LEES PRIMARY SCIENCE CURRICULUM PROGRESSION

Year N to Year 6

Index

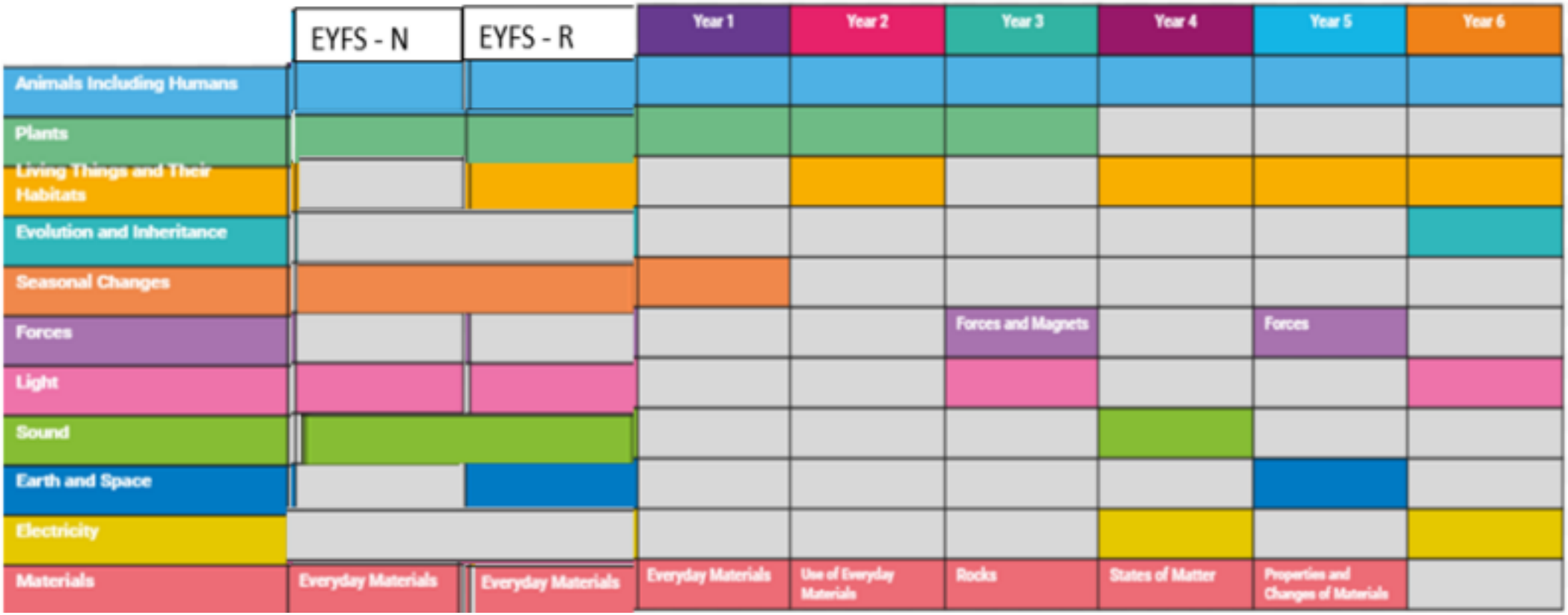
TOPIC Pages

Lees Primary School: Science National Curriculum- Progression Map

This progression map shows the progression across the national curriculum science programme of study requirements from year 1 to year 6. Statements are taken directly

from the programme of study and are organised into topics.

Alongside the statements is the vocabulary progression. This details the required vocabulary that children should understand throughout each topic and year group as a prerequisite for further learning. Vocabulary is not exclusive to each year group, so it is not repeated on the grid in subsequent year groups for the same topic. For example, a year 2 child studying 'Animals including Humans' may use the vocabulary listed in the year 2 column as well as that from Year 1. Likewise, a year 6 child learning about 'Light' may use the year 3 vocabulary as well as the year 6.



Nursery	**Animals Including Humans**	**Plants**	**Living Things & their Habitats**	**Seasonal Changes**	**Light**	**Sound**	**Earth & Space**	**Materials**
	Use their senses to explore materials. Understand key features of animal life cycles. Understand need to respect and care for natural environment and all living things.	Plant seeds and care for growing plants. Understand key features of plant life cycle. Understand need to respect and care for natural environment and all living things.	Understand need to respect and care for natural environment and all living things.	Understand need to respect and care for natural environment and all living things. Talk about the differences in the changes that they notice.	Explore colour and colour mixing. (Special celebrations using light e.g. bonfire fireworks, Christmas lights).	Listen with increased attention to sounds. Respond to what they have heard expressing their thoughts and feelings. Play instruments to express their feelings and ideas. Sing the pitch of a tone sung by another person. Sing melodic shape (moving melody down and up of familiar songs). Create own songs or improvise around a	Understand need to respect and care for natural environment and all living things.	Use all their senses in exploring natural materials. Explore collections of materials with similar or different properties. Talk about the differences between materials and changes that they notice. Join different materials and explore different textures.

						known song.		Explore colour and colour mixing.

	<u>Objectives in all Topics</u> Talk about what they see using a wide vocabulary. Explore how things work. Engage in extended conversations learning new vocabulary. Use a wider range of vocabulary.

