St Walburga's Catholic Primary School
Whole School Scheme of Work

EYFS			
	Early Learning Goal / EYFS Ages and Stages: Understanding the World (The Natural World) • Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world. • Can talk about some of the things they have observed such as plants, animals, natural or found objects. • Talks about why things happen and how things work. • Develops an understanding of growth, decay and changes over time. • Shows care and concern for living things and the environment. • Looks closely at similarities, differences, patterns and change. **Early Learning Goals: Understanding the World** Children know some similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes. **Physical Development (Health and Self-Care)** • Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.		
	AUTUMN	**SPRING**	**SUMMER**
Topic	Me and my world Changing seasons Christmas in the past	Amazing Creatures Chinese New Year Once Upon a Time	The Gruffalo and Friends
Addressing Stereotypes	Female Firefighters, Male nurses etc	Include some traditional tale with atypical characters/endings	
Key questions	What is the weather like in Autumn? What signs of Autumn can we see around school? What happens to the leaves on the ground? Are all leaves the same shape?	What can a tadpole do that a frog can't? How do caterpillars change to become butterflies and tadpoles become frogs? Which material would be best to build a bridge for the Billy Goats Gruff? Which is the best material to make a boat from? What do plants need to grow? What birds are common in our area?	

Content			
	• **Explore the natural world around them making observations and drawing pictures of animals and plants** Go on a walk looking for signs of Autumn using an Autumn Trail checklist. Talk about what they see, hear and feel using a wide vocabulary. Collect and look at a variety of natural objects and food using their senses. Create Autumn collages/ faces with the items. Children use magnifying glasses to look more closely at the natural items including veins on a leaf, a piece of bark. Use autumn themed items (leaves, pine cones and conkers) in the middle of a large activity tray with four chalk sorting circles. Children work together to sort the items in the tray. Use playdough to create leaves for an autumn tree. • **Understand some important processes and changes in the natural world around them including the seasons and changing states of matter.** • **Explain why things occur and talk about changes** Look at pictures of the changing seasons and discuss what changes with plants they observed: colour of the leaves, leaves falling, bare trees, different types of fruit. Talk about changes in light and darkness in the morning when they get up and when they go home. Discuss changes to animals and introduce hibernation. Create hibernation nests for hedgehogs using Autumn objects. Share an Autumn story such as 'Little Acorns' as a prompt to discuss the life cycle of a tree.	• **Talk about similarities and differences between some materials** • **Explore collections of materials with similar and/or different properties** Explore and sort a range of different everyday materials using their senses. Identify some of the materials and their uses. Children explore different materials and predict which would be the best material to make a boat from to carry figures. Carry out a simple test with the boats, making observations and trying to give reasons for what they observe. • **Understand the key features of the life cycle of a plant** Introduce growing beans. Discuss what they think plants need to grow well. Children plant beans which they will observe closely as it grows. Make predictions about what will happen to the bean. Link to Jack and the Beanstalk • **Understand the key features of the life cycle of a plant or animal.** Introduce RSPB bird watch project. Discuss features of birds and name some common birds. Go bird spotting within our school grounds. Use the internet to find out about more about chosen birds and write a description. • **Talk about why things happen** • **Observe closely** Set up simple investigation with skittles and water. Children to observe the changes that take place after the warm water has been added to the skittles and trying to give reasons for what they see. • **Explore collections of materials with similar and/or different properties** • **Talk similarities and differences between some objects and materials**	• **Understand the key features of the life cycle of an animal.** Introduce the life cycle of a frog, exploring new vocabulary (tadpole, frogspawn, froglet, amphibian) describing the changes to the creature as it grows and that the cycle means it keeps repeating. Discuss why each stage is important. Share non-fiction books about frogs and their life cycle, encouraging children to ask questions to find out more information. Visit our school pond to explore a frog's habitat. • **Observe closely** • **Make observations of animals and talk about how they change as they grow** • **Show care and concern for living things and the environment** Observe first-hand the features and changes in frogspawn as tadpoles emerge. Write about tadpoles and the changes using the new vocabulary. Discuss how creatures need to be looked after, talk about what they need to survive. Compare these changes with the changes from caterpillars to butterflies. Matching animals to their habitats and matching babies to adults. Linked to Monkey Puzzle book Link to Bournemouth bridges/London bridges and Three Billy Goats Gruff book.

