.

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Y5/6	Properties and Changes in Materials	Light	Animals including Humans (The Heart and Health)
Focus on materials, forces and animal biology. **Key investigative focus:** Children should be making clear predictions based on their scientific knowledge, displaying independence in planning investigations including controlling variables where necessary. They should be using equipment with precision and accuracy; they should understand the importance of repeating tests.	12 WEEKS Unit 1: Properties of Materials (Y5) **Key investigative focus/Scientific skills:** taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate; reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic **Vocabulary:** comparative test, elasticity, plasticity, crude oil, perforate, extraction, thermal conductivity, inexhaustible **Sequence of learning and end points:** 1. Describe the properties of different materials 2. Compare the uses of materials based on their properties Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity	6 WEEKS (Y6) **Key investigative focus/Scientific skills:** planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Explain how shadows form. Investigate the reflection of light; colour mixing. **Vocabulary:** transparent, opaque, translucent, magnify, angle of incidence, angle of reflection, lens, refraction **Sequence of learning and end points:** 1. Explain how light travels in a straight line and shadows are formed Recognise that light appears to travel in straight lines and 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 2. Compare materials of different transparencies	6 WEEKS (Y6) **Key investigative focus/Scientific skills:** recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs; reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. **Vocabulary:** blood vessels, circulatory system, oxygenated, capillary, heart rate, addiction, nutrients, balanced diet **Sequence of learning and end points:** 1. Describe the function of blood 2. Describe the function of blood vessels 3. Describe how your heart moves blood around the body Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood

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	(electrical and thermal), and response to magnets 3. Explore extracting useful substances from natural resources 4. Explore the thermal conductivity of materials to improve energy efficiency 5. Explore the work of Spencer Silver and Ruth Benerito 6. Understand the mixture needed to make the perfect sandcastle Links to GROW: O Develop subject specific knowledge, skills and understanding **Retrieval:** Pupils will build a more systematic understanding of materials by exploring and comparing the properties of a broad range of materials including what they have learnt about magnetism and electricity. They should develop their understanding by learning about reversible and irreversible changes. Unit 2: Changes of Materials (Y5) Key investigative focus/Scientific skills: taking measurements, using a range of scientific equipment, with increasing accuracy and precision,	3. Describe how lenses can be used 4. Show white light is a mixture Understand that white light is made up of a spectrum of colours and know that we can use a prism to refract light 5. Explain how water can bend light 6. Investigate light colour mixing Links to GROW: O Develop subject specific knowledge, skills and understanding **Retrieval:** Pupils will build on the work of light in Y3/4 by exploring the way that light behaves including sources, reflection and shadows. Earth and Space 6 WEEKS (Y5) Key investigative focus/Scientific skills: identifying scientific evidence that has been used to support or refute ideas or arguments; making observations from scientific models Investigating gravitational force Vocabulary: heliocentric, geocentric, solar system, astronomy, Big Bang Theory, gravitational force, orbit, hemisphere	Describe the ways in which nutrients and water are transported within animals, including humans. 4. Describe what affects your heart rate 5. Describe the consequences of an unhealthy lifestyle Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function 6. Explore the different food groups and identify ways to eat a balanced diet Links to GROW: G Respect and care for God's creation **Retrieval:** Building on work in Y3/4 about the main body parts and internal organs to identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood; and describe the impact of diet, exercise, drugs and lifestyle on the body. Animals including Humans (Blood and Transportation) 6 WEEKS (Y6)

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	taking repeat readings when appropriate; reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic **Vocabulary:** Separate, solution, solute, solvent, irreversible, compound, physical change, chemical change **Sequence of learning and end points:** 1. Explore filtering, sieving and evaporating Use knowledge of solids, liquids and gases to understand the actions of filtering, sieving and evaporating 2. Discover how to dissolve something in a solution Be able to explain the words dissolve and solution and know how to recover a substance from a solution 3. Understand that some changes are not reversible 4. Explore permanent chemical changes 5. Know the difference between physical and chemical change 6. Know the difference between elements, compounds and mixtures **End points for Sessions 3-5** Be able to explain the words dissolve	**Sequence of learning and end points:** 1. Describe Nicolaus Copernicus' ideas about planetary motion 2. Describe the movement of the Earth in space Describe the movement of the Earth, and other planets, relative to the Sun in the solar system 3. Describe the characteristics of the planets in our solar system 4. Describe the Big Bang Theory 5. Learn about gravitational force 6. Explore what causes the different phases of the Moon 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. Links to GROW: G Respect and care for God's creation Links to GROW: O	**Key investigative focus/Scientific skills:** recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs; reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. **Vocabulary:** transfusion, plasma, pancreas, diabetes, transportation, spleen, alveoli, bacteria **Sequence of learning and end points:** 1. Describe the composition of blood 2. Explain how blood is filtered 3. Describe how oxygen is moved around the body Describe the ways in which nutrients and water are transported within animals, including humans. 4. Explore blood transfusion 5. Describe how diabetes is managed 6. Describe the roles of bacteria Links to GROW: G Respect and care for God's creation

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	and solution and know how to recover a substance from a solution; demonstrate that changes of state, dissolving and mixing are reversible changes; understand that some changes to materials are not reversible; understand that a chemical change alters a molecule permanently; explain that some changes form new materials 3 weeks revision of previous learning – including plants Links to GROW: O Develop subject specific knowledge, skills and understanding **Retrieval:** This unit should consolidate learning on properties and uses of everyday materials from Years 1 and 2 and expand on the knowledge gained from the States of Matter unit in Year 4.	Develop subject specific knowledge, skills and understanding **Retrieval:** Understanding of gravity and forces from Forces and Magnets topic in Year 3 needed for this unit – retrieval practice necessary as this learning was three years ago	**Retrieval:** Link back to learning on circulatory system in the previous half term and use this to build an in-depth understanding of blood and transportation.

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