Reception	**Animals Incl. Humans** Name and describe familiar people. Talk about members of their immediate family and community. Recognise some environments that are different to which they live in. **ELG** Explore the natural world around them, making observations and drawing pictures of animals and plants.	**Plants** **ELG** Explore the natural world around them, making observations and drawing pictures of animals and plants.	**Habitats** Recognise some environments that are different to which they live in.	**Seasons** Understand effects of changing seasons upon the natural world. **ELG** Explore the natural world around them, making observations & drawing pictures of animals and plants. Know some similarities and differences between natural world around them and contrasting	**Light** **ELG** Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design,	**Sound** Listen attentively move to and talk about music, express their feelings and responses. Sing in a group or on their own, increasing matching the pitch and following the melody. Understand how to listen carefully and why listening is important. **ELG** Make comments	Earth & Space	Materials **ELG** Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

				environments, drawing on their experiences	texture, form and function. (Special celebrations	about what they have heard and ask questions to clarify their		

				and what has been read in class. Understand some important processes and changes in the natural world around them, including seasons and changing states of matter.	using light e.g. Diwali, Chinese New Year, Hanukkah, Christmas lights).	understanding.		
	Objectives in all Topics Explore the natural world around them.							

	Describe what they see, hear and feel whilst outside. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Make comments about what they have heard and ask questions to clarify their understanding. Learn new vocabulary. Use new vocabulary through the day. Use new vocabulary in new contexts. Understand how to listen carefully and why listening is important. ELG - Listen attentively and respond to what they hear with relevant questions, comments and actions during whole class discussions and whole class interactions. Make comments about what they have heard and ask questions to clarify their understanding. ELG - Participate in small groups and class 1:1 discussions, offering their own ideas, using recently introduced vocabulary.

EYFS Vocabulary Progression - Introduction to Scientific language.

	Animals Incl. Humans	**Plants**	**Living Things & Their Habitats**	**Seasonal Changes**	**Light**	**Sound**	**Earth & Space**	**Materials**
	Body parts- head, shoulders, arm, wrist, neck, ankle. Egg, baby, mum, dad, nest, food,	Plant, garden, grow, leaf, summer, winter, autumn, colour, rose, tulip,	Examples of animals and their homes e.g. fox, owls,	Natural world - Seasons, spring, summer, autumn,	Colours, mixing, day, night, (Vocabulary from	Sound, music, loud, quiet, listen, feelings.	Earth, care, home, moon, space, sphere.	Wood, plastic, hard, sort, smooth, touch, feel, make, house, soggy,

	feather, fur, grow, big, small, water, teeth, sense, smell and touch. Farm animals e.g. cow, pig. Vegetables.	daffodil, soring, soil, water, leaf, vegetable, seed, grow, die. Vegetables and examples.	woodland, caterpilla r, leaves, trees, bears, habitats.	winter, windy, sunny, cloudy, light, dark,	seasons), (Celebrati on s e.g. Diwali, Hanukkah, lights, fireworks, owls, shadow, nocturnal.			floppy, strong, soft, crunchy, rough.

Year 1 – Plants

Substantive knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Substantive Knowledge	Vocabulary
*** Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees in the locality. * Identify and describe the basic structure of a variety of common flowering plants. * Identify and name the roots, trunk, branches and leaves of trees.**	•Plants have roots, stem, leaves, flowers, and petals. •Trees are plants and they have a trunk, roots, branches, and leaves. •Wildflowers are not chosen to be grown by humans. •Garden flowers are chosen and grown by humans. •Deciduous trees lose their leaves in Autumn (link to Seasons). •Evergreen trees keep their leaves all year.	Plant, flower, leaves, trunk, branch, root, flower, stem, wild, garden, deciduous and evergreen. **Linked Texts –** Percy the Parkkeeper – A Year in Percy's Park.

Prior Learning	Key Questions	Steps of Learning (WR Science)
In EYFS Children should: • Make plant observations. • Know some plants, trees, and flower names. • Name and describe some plants, trees, or flowers. • Show some care for their world.	• What is a plant? Which can you name? • What are the parts of a) plant b) tree? • What is similar/different about wildflowers, and garden flowers? • What plants can we find in the school grounds, park and at home? • Which plants keep their leaves? What are they called? • Which plants do not keep their leaves? What are they called?	Step 1 Recap Prior learning from EYFS and what they know about plants. What is a plant? Where do we see plants and trees? How do we take care of plants and flowers? What flowers and plants can you name? Step 2 What are the parts of a plant? What is a plant? Where are the roots? Underground. What are the parts over ground? (Stem, leaves, flowers, petals). How are plant leaves the same/different? Step 3 – Name wild and garden plants. Observe where are they growing (simple). Step 4 What are the parts of a tree? Name and label different parts of a tree. Outside viewing trees (Tree Idial identification of main types). Step 5 To identify and name some deciduous trees. What is deciduous (new vocabulary)? When do trees lose leaves? (Link to Seasonal topic). What do trees look like in Spring?
Future Learning In Year 2, children will: Observe and describe how seeds and bulbs grow into mature plants. Describe how plants need water, light, and warmth to grow and stay healthy	**Possible Misconceptions –** • All plants are grown by humans. • Autumn – all trees have orange leaves and stay like this all year. Winter – Trees die. Need to see same tree gain buds. • All trees with green leaves are called 'Evergreens.'	

	• Trees can change between being deciduous and evergreen at different times.	Step 6 To identify and name some evergreen trees. What is an evergreen? Which are evergreen and how can you tell? Are all trees evergreen? Are their leaves the same shape? Assessment in the local area, deciduous and evergreen comparison.

Year 1 – Plants

Working Scientifically - disciplinary knowledge (knowledge of how scientific knowledge is generated).

Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	Observation skills
					
	Step 1 – (Identify) What is a plant? Where do we see plants? Which plants/trees can you name? **Step 2** – (Identify) What are the parts of a plant? **Step 3** – Name wild and garden plants. **Step 4** – Name the parts of a tree. **Step 5** – Identify Deciduous trees **Step 6** – Identify and name some Evergreen	How do trees change over the year? Plant sunflower seeds and observe the plant growing over time.			Step 1 – Where do we see plants? What do they look like? Step 2 – What are the parts of a plant? Step 3 – Observe closely using simple equipment the difference between wild and garden plants. Step 4 – Observe the parts of a tree. Step 5 – Observe Deciduous trees and the differences through the seasons. Step 6 – Observe evergreen trees.

	trees				

Year 2 – Plants

Substantive knowledge

(scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Substantive Knowledge	Vocabulary
• **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.** • **Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)**	Step 1 Recap – Plants are living things. There are many types of plants. Evergreen – keeps it leaves all year. Deciduous – loses its leaves in the Autumn and grow back in Spring. Fruit, flowers. Plant Parts to explore - *Trees have roots, a trunk, branches and leaves. • Many trees have blossom, or fruit. • Flowering plants have roots, a stem, leaves and petals. Step 2 and 3 Plants need water to grow and stay healthy. Plants need light to grow and stay healthy. If plants do not have water and light, they may become weak and not grow properly. Step 4 and 5 • Plants grow from seeds/bulbs. • Flowers make seeds to make more plants (reproduce). • Seeds and bulbs are living.	Plant, flower, deciduous, evergreen, root, vegetable, herb, blossom, stem, leaf, trunk, branch, seed, sunlight, predict, compost, warmth. Bulb, wild, garden, observe, grow, compare, record, temperature, measure, diagram, germinate. Misconceptions – Based upon the fruits that they know and eat, misconceptions can occur. All seeds grow into the same plants. Seeds consume soil. All plants need the same amount of light – this is not true. Some like direct sunlight and others prefer shade. Plant growth occurs in quick time periods e.g. think a plant may grow overnight. Linked Texts Where the wild things are Jim and the Beanstalk by Raymond Briggs
Prior Learning	**Key Questions**	**Steps of Learning (White Rose Science)**

In Year 1 Children should: **•Identify and name a variety of common wild and garden plants, deciduous and evergreen trees in the locality.** **•Identify and describe**	Step 1 Where is the stem/roots/leaves/petals? Where is the trunk/branches/leaves/blossoms? What is similar/different about these plant parts? What patterns can you spot with the petals? What is similar between plants and trees? What are the differences between plants and trees?	Step 1: KASH – Deciduous and Evergreen. If possible, outdoors to use a real tree to look at parts. Explore and look at plants to see the different parts of plants. Identifying part but not what the parts do (that is Year 3).

the basic structure of a variety of common flowering plants.

- **Identify and name roots, trunk, branches and leaves for trees.**

Future Learning

In Year 3 Children will:

- **Identify and describe the functions of different parts of the flowering plant: roots, stem/trunk/leaves and flowers.**
- **Explore the part flowers play in a flowering plants life cycle, including pollination, seed formation and seed dispersal.**

Explain the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary between plants.

Are there any similarities between these tree parts and parts of other plants?
What is different about tree parts and other plant parts? Step 2 and 3
Why do plants need water?
What happens if plants do not receive enough water? How does water help plants grow?
Why do plants need sunlight?
What happens if plants do not receive enough sunlight? How does sunlight help plants grow?
Step 4
Where do seeds come from? Where can we find seeds?
Are seeds living or non-living?
Step 5
Do all plants grow from seeds? No – bulbs too.
How are seeds and bulbs different?
What do bulbs and seeds need to grow and be healthy? Where could you plant your bulbs in school?
Predict how the temperature will affect the growth of the plants?
How long/when will you observe the bulbs?
What do you expect to see next week/ next month (after Easter)?
How will you record your results?

Misconceptions

May not classify fruit, vegetables or herbs as plants. May not think trees are plants.
Recap meaning of deciduous and evergreen as may have misconceptions.
May have different ideas about the fruit that they eat and not think it is a plant.

Step 2: What do plants need to grow? Plants need water, light and to be kept at the correct temperature, in order to grow and stay healthy. 2 identical plants, ready for step 3 – put one in light and one in dark. Photos so can see the changes and can compare.
Step 3: Planning – light and dark investigation. Compare what plants need to live with animals from Spring 1. Same/different? Do plants grow healthier in the light or dark? Recording results. Plant in light and dark over time experiment.
Step 4: Seeds. Where do seeds come from? Where can we find seeds? Observation of different flowers and fruits. E.g. strawberries, apples (seeds outside and inside). Are seeds living or non-living? Living as grow into new plants. (Plant seeds to observe e.g. cress/sunflower). Do not use the term germination – this is introduced in Year 3.
Step 5: Bulbs – observe bulbs. Look at bulb life cycle. How are bulbs and seeds different? Plant bulb. How will temperature affect a bulbs growth? Plant bulbs for different places e.g. outside, corridor, hall,

	May think all seeds grow into the same plants.	radiator. Can compare over long period of time the growth e.g. return from Easter. Step 6: White Rose Assessment

	May think seeds consume soil. May think that plants do not need light. May think all plants need the same amount of light. Some plants need strong direct sunlight and some prefer shade. May think plant growth happens quickly e.g. overnight. This can take days or weeks before any visible changes. May think plants only grow from seeds. May think seeds are only inside fruits so show seeds on outside e.g. strawberries. May not realise that some plants still grow in Winter. Plants survive outside in cooler temperatures but grow slower.	