	• **Talk about features of their own environment and similarities and differences between places or environments** Walk around the school inside and outside talking about the different areas. Children talk about their favourite areas in school and why they like them. • **Explore collections of materials with similar and/or different properties** • **Talk about similarities and differences between some objects and materials** Set up a simple investigation to release play figures frozen in ice without taking the block off the tray/ hitting or breaking it. Initially show photos of the figure to plan how can we melt the ice quickly to free it. Work in groups to make and carry out suggestions.	After reading The 3 Little Pigs, look around the classroom and school building to see what materials have been used. Discuss the properties of these materials using correct vocabulary. Show pictures of different buildings and talk about the materials that have been used to build them. Set up a simple investigation to find out which material would be best for a bridge for the Billy Goat's Gruff to cross or making a roof/walls for the little pigs' house and test for strength using a hairdryer. • **Talk about why things happen** Show a recipe for making gingerbread men. Talk about what the mixture looks/feels /smells like at each stage. After baking, children describe how the gingerbread men have changed using correct vocabulary. Carry out a simple investigation into the changes that occur to the gingerbread man in different puddles/liquids. Using oil, fruit juice, water and vinegar talk about the changes that happen to the biscuits and trying to give reasons.	

Subject Specific Vocabulary	Pupils should participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.					
	season acorns conkers crops tree harvest hibernation	weather windy rainy leaves gold red brown pumpkin	soft bendy hard smooth wrinkly rough float sparrow blackbird	plants sun water soil	butterfly caterpillar tadpole frog froglet frogspawn amphibian life cycle	soft bendy hard smooth wrinkly rough

YEAR 1

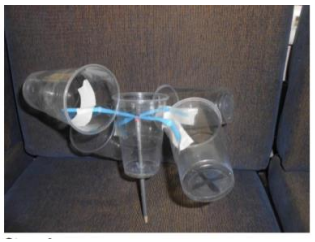
Subject Content Key Stage 1

The Working Scientifically skills listed below will be taught **through** the science content in each topic.

- Asking simple questions and recognising that they can be answered in different ways

- Observing closely, using simple equipment
- Performing simple tests
- Identifying and classifying
- Using their observations and ideas to suggest answers to questions
  Gathering and recording data to help answer questions

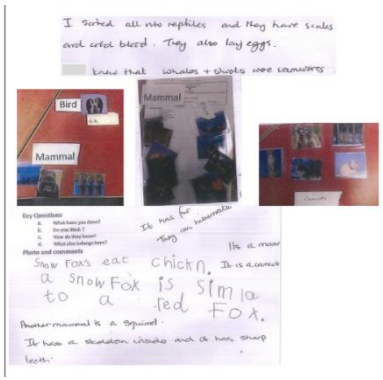
	AUTUMN 1	AUTUMN 2	SPRING 1
Topic	Toys from the past, family Albums	Winter Wonderland	Happily Ever After
Subject Content	Animals including Humans/ Seasonal Changes (Autumn and Winter)	Animals including Humans / Seasonal Changes (Autumn and Winter)	Everyday Materials/ Seasonal Change
Addressing stereotypes		Female weather presenters/meteorologists	
Key questions	Which animal group do humans belong to? What is the difference between herbivores, carnivores and omnivores? Why do we need our senses?	How does the weather change from Autumn to Winter? Which season has the most hours of daylight?	Which materials can we identify in our classroom/ school ? What are their properties? Are all metals attracted to magnets?
Content	*In this unit, children will investigate the variety of animals including amphibians, reptiles, birds and mammals. They will, explore what carnivores, herbivores and omnivores are. They will investigate the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets. investigate themselves, their senses, and undertake first hand investigative tests including* smell and taste tests. *Children will collect numerical data and they will turn their data into pictographs and bar graphs.* • **Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals** Discuss the definition of what animals are, noting ideas and misconceptions. Introduce animal groups and identify some of the animals. Observe and identify animals and the groups they belong to in the local environment	*In this unit, children will observe changes across the four seasons. They will observe and describe weather associated with the seasons and how day length varies. They will observe and talk about changes in the weather and the seasons. Children will work scientifically by: making tables and charts about the weather; and making displays of what happens in the world around them, including day length.* ***As the children will be making many different observations and measurements through the year, record what the weather is like in a large class floor book with different pages dedicated to different aspects of seasonal change: rainfall, daylight hours, brightness of the Sun, cloud chart as well as storing photos, questions, quotes measurements etc. This will allow them to reflect back as the year goes on.*** • **Observe changes across the four seasons** Discuss children's knowledge of the seasons and how the weather is different in each season. Watch clips of the seasons and identify the seasons shown giving reasons.	*Children will explore, name, discuss and raise and answer questions about everyday materials so that they become familiar with the names of materials and properties such as: hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent. Children will explore and experiment with a wide variety of materials, not only those listed in the programme of study, but including for example: brick, paper, fabrics, elastic, and foil. Children will work scientifically by: performing simple tests to explore questions like what is the best material for the Three Little Pig's house.* • **Distinguish between an object and the material from which it is made** • **Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock** Introduce the term 'materials' and discuss its definition. Create a class list of all materials that we know of. Carry out a materials search of the