Year 2 – Plants

Working Scientifically - disciplinary knowledge (knowledge of how scientific knowledge is generated).

Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	BIG Question: Assessment
					

Do plants grow healthier in light or dark?	Step 1 - Identify and classify different plants? Can you group them in another way? Classify what plants and animals need to live. Are there some things that they both need?	**Do plants grow healthier in light or dark?**	Step 5 – How does temperature affect a bulbs growth?		White Rose End of Unit Assessment

Year 3 – Plants

Substantive knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Substantive Knowledge	Vocabulary
Year 3 children will - • **Identify and describe the functions of different parts of the flowering plant: roots, stem, trunk, leaves and flowers.** • **Explore the part flowers play in a**	• Spring 2 - • Flowers help the plant to reproduce (make new life). • Germination is the process of the seed breaking its coat and sending out its first roots and leaves. • Seeds need water to germinate. • As a seed coat absorbs water, it swells & breaks. • The correct temperature is needed for seedlings. • Stamen is the male plant part, it makes pollen. • The pistil is the female plant part. The pistil receives the pollen in the process of fertilisation.	Leaf, stem, roots, **absorb**, soil, flower, variables, seed, water transportation, seedling, seed coating, germination, flower, petals, stamen, pistil, reproduction, reproductive organs, pollination, pollen, stamen, pollinators, dispersal, life cycle. Linked Texts

flowering plants life cycle, including pollination, seed formation and seed dispersal. • **Explain the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary between plants.** • **Investigate the way in which water is transported within plants.**	• Pollination is the transfer of pollen from the male part of a flowering plant to a female plant part for reproduction. • Flowering plants have specific adaptations which help it to carry out pollination, fertilisation and seed production. Pollen + egg make a seed. The aim of pollination is new life. • Seed dispersal is the movement of seeds away from the parent plant for the life cycle to begin again. Most common seed dispersal methods are wind, water, animals and explosion. The stages in a plant's life are called its life cycle. • Summer 1 - Plants have different parts which have different functions. • Step 1 - Roots **absorb** water from soil and hold plant in place. • Step 2 - Stem carries water to different parts of the plant. There are tubes inside the stem which carry water to different parts of the plant e.g. leaves and flowers. • Step 4 - Leaves absorb sunlight to make food for the plant. Absorb sunlight and carbon dioxide. •	The Boy who Grew Dragons by Andy Shepherd **Possible Misconceptions –** May think plants need food and get this food from the soil. E.g. seeing bottles of 'plant food.' Plants don't need food, they make food from sunlight, water and carbon dioxide. May think flowers are only there to look nice. May not know their function. All stems are the same. This is not true – all different e.g. sizes, colours. May think roots 'suck' up water. Don't **they absorb** water. Explain difference between seed and seedling. May think bees are the only pollinators but this is not the case

		e.g. butterflies, bats etc. Not just humans that have a life cycle. May think that wind seed disp is the only method of seed dispersal as they have seen dandelion clocks.
Prior Learning	**Key Question(s):**	**Steps of Learning**
In Year 2 Children should: • 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. • Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)	• <u>Spring 2</u> • Step 1 – What parts of a plant can you identify? Where is the stem/roots/flowers? • What is the function of the flower? • Step 3 - • How do plants reproduce? What and where are the • Male and female parts? What is pollen? • Which part of a plant produces pollen? How does pollination happen? • What are seeds, germination and pollination? • Step 4 -	Spring 2 – Step 1 – KASH. Recap Yr 1 and Yr 2 Plant Learning. What are the parts of plant? Step 2 – What does a plant nee Set up Comparative tests – Plant without water, Dark and light. All oth variables to be set. Seeds and space impact upon growth. Enquiry Questio Does the number of seeds in a pot affect the growth of the plants? Step 3 – What is Pollination? How are new plants made? How do seeds form? Pollination involves the transfer of

Future Learning Year 4 – Living things and their habitats Topic. • Recognise living things can be grouped in a variety of ways. • Explore and use classification keys to group, identify and name a variety of living things	• Do plants need animals for pollination? What are pollinators? Why are pollinators important? • Step 5 • What is seed dispersal? How do seeds disperse? • How does wind disperse seeds? Why is seed dispersal important? • Step 6 • What are the ways in which seed dispersal can	pollen grains from the male parts of a flower (stamen) to the female parts (pistil) of a flower. Seeds are formed when pollen grains and eggs join together. Step 4 – Importance of seed dispersal for growth, to prevent plant overcrowding. How do seeds disperse? Focus upon Wind dispersal (Seed Helicopters). Step 5 – Seed Helicopter Investigatio

in their local and wider environment. •Recognise environments can change, and this can pose dangers to living things.	occur? How do animals disperse seeds? How does an "explosion" disperse seeds? •Are there patterns between the structure of seeds and how they are dispersed? •What are the best conditions for germination? •How does space between seeds affect how well they grow? •Which seed will fall the fastest? •Does seed size match plant size? •What are the parts of a plants' lifecycle? found? •<u>Summer 1</u> •Which plant parts can you identify? •Where are roots, leaves, stem and flowers? •What are the roots for? i.e. What are the •Functions of roots/leaves/stem? What happens •If a) the roots are damaged? B) no leaves? C) no flowers? •What is the soil there for? •How does water move through the plant? •Which parts receive water from the stem? •What would happen if the stem was damaged? •How are the stem and roots similar/different? •How do plants make their food?	Blade length and time takes to fall. S 6 – What are the other ways that Seeds can disperse? Animals, water, seed pod explosion. Summer 1 - Step 1 – Function of Roots. 2 function Roots absorb water and nutrients fro the soil and hold the plant in place. Observe roots from a range of plants – Do plants need soil? (Investigation) Plant in soil, sand, paper, cotton wool and nothing. I predict… because… We are changing … We are measuring … We are keeping the same …… W would happen if the plants roots were Damaged or removed? Step 2 – How do some plants survive i Different environments? (E.g. we know Plants need water, how do they survive Where there is little water? Compare Similarities and differences. Step 3 - What is the function of the Stem Chrysanthemum/gysophilia /cele •• Stem •• All round plant e.g. Flo leaves. Step 3 – How does the length of a carnation stem affect how

		long food colouring takes to dye the petals? Step 4 - Recording experiment findings. Do plants need soil? Observe and record in table.

		Carnation stem – Table and findings. Function of leaves. Absorb sunlight and carbon dioxide. Step 5 – Can a plant live without Leaves, roots, flowers etc? Plant doctor. What happens if a) roots are damaged b) no leaves c) no flowers d) stem damaged ? With research.

Year 3 Plants

Working Scientifically - disciplinary knowledge (knowledge of how scientific knowledge is generated).

Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	Furthe detail skills
Spring 2 - Which seed will fall the fastest? Summer 1 – Do plants need soil? Plant in soil, sand, paper, cotton wool and nothing. How does the length of the carnation stem affect how long it takes for the food colouring to dye the petals? Which conditions help seeds germinate faster?	Spring 2 - Classify – which seeds need animals for dispersal?	Summer 1 - What happens to celery when it is left in a glass of coloured water? Summer 1 - How do flowers in a vase change over time?	Spring 2 - What happens with blade length to the time it takes for a seed to fall? How does the length of the carnation stem affect how long it takes for the food colouring to dye the petals?	Summer 1 Plant doctor – what happens to a plant if parts are damaged?	Working scientifi – Summer - Step Recordi findings using simple scientifi language drawings labelled diagram keys, b charts, and tables.

Year 1 – Animals, including Humans

Substantive Knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Substantive Knowledge	Vocabulary
*** Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.** *** Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).** *** Identify, name, draw and label the basic parts of a human body and say which part of the body is associated with each sense.**	• Senses – The body has lots of parts. Each part of the body has a name. Most bodies have a head, neck, arms, elbows, hands, legs, knees, feet, face, ears, eyes, nose, hair, mouth and teeth. Step 4 - Touch is sensed by the skin. Skin covers the whole human body, and touch can be sensed all over the body through skin contact. Explore and compare different textures. Humans use ears to hear sounds. Quiet sounds can be harder to hear. Loud sounds are easier to hear. Step 5 - Humans use their eyes to see. You can see when there is light. You cannot see	Spring 1 Senses, head, neck, arms, elbows, hands, legs, knees, feet, face, ears, eyes, nose, hair, mouth and teeth. Skin, rough, smooth, hard, soft. Ears, hear, loud, quiet and noisy. Eyes, light, dark, blind. Nose, smell, scent, sniff, stench. Taste, sweet, salty, sour, bitter, savoury. Spring 2 Animal, mammal, fur, hair, wild animal, pet, Carnivore, bird, wings, beak, flipper, amphibian, frog, toad, newt, fish, fin, tails, gills and scales, reptiles, lizard, crocodile, turtle, omnivore. Linked Texts

	in Which part of the body do you use to smell? What can you smell in the classroom/around school/ playground? What is your favourite/least favourite smell? What can you smell? What do you think the object is? Is it easier or harder to tell what the object is using only your sense of smell? The dark. The nose is on the face, and it helps us to sense smell. Some objects have a stronger smell than others. Step 6 - The tongue, in the mouth, helps	Spring 1 -Our Village by John Yeoman

	humans to taste. There are 5 basic tastes – sweet, salty, sour, bitter and savoury. Spring 2 • There are many different animals. Mammals have fur or hair on their bodies. Some mammals are pets and some live in the wild. Birds have beaks, wings and feathers. Some cannot fly. Some can swim. Amphibians live on land and in water. They have webbed feet e.g. frogs, toads and newts. Fish live in water and have gills to breathe. Some have scales. Some have fins. Reptiles have dry skin and scales. E.g. lizards, snakes, crocodiles and turtles. * Some animals are carnivores. They eat other animals. Many have sharp teeth and claws. * Herbivores eat plants e.g. grass, fruit, vegetables, seeds and nuts. E.g. sheep, cow and giraffe (link to book). Herbivores have flat teeth to chew plants. *Omnivores eat plants and animals.	Spring 2 - Giraffes Can't Dance by Anna Hibiscus

Prior Learning	Key Questions	Steps of Learning
In Early Years children should: **.Know similarities and differences in living things.**	Step 2 and 3 – What are the different parts of the human body? Where is your …. ? How many eyes do you have? How many ears does your partner have?	Step 1: Winter Season Work for Whole-class book Step 2: KASH – name basic parts of the human body. Games e.g. Simon Says – Assess knowledge of where the parts of the body are when asked. Step 3: Human body. Label and can identify head,

- **Immediate environment and how some vary.**
- **May make observations about animals and plants.**
- **Identify parts of their body.**