	• **Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)** Look at examples of different animals, naming their features and using Animals ebook to research groups. Discuss similarities and differences of animals in the same group. • **Identify and name a variety of common animals that are carnivores, herbivores and omnivores** Introduce 'diet' as food animals eat and discuss possible diets of known animals. Introduce three diet types: herbivore, carnivore and omnivore and sort examples of animals that belong to each group using Animals Fact Cards. • **Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.** Use 'Head, shoulders, knees and toes' or Simon Says as a stimulus to discussion about main parts of the body and the job of each part. Outside work in small groups to draw around each other with chalk and label key features such as head, leg, arm etc Children to independently label all the parts of the body they already know on a photograph of themselves. Compare each other: in what ways are we all the same and how are we different – can we order the class in different ways (height/ age) and can we group the class in different ways (eye/hair colour etc.). <u>Senses</u> Introduce the 5 senses humans have to stay safe and understand the world around them. Use the 5 senses to carry out practical tests (sight, touch, smell and taste) describing our classroom and objects within it. Demonstrate different ways of sorting animals such as no. of legs, feathers/fur etc. Sort animals into different groups – carnivore/herbivore/omnivore.	http://projectbritain.com/weather/seasons.htm Go on a walk within the school grounds to spot signs of autumn. See Working Scientifically Task below. Draw and describe the weather and the clothes worn in autumn. Create a collage of the current season, weather and wildlife to compare to other seasons. https://www.bbc.co.uk/bitesize/topics/zkvv4wx/articles/zcx3gk7 https://www.bbc.co.uk/teach/class-clips-video/the-four-seasons/z4vjmfr • **Observe and describe weather associated with the seasons and how day length varies** Discuss different ways of measuring the weather including rainfall, temperature and wind direction. Watch clips showing children using equipment to measure the weather. Create their own equipment: rain gauges, wind socks and thermometer boxes and record the results. Begin cloud chart from Summer 1.  Watch video with changing seasons from autumn to winter and discuss changes. Look at average daylight hours to understand that the day length changes each day and varies from season to season. Explore shadows and how they change during the day.	classroom/school identifying, naming and investigating materials, focusing particularly on wood, metal, plastic and fabric. Discuss in particular the term fabric (and that material is often used by mistake for fabric). • **Describe the simple physical properties of a variety of everyday materials compare and group together a variety of everyday materials on the basis of their simple physical properties** <u>Properties of materials</u> Practical activities testing and sorting materials according to their properties. (shiny, bendy, see-through, soft, hard, waterproof.) Play Materials snap game matching materials according to their properties. Distinguish between objects and the materials they are made from. <u>Magnets and Metal</u> Explore a variety of magnets and objects (both magnetic and non magnetic) to complete challenges: Can you get the paperclip out of the water without getting your hands wet? Are different magnets able to hold the same amount of paper clips? Discuss the properties of metal objects and why some metals stick to magnets. Discuss where particular materials come from, introduce the terms man-made and natural and sort using these criteria. https://www.bbc.co.uk/bitesize/topics/zrssgk7/articles/z9pgcdm

<table>
<tr><td></td><td>Ensure that humans are included. Children work in pairs or groups to sort animals using their own criteria. Collect data as a class to create own pictogram.</td><td></td><td></td></tr>
<tr><td>Working Scientifically Focus</td><td>

- **Identifying and Classifying**

TAPS- Animal group discussion
Children select from a range of pictures and labels to sort animals into groups



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- **Observe over time and record data to help in answering questions**

TAPS – Seasonal change
Children go on a walk to observe changes and signs of the seasons in two trees. Record and discuss changes. Plot changes using changes of a deciduous and an evergreen tree on a seasonal display, scribe comments

- **Recording data to help answer questions**

Take the temperature outside in the morning and in the afternoon. Record these observations and discuss the changes.

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- **Asking simple questions and recognising that they can be answered in different ways.**

TAPS – Ways to test reflectiveness
Children to group test and sort a range of materials for reflectiveness.

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<tr><td>Subject specific Vocabulary</td><td colspan="3">Pupils should read, spell and pronounce scientific vocabulary correctly
<table>
<tr><td>amphibian
bird
fish
mammal
reptile
carnivore
herbivore
omnivore</td><td>sight
hearing
touch
taste
smell
similarities
differences</td><td>seasons
autumn
winter
spring
summer
weather
daylight
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wind direction</td><td>temperature
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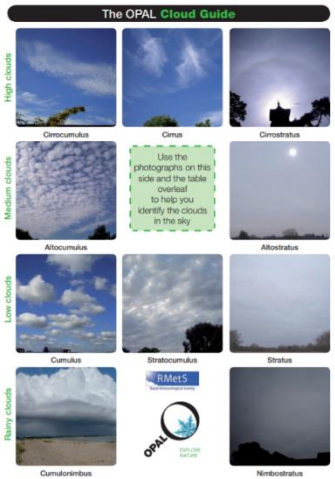
	SPRING 2	SUMMER 1	SUMMER 2
Topic	Happily Ever After	Explorers	The Great Outdoors
Subject Content	Everyday Materials/ Seasonal Change	Everyday Materials/ Seasonal Change	Plants and Animals
Addressing stereotypes			Female botanists- Jane Colden
Key questions	Why do puddles change size? What are the signs of Spring?	How does the weather change from Spring to Summer? Which type of enquiry is best for measuring rainfall/ comparing clouds in different seasons?	What are the parts of a plant and what do they do? What do plants need to grow well? Which wild plants/ trees are common in our school grounds?
Content	*In this unit, children will work with play figures frozen in ice, devising an investigation to release them. they will explore puddles and observe how they change.* • **Distinguish between an object and the material from which it is made** • **Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock** • **Describe the simple physical properties of a variety of everyday materials compare and group together a variety of everyday materials on the basis of their simple physical properties** Explain that water is a material and ice is water in a different state. Using blocks of ice on tables, predict what the ice will look like after 5 / 10 minutes. Observe and record changes to the blocks of ice while listening to https://www.youtube.com/watch?v=2DLnhdnSUVs Children to demonstrate understanding of what happens to the particles in ice and water by role playing the movement of particles. Followed by Working Scientifically Focus lesson below on releasing figure from ice.	***As the children will be making many different observations and measurements through the year, record what the weather is like in a large class floor book with different pages dedicated to different aspects of seasonal change: rainfall, daylight hours, brightness of the Sun as well as storing photos, questions, quotes, measurements etc. This will allow them to reflect back as the year goes on.*** • **Observe changes across the four seasons** • **Observe and describe weather associated with the seasons and how day length varies** Establish a timeline by showing the different months of the year laminated and children placing them in the correct order outside, marking the seasons with coloured cone and matching different weather pictures to each season. http://projectbritain.com/weather/seasons.htm Name all the types of weather that they know: their warmest day, when they played in the snow. Gather questions that the children would like to know about and record in the class floor book. Use these questions to help children decide which type of	*In this unit children will identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Children will identify and describe the basic structure of a variety of common flowering plants, including trees. They will use the local environment to explore and answer questions about plants growing in their habitat. They will observe the growth of flowers and vegetables that they have planted. Through a variety of investigative opportunities, children will test whether a bean grow without light and what happens if Mary, Mary Quite Contrary waters her plants with too much water.* • **identify and name a variety of common wild and garden plants, including deciduous and evergreen trees** Through discussion, discover what the children already know about plants. Collate group lists of known plants. https://www.bbc.co.uk/bitesize/clips/zyvs34j Link to Literacy (Jack and the Beanstalk), each child to follow instructions to plant their own bean. Use the following weeks to look after their own beanstalks, measure their growth using rulers and complete a bean plant diary. Will anyone's beanstalk grow tall enough to reach their castle at the top?