Future Learning

In Year 2 children will:

- **Notice that animals, including humans, have offspring which grow into adults.**
- **Know the basic stages in a life cycle for animals, including humans.**
- **Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).**

Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

Do you have more toes or teeth?
How many knees/elbows do you have?
Step 4 - Which part of the body do you touch with? What does the object feel like? Can you tell me what the object is using only your feet/face to touch it? Feel an object with gloves on. Can you name the object? Then without gloves. Can you name the object now? Is it easier or harder to feel an object when you wear gloves? Why?
Step 5-
Which part of the body do you use to hear? What sounds can you hear in the classroom/around school/in the playground? How can you describe each sound? Can you make the sound louder/ quieter? How?
Which part of the body do you see with? How many eyes do you have? What colour are your eyes? How many children have _____ eyes? How are your eyes like/different to your partner? What can you see when you cover one eye/both eyes? Can you see in the dark?
Step 6 - Which part of the body do you use to taste food? What are the 5 basic tastes? Does a _____ have sweet/salty/bitter/sour/savoury taste? Which is your favourite/least favourite taste? Can you sort foods into the 5 basic tastes? Can you name the food using only taste? Is it easier or harder to name a food with eyes closed? Spring 2
What is an animal? How are they different? What is a mammal? How do you know? Can

neck, arms, elbows, hands, legs, knees, feet, face, ears, eyes, nose, hair, mouth and teeth.
Research - what are the 5 senses?
Step 4: Touch and Sound – Touch sensed by skin. Any part of body detects touch by skin contact. Explore touch and textures.
Sound – humans use ears to hear sound. Sound walk. Play instruments. Count claps.
Step 5: Smell and Sight – what can they see with one eye, in the dark etc. What can they hear in different areas?
Step 6: Taste

Spring 2 (After Half-term)
Step 1: KASH – name animals and explain some similarities and differences. Identify basic parts of the human body. Say which body part is associated with each sense. (Recap of all learning in Spring 1). Step 2: Carnivore/Herbivore and Omnivore meaning. Sorting animals into groups.
Step 3: Carnivore/Herbivore and Omnivore. Pattern seeking. How are teeth related to the food that they eat?
Step 4: Fish and Reptiles. Compare the structure and variety.
Step 5: Mammals
Step 6: Amphibians and Birds.
Step 7: Compare and group animals.
White Rose End of Unit Assessment.

	mammals be pets? Do some mammals live in the wild? How do you know?	

What are the features of birds? Do all birds fly? Can birds swim?
What is an amphibian? What features do they have? Where do they live? How are amphibians, birds and mammals different?
What features do fish have? What helps them to swim/breathe? How is a fish similar to a bird? What features do reptiles have? Compare animals groups.
What do animals eat?
What is a carnivore, herbivore & omnivore? Do all carnivores, herbivores & omnivores all live in the wild?
Which pets are carnivores, herbivores or omnivores?

Misconceptions –

Body part names e.g. stomach, may call this tummy, or belly. Give the correct names for areas. Step 4 - May think that the hand is the only part of the body that can sense touch. May have limited vocabulary to describe touch. May need to learn vocabulary before practical task completion. Sound - May have limited vocabulary to describe sound. May think that they can only hear one sound at once. Encourage to identify how many different sounds they can hear at once when conducting sound walks. May not recognise that some people cannot hear or have different levels of what they can hear.
Step 5 - May not have experienced true darkness and think humans can see in the dark. May think that sight is not affected when one eye is

	covered. May not recognise that some people have a visual	

	impairment, and some cannot see at all and are blind. May not recognise that there are a range of different smells e.g. pleasant or unpleasant. May have limited vocabulary to describe smell. Step 6 - May not have had experience of each of the different types of taste. ---------- -- Different animals cannot belong in same group of mammals as so different e.g. mouse and an elephant. May think all mammals can be kept as pets. May think all birds fly. May think fur and feathers are same and they are both soft. Look and feel examples. May think all animals with wings are birds. May think amphibians have scales. Not fish! May think penguins are amphibians as they are on land and in the water. May think fish is anything in water. May not think fish breathe, as they are underwater. May think all reptiles are small, live on land (discuss turtles or crocodiles). May think only mammals can be carnivores. (Sorting carnivores into groups will help with this). May think only large animals can be carnivores. May think big animals e.g. elephants eat other animals. May think eating plants and meat = herbivores. May assume animals of same type	

	e.g. birds all have same diet.	

Year 1 – Animals as Humans

Working Scientifically - disciplinary knowledge (knowledge of how scientific knowledge is generated).

Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	
Spring 1 – Carry out simple comparative tests exploring senses.	**Spring 1** **Identify and name parts of the human body.** **Identify – what are the names of different animals? Classify mammals and non mammals?** **Classify birds, amphibians, fish and reptiles.** **Spring 2 -** **Can we sort our animals into groups e.g. mammals, birds, fish, amphibians, and reptiles, carnivores, herbivores and omnivores?**		Spring 1 – Explore the relationship between senses. For example, can we identify taste without sight?	Spring 1 – Step 3 Research – what are the 5 senses? Spring 2 Step 1 - Do all mammals look the same? (Are all animals the same?)	