	Explore the properties of water by looking at puddles (found or created) in the playground. Discuss why puddles change size and elicit links to the weather. Children to think of ways they could see if the puddles are changing. Make predictions about puddles and record them, measuring the size and shape using string and paper cut outs. Create a series of diagrams to show how the puddles change. Explain how the water particles in the puddles have evaporated and become a water vapour. Chart the changing size of a puddle over a day, using feet, string, measuring sticks to record the measurements. Discuss which factors might affect the rate at which the puddle disappears. Share their understanding of ice and water with another class /prayer buddies.	enquiry they would use to find the answer. Explain that there are a range of ways we can find things out in Science. 1. Survey-count the number of things 2. Do a test -find out what happens to something when we change something about it. 3. Classifying – putting things into groups. 4. Investigation over time – watch or measure something over time. 5. Secondary Source – use a book or the internet. Through group and class discussion, decide which type of enquiry would be suitable to answer the question. Add post its to the Enquiry posters. What type of clouds are there in the different seasons? Create a cloud chart with pictures of different types of clouds. Throughout the year, children can add the date for the clouds that best describe that day. 	Discuss what they think plants need to grow well. Plant experimental bean plants covered with a cloth. Go on a wild plant hunt in school grounds to find out which wild plants are most common in our school grounds. Draw a diagram of the school garden area and label. Children record findings completing a tally. Draw and label a garden with common garden plants chosen from a bank of photos. Parts of a plant: Establish the main part that flowering plants have – leaves, roots, stems and flowers as well as their functions. Look in detail at some flowering plants – colour, texture, shape.  • **identify and describe the basic structure of a variety of common flowering plants, including trees** Children draw & label simple plants. Wild/garden plants: Discuss the difference between wild (introduce term 'weeds') and garden plants before going on a walk of the local area and recording which plants we can see – classifying into wild/garden. Help children identify & name other plant parts, e.g. petals, twigs, buds. <u>Trees</u> Explain the difference between deciduous and evergreen trees, showing examples of leaves from both types of tree. Children to use identification

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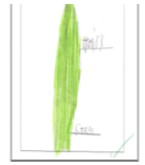
<tr><td></td><td></td><td></td><td>checklists to take part in a walk of the school grounds to see which trees we can find and name by looking at their leaf shape.
https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/british-trees/how-to-identify-trees/
Use leaves collected on the tree identification walk to do leaf rubbings and label the name of the type of tree it came from. Look in detail at tree bark & the overall shape of trees.

Complete Bean Diaries including a drawing of the bean, the height of the plant and a short description.</td></tr>
<tr><td>Working Scientifically Focus</td><td>• Ask simple questions, recognising that they can be answered in different ways.
• Perform simple tests

TAPS- Ways to test transparency
Children explore and compare materials on the basis of their transparency. Test whether a range of materials are transparent or opaque.

  </td><td>• Observing closely using simple equipment
• Gathering and recording data to help in answering questions
Choose from gathering and recording rainfall/ wind direction and temperature. Discuss and describe the changes from Spring to Summer and from previous seasons.</td><td>• Observing closely
TAPS- Leaf Look
Children to collect leaves on a walk of the grounds, examine them with hand lenses, draw and describe leaves, making comparisons and describe features.

 
Key Questions
• What does a leaf look like?
• How are these leaves different/similar?
• What shape/colour is your leaf?
• Where did you find your leaf? How do you think it got there?
• Does you leaf have hairs/veins? Why do you think they are there?
• Does your leaf look the same on both sides?</td></tr>
<tr><td>Subject specific Vocabulary</td><td colspan="5">Pupils should read, spell and pronounce scientific vocabulary correctly

water
ice
melts
frozen
observe
properties
evaporate
smooth

transparent
opaque
materials
hard
soft
stretchy
shiny
dull

years
months
days
hot/warm/mild/cold
sunny
cloudy
rain/sleet/snow/hail/
thunder/lightning

breezy
gusty
temperature
degrees Celsius
thermometer
weather vane
anemometer

wild plants
garden plants
weed
deciduous
evergreen
nutrients
roots
stem

leaves
flowers
petals
fruit
seed
bulb</td></tr>
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	bendy waterproof absorbent	rough	wet damp dry windy			

YEAR 2			
Subject Content Key Stage 1 The Working Scientifically skills listed below will be taught **through** the science content in each topic. • Asking simple questions and recognising that they can be answered in different ways • Observing closely, using simple equipment • Performing simple tests • Identifying and classifying • Using their observations and ideas to suggest answers to questions • Gathering and recording data to help answer questions			
	AUTUMN 1	**AUTUMN 2**	**SPRING 1**
Topic	Paddington Bear	Coming Home and Santa's Workshop	Antarctica and Lost and Found
Subject Content	**Everyday materials including recycling and the environment**	**Everyday materials including recycling and the environment**	**Animals including humans**
Addressing stereotypes			Elizabeth Garrett Anderson – first female doctor
Key questions	Why are different materials used to make the same objects? Which materials are natural/ man-made? What are the properties of plastic, metal, wood?	Which materials can be bent, stretched, twisted or squashed? Which materials can be recycled? What happens during the process of recycling? What makes elasticity (stretchiness) a useful property for fabric?	What do all animals need to survive? Do all animal offspring look like their adult when they are born? How does exercise affect the human body?
Content	*In this unit of learning, children will identify and discuss the uses of different everyday materials so that they become familiar with how some materials are used for more than one thing (metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles) or different materials are used for the same thing (spoons can be made from plastic, wood, metal). They will think about the properties of materials that make them suitable or unsuitable for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials.*	*In this unit of learning children will explore and investigate how materials can be changed by heating and cooling or by the processes such as bending and stretching. They will also investigate how we can recycle products changing their appearance and purpose. Children will find out about people who have developed useful new materials, for example John Dunlop, Charles Macintosh or John McAdam* • **Identify and compare the suitability of a variety of everyday materials including**	*In this unit children will learn that animals (including humans) grow and reproduce. They can use ideas about feeding and growth to learn about ways we need to look after ourselves to stay healthy. Children will also have opportunities to consider ways in which science is relevant to their personal health and to relate science to aspects of their everyday life (food, exercise, medicines), and to recognise and control hazards and risks to themselves.* • **Notice that animals, including humans, have offspring which grow into adults.**