Year 2 – Animals, including Humans

Substantive Knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Substantive Knowledge	Vocabulary

*** Notice that animals, including humans, have offspring which grow into adults.** *** Know the basic stages in a life cycle for animals, including humans.** *** Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).** ***Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.**	• All animals (including humans) need air, water, food and shelter to survive. • Exercise improves physical and mental health. Exercise makes your heart stronger. • Healthy diet – fruit and vegetables. • Unhealthy diet – high in fat, sugar or Fried food. Important to eat the right amounts of different food types. • Germs can make you unwell. • Germs are spread easily from unwashed hands. • Wash hands, sneeze into a tissue and have regular baths or showers.	Survival, air, water, food, shelter. Heart, exercise, physical health, mental health. Healthy, unhealthy, diet, meat, vegetables, sugar, fruit. Germs, hygiene, disease, doctor. Linked Texts Katie Morag Stories
Prior Learning	**Key Questions**	**Steps of Learning**
In Year 1 children should: ***Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.** ***Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including**	How are the needs of humans similar or different from those of other animals? Why is exercise good for your body and mind? What happens to your body when you exercise? Can you make a prediction about breathing rates with different exercises? Which exercise raised your breathing rates the most? How many pieces of fruit and vegetables should you eat per day?	Step 1: KASH – name animals and explain similarities and differences. Name groups fish, amphibians, reptiles, birds and mammals. Know basic parts of human body and explain which are associated with different senses. Step 2: What animals need for survival. Step 3: Exercise – Investigation into breathing rate and exercise. Step 4: Balanced diet – identify and learn about

pets).
***Identify, name, draw and label the basic parts of a human body and say which part of the body is associated with each sense.**

Future Learning

In Year 3 children will:

***Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat.**

*** Identify that humans and some other animals have skeletons and muscles for support, protection and movement.**

How can we sort food items?
What could happen if we eat too much fat, sugar or salt?
What is a healthy diet?
What is a germ? Where are germs?
Why should you wash your hands after using the toilet or before eating?
Why should you use a tissue when you sneeze? Who can help us if we become unwell?

Misconceptions –

May think exercise has negative body effects, as you feel breathless and tired.
May think that yoga and swimming are not exercise.
May think your heart is a love heart shape – show a diagram to address this.
May think eating an unhealthy diet has no impact. May think the food they enjoy is good, regardless of fat or sugar content.
May think that drinks have no effect on teeth or the body.
May find germs difficult to understand as they cannot see them.
May think that just using water removed germs.

healthy foods. Name, sort and group foods. Unh
– some foods if consumed a lot e.g. high in fat,
or salt, or with little nutrition.
Step 5: Hygiene for health – how to keep clean
why this is important. Germs – practical task. Ge
can pass easily between people and surfaces if
handwashing is not regular. Some germs cause il
Step 6: White Rose End of Unit Assessment.

Year 2 – Animals as Humans

Working Scientifically - disciplinary knowledge (knowledge of how scientific knowledge is generated).

Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	
	Identify and classify animals needs for survival. Identify and classify foods into healthy or unhealthy. Based upon which should be eaten daily or less often.		Investigation into the effect of exercise upon breathing rates. Patterns – what makes our heart rate faster and slower. Make predictions before trying different exercises.		

Year 2 – Animals, including Humans

Substantive Knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Substantive Knowledge	Vocabulary
*** Notice that animals, including humans, have offspring which grow into adults.** *** Know the basic stages in a life cycle for animals, including humans.** *** Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).** ***Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.**	• All animals (including humans) need air, water, food and shelter to survive. • Exercise improves physical and mental health. Exercise makes your heart stronger. • Healthy diet – fruit and vegetables. • Unhealthy diet – high in fat, sugar or Fried food. Important to eat the right amounts of different food types. • Germs can make you unwell. • Germs are spread easily from unwashed hands. • Wash hands, sneeze into a tissue and have regular baths or showers.	Survival, air, water, food, shelter. Heart, exercise, physical health, mental health. Healthy, unhealthy, diet, meat, vegetables, sugar, fruit. Germs, hygiene, disease, doctor. Linked Texts Katie Morag Stories
Prior Learning	**Key Questions**	**Steps of Learning**

In Year 1 children should: ***Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.** ***Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including**	How are the needs of humans similar or different from those of other animals? Why is exercise good for your body and mind? What happens to your body when you exercise? Can you make a prediction about breathing rates with different exercises? Which exercise raised your breathing rates the most? How many pieces of fruit and vegetables should you eat per day?	Step 1: KASH – name animals and explain similarities and differences. Name groups fish, amphibians, reptiles, birds and mammals. Know basic parts of human body and explain which are associated with different senses. Step 2: What animals need for survival. Step 3: Exercise – Investigation into breathing rate and exercise. Step 4: Balanced diet – identify and learn about

pets).
***Identify, name, draw and label the basic parts of a human body and say which part of the body is associated with each sense.**

Future Learning

In Year 3 children will:

***Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat.**

*** Identify that humans and some other animals have skeletons and muscles for support, protection and movement.**

How can we sort food items?
What could happen if we eat too much fat, sugar or salt?
What is a healthy diet?
What is a germ? Where are germs?
Why should you wash your hands after using the toilet or before eating?
Why should you use a tissue when you sneeze? Who can help us if we become unwell?

Misconceptions –

May think exercise has negative body effects, as you feel breathless and tired.
May think that yoga and swimming are not exercise.
May think your heart is a love heart shape – show a diagram to address this.
May think eating an unhealthy diet has no impact. May think the food they enjoy is good, regardless of fat or sugar content.
May think that drinks have no effect on teeth or the body.
May find germs difficult to understand as they cannot see them.
May think that just using water removed germs.

healthy foods. Name, sort and group foods. Unh
– some foods if consumed a lot e.g. high in fat,
or salt, or with little nutrition.
Step 5: Hygiene for health – how to keep clean
why this is important. Germs – practical task. Ge
can pass easily between people and surfaces if
handwashing is not regular. Some germs cause il
Step 6: White Rose End of Unit Assessment.