	• **Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard**. Practical activities using the senses to help identifying a variety of materials, describing their properties and explaining what they can be used for. Ensure the children can distinguish between the object and the material it is made from. Go on a short walk within the school and around the school grounds to look for how everyday materials are used in different ways. Discuss different uses and whether any can be grouped together. Comparing suitability of materials for specific jobs and give reasons why it should be used using vocabulary which describes their properties. Investigate which type of kitchen towel or cloth is the most absorbent/ effective at mopping up spills. Look at the properties of different kitchen towels and predict which will be the best at mopping up using these observations. Discuss different methods: pipette puddles/ strips of paper / counting the drops. Children to choose a method and carry out the test. Discuss why people need to use absorbent materials. Explore a range of different fabrics and describe their properties. Investigate symbols used on clothes labels, distinguish between natural and man-made fabrics and research where they came from.	**wood, metal, plastic, glass, brick, rock, paper and cardboard**. • **Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.** Explore different plastics and the properties that make them useful for making a variety of things. Leading to a discussion of difficulties of disposal of plastics. Practical task looking at the symbols showing which type of plastic an object is made from and whether it can be recycled. Design posters showing uses for recycled plastic bottles/ encourage ways to recycle. Demonstrate using a plasticene ball how the shape of a solid object can be changed by bending, squashing, twisting or stretching (pushes/pulls). Practical task exploring how the shapes of objects made from some materials can be changed. Are there materials/objects which cannot be changed in any of these ways? Research contributions of scientists who developed new materials that are useful: Dunlop, McAdam, Macintosh.	Discuss changes in familiar animals such as pets as they grow. Match, sort and group young animals and their adults using animal offspring picture cards. Describe the main characteristics of the offspring and discuss possible ways of sorting them in different ways. Find out about how animals including humans change as they grow into adults using the Awesome Animals e-Book. Discuss stages of development in humans: baby, toddler, child, teenager, adult. Children to think about their own changes/ growth. Study the life cycle of a frog/butterfly/chicken drawing, ordering and labelling the different stages. Compare the stages of the mammal and amphibian life cycle using the Life Cycles printable book • **Find out about and describe the basic needs of animals including humans, for survival (water, food and air).** Research and describe what animals including humans need to survive. Link to caring for pets and their needs. Discuss the importance of exercise for muscles, bones and the heart. Test the effects of exercise on the human body and discuss favourite ways of exercising. Investigate the importance of a balanced diet. Discuss food groups and what each group is needed for. Draw own meal representing a balanced diet. Practical sorting of food and food labels

Working Scientifically Focus

- **Asking simple questions and recognising that they can answered in different ways**
- **Perform simple tests**

TAPS – Waterproof Test

Discuss and use different waterproof tests to discuss how waterproof different materials are and to find the best material for an umbrella/ waterproof coat etc.

SPA UNIVERSITY — how?

Topic: Materials	Year 2 Age 6-7	Title: Waterproof materials

Working Scientifically
Plan: Ask simple questions and recognise that they can be answered in different ways

Concept Context
Use knowledge and understanding of properties of materials to compare suitability for different uses

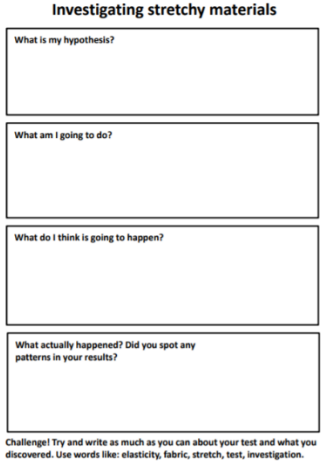
Assessment Focus
- Can children discuss/use different ways to test how waterproof materials are?
- Can children compare the tests of waterproofness?

Activity *Today we are materials engineers.*
Provide a collection of different types of materials. Discuss which could be the 'best' material – draw out that need to know best for what. Today we want to know the 'best' for waterproof coat/umbrella/cover for summer fair cakes etc – choose appropriate context.
Discuss how to compare how waterproof the different materials are, for example:
- Drip water onto the material until it seeps through
- Pour a set amount of water onto the material
- Wrap up a cotton ball in the material & put into water

Children decide on and carry out a simple test to measure the waterproofness of different materials – groups try different ways to answer the question.

- **Asking simple questions and recognising that they can answered in different ways**
- **Observe closely using simple equipment**.

Consider different fabrics to find out which is the most stretchy for use by the Olympic swimming team. Discuss an investigation to test elasticity based on attaching weights to the end of strips of fabrics and make predictions. Consider the length of fabric at the start, what length does it stretch to and what does it return to.



Investigating stretchy materials

What is my hypothesis?

What am I going to do?

What do I think is going to happen?

What actually happened? Did you spot any patterns in your results?

Challenge! Try and write as much as you can about your test and what you discovered. Use words like: elasticity, fabric, stretch, test, investigation.

- **Use their observations and ideas to suggest answers to questions.**

TAPS- Comparing handspans

Discuss whether older/ taller children have bigger hands and ways in which handspans could be measured as a class. Working with a partner, each child to measure their own hands, record the results together as a class. Compare class handspans and use these to suggest answers to the class questions.

Subject specific Vocabulary

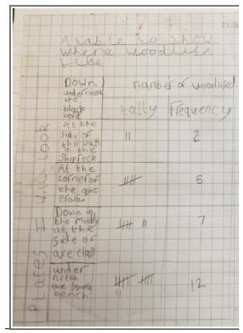
Pupils should read, spell and pronounce scientific vocabulary correctly

materials	hard	elasticity (stretchiness)		survival	grow
suitability	soft	biodegradable		water	nutrition
properties	stretchy	global warming		air	reproduce
classify	stiff	environment		food	exercise
group	shiny	waste		adult	hygiene
similar	dull	landfill		baby	egg
absorbency	rough			offspring	

	squash bend twist stretch brick paper fabrics elastic foil	smooth bendy waterproof opaque transparent			exercise hygiene bird mammal reptile amphibian fish	chick/chicken egg/caterpillar/pupa/butterfly spawn/tadpole/frog lamb/sheep baby/toddler/child/teenager/adult

	SPRING 2	SUMMER 1	SUMMER 2
Topic	Great Fire of London	Pirates	Local geography
Subject Content	**Living Things and Habitats**	**Plants**	**Plants**
Addressing stereotypes	Rachel Carson's work into the study of ocean habitats	Jane Colden's work as a botanist	Jane Colden's work as a botanist
Key questions	Which life processes are common to all living things? How do living things depend on each other? Which animal characteristics help them to live in a particular habitat? Is a deciduous tree dead in winter?	What does a plant need to grow? How does less light/ warmth/water affect a plant's growth? How can we observe differences over time?	Which plants or parts of plants can we eat? How do farmers make sure their crops grow well? Why is it important for plants to spread their seeds?
Content	*In this unit children will explain differences between things that are living and things that have never been alive. Investigate what living organisms need to stay alive and healthy. Identify and sort living and non-living things and discuss how some non-living things were alive once.* • **Explore and compare the differences between things that are living, dead and things that have never been alive.** Discuss how we know something is alive. Introduce life processes of animals and plants and the idea that all living things are made of cells. Explore and act out seven life processes: movement, reproduction, sensitivity, nutrition, excretion, respiration and	*In this unit children observe inside seeds and bulbs and describe how they grow into mature plants. They find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Find seeds in the local environment* • **Observe closely using simple equipment (WS Objective)** Share pictures of common wild and garden plants and trees. In groups, reassemble pictures and labels of plant and tree parts. Use the school grounds to closely study flowering plants and trees, using magnifying glasses. Use the Woodland Trust website to show how to demonstrate identifying trees from their features.	• **Observe and describe how seeds and bulbs grow into mature plants.** <u>Seeds</u> Establish that seeds are formed to produce new plants (reproduce) Practical task looking at a variety of seeds and examine one closely with a hand lens. Make observational drawings. Open up a broad bean or sunflower seed to find out what is inside it. Make a careful observational drawing of the inside. Watch time-lapse photography of a seed germinating.

	growth. Children in groups sort a range of things into living and non-living and once alive. Identify examples around school to draw and label. Suggest characteristics of each group. • **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.** Establish that plants and animals live in particular habitats which serve their needs. Explain that animals & plants depend on each other for survival in their habitats. Animals depend on plants for food & shelter & plants depend on animals for seed dispersion. Children draw an oak tree and its animal dependents plus seeds spread by animals. • **Identify and name a variety of plants and animals in their habitats including microhabitats.** School Safari. Locate the different habitats in the school environment, including micro-habitats, e.g. under a log or stone, in leaf litter. Identify plants & minibeasts found in these locations. Discuss responsible behaviour when collecting minibeasts/plants. Explore other habitats. Compare the plants & animals found in local habitats with those found further afield, e.g. the seashore, an ocean, a rainforest, a woodland or a desert. Go on a real or virtual field trip to a contrasting habitat! Children research living things in a habitat. • **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.** Remind children that a suitable food source is one of the main criteria for animals to survive in a particular	https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/british-trees/how-to-identify-trees/ • **Observe and describe how seeds and bulbs grow into mature plants.** • **Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.** Explain the structure and function of plants. Compare characteristics of plants with animals to highlight that they are living things. Name some common plants and discuss their uses. <u>Plant Enquiry</u> Children to plant one dwarf sunflower seed and one paperwhite narcissus bulb <u>under the same conditions</u> to compare growth. Make and record predictions for growth of both. Over the following 4 weeks, measure the growth of their plants with a ruler and record the height in cm in a table. Using recorded heights of plants from Summer 1, create a bar chart showing the growth of their sunflower and narcissus plants. Draw the sunflower and narcissus plants and make comparisons including a similarity and a difference. Discuss how we know things are alive. Watch the BBC clip about the life processes of plants and explain the 7 processes in simple terms. Share the life cycle of a bean plant https://www.youtube.com/watch?v=EKx4ZwoJqXY and children order the stages of the lifecycle of a sunflower.	Explore the outdoors looking at how plants disperse their seeds and why, specifically those plants that spread their seeds by the wind. Sort different seeds into groups according to the different type of dispersal it undergoes. Create and test a seed helicopter. Examine dandelion plants using hand lenses. **http://kidsdiscover.com/parentresources/seed-dispersal/** Look at other types of seed dispersal -BEEFFS (Blowing, Eating, Exploding, Floating, Falling, Sticking) **http://www.vtaide.com/png/seed-dispersion.htm** <u>Leaves</u> Agree that light is not required for germination (based on children's enquiry). Discuss how leaves make food for the plant using sunlight, water & air. Collect a variety of green leaves & try to match the colours with paint/wool. Record changes in seeds/bulbs. Discuss plants or parts of plants that we eat, exploring the main groups of edible plants. Show from Farm to Fork clip and the different strategies used by farmers to make sure they grow well. https://www.foodafactoflife.org.uk/5-7-years/where-food-comes-from/farming-and-processing/

	habitat. Plants make their own food, but animals eat plants &/or other animals. Introduce vocabulary involved & study some simple food chains.		
Working Scientifically Focus	• **Gather and record data to help in answering questions.** TAPS- Woodlice Habitats Consider places in the locality where we could look for woodlice. Children gather and record data on a tally chart or on a map. Discuss the findings of the different habitats as well as their features and give reasons why they might be found there.  OR Give children the opportunity to carry out a habitat enquiry to see what affects the number of a chosen minibeast in a habitat using a choice chamber. Suggested enquiries involve woodlice, meal worms, worms or snails. Children draw conclusions from their findings.	• **Observe closely, using simple equipment** TAPS- <u>Germination and Growth requirements</u> Two of the characteristics of livings things are reproduction and growth. Children plant some seeds and bulbs <u>under a range of conditions</u> in order to investigate what they need to germinate and then continue growing healthily. Children make predictions. Observe plants & discuss the findings of their enquiry. Draw/write about results. Together conclude that plants need water, air & a suitable temperature to germinate & that plants need water, light, air & a suitable temperature to grow & remain healthy.	• **Observe closely** TAPS- Observing seeds and plants Draw the sunflower seeds before and after they have grown, observe and describe how they have grown into mature plants.
	Pupils should read, spell and pronounce scientific vocabulary correctly		

Subject specific Vocabulary	living dead habitat energy food chain pond desert woodland prey predator living dead never alive habitats micro-habitats	food chain sun/grass/cow/human logs leaf litter stony path under bushes shelter seashore woodland ocean rainforest conditions hot/warm/cold dry/damp/wet bright/shade/dark	seed bulbs water light temperature growth bud sprout water healthy germination reproduction comparative test predict		seed bulbs water light temperature growth bud sprout water healthy germination reproduction comparative test disperse wind	pollination