Year 2 – Animals as Humans

Working Scientifically - disciplinary knowledge (knowledge of how scientific knowledge is generated).

Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	
	Identify and classify animals needs for survival. Identify and classify foods into healthy or unhealthy. Based upon which should be eaten daily or less often.		Investigation into the effect of exercise upon breathing rates. Patterns – what makes our heart rate faster and slower. Make predictions before trying different exercises.		

Year 3 – Animals, including Humans

Substantive Knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Substantive Knowledge	Vocabulary
*** Identify animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat.** ***Identify that humans and some animals have skeletons and muscles for support, protection and movement.**	.Humans need right types and amounts of food. .Humans get Nutrition from food. There are 5 .groups. .Animals cannot make their own food. Animals get their nutrition from what they eat. Plants e.g. vegetables – provide essential vitamins. Carbohydrate for energy. Protein for growth & repair. Dairy – e.g. calcium for teeth and bones. Fats healthy and unhealthy types. .Humans need a balanced diet for health. E.g. .Eatwell plate. .Human diets – omnivore, vegan, Vegetarian and pescatarian. .Get protein in other ways. .Human skeletons are made up of lots of bones. Adult has 206 bones all with specific functions. .Skull – protects brain. .Femur – helps humans stand and move. .Pelvis – supports spine.	Carbohydrate, protein, dairy, fat, sugar, fruit and vegetables, balanced, nutrients, bones, skull, ribcage, femur, spine, pelvis, mammal, bird, fish, amphibian and reptile. Exoskeleton. vitamins, minerals, water, fibre, skeleton, bones, joints, endoskeleton, exoskeleton, vertebrates, invertebrates, muscles, contract, relax. Linked Texts The fastest boy in the world by Elizabeth Laird First Encyclopedia of the Human Body - Usborne

	• Spine – helps humans twist and be held upright. • Ribcage protects the heart and lungs. • Skeletons – birds, mammals, fish, amphibians And reptiles. Similarities and differences. Some animals have an exoskeleton to provide support and protection. • Joints are where 2 or more bones meet. • Different joints. Knees and elbows are hinge joints. Shoulders and hips are ball and socket.	
Prior Learning	**Key Questions**	**Steps of Learning**
In Year 2 children should: • **Notice that animals, including humans, have offspring which grow into adults.** • **Know the basic stages in a life cycle for animals, including humans.** • **Find and describe basic needs of animals and humans e.g. water, food, air.** • **Describe the importance for humans of exercise.** **Future Learning** In Year 4 children will: • **Describe the simple functions of the basic parts of the**	What are the 5 food groups? Which foods contain carbohydrates, protein etc? Which foods should we eat regularly / sometimes/ occasionally? How can we sort these? How are the 5 food groups used in the body? What happens if you do not eat enough fruit and vegetables? What could happen if you eat too much fat or sugar? What is a balanced diet? What is vegetarian, vegan, pescatarian? How many bones are there in the human skeleton? Where is the skull, femur, pelvis and ribcage? Where is the spine? What are the functions of the skeleton? What are the functions of the skull, femur, pelvis, spine and ribcage? Similarities and differences. Are all skeletons the same? Similarities and differences. Do they all have a spine/femur/pelvis /ribcage? What is an exoskeleton? What is its function?	Step 1: KASH – name basic needs of animals and humans e.g. water, food and air. Importance of exercise? Food can be sorted into 5 groups – Fruit and vegetables, carbohydrates (starch and sugars), protein, dairy (and alternatives) and fats. Step 2: Functions of the 5 food groups. Fats – healthy (unsaturated) or unhealthy (saturated) and have different body impacts. Variety of different foods are needed for a balanced diet e.g. eatwell. Research. Step 3: Different diets and Compare

digestive system in humans. • **Identify the different**	What is a joint? Why do we have them? Where are your knee, hip, shoulder and elbow joints?	diets. Vegetarian – no meat. Vegan – do not eat any animal products. Pescatarian – fish but not meat products.

types of teeth in humans and their simple functions. **Construct and interpret a variety of food chains, identifying producers, predators and prey.**	What movement does a ball and socket/hinge joint allow? Are humans the only animals with joints? What would happen to a skeleton without joints? **Misconceptions –** May think all food has same nutritional benefits for a body. May think drinks have no impact on health / balanced diets. May sort with personal preferences. May think protein is only meat. May think all 5 groups should be equally eaten. May incorrectly classify e.g. potatoes into vegetables and not into carbohydrates. May think all humans have same dietary requirements. May think vegans, vegetarian and pescatarian have no similarities to an omnivore diet. May not have all the protein they need. May think the skeleton is one large bone. May not know that they have names, but just call them a leg bone. May think limbs are just one long bone. May think skeleton bones do not have a function. May think all bones protect organs like the skull and ribcage. So think all have same functions. May not think humans are mammals and so think their skeleton might be different to other mammals. May think all animals have a skull, spine, femur, pelvis and ribcage so show examples to challenge this. May think that if an animal does not have a spine, then it cannot move. May think animals without a spine have no skeleton. May think all animals without a spine have an exoskeleton. Address this by showing e.g. a slug. May think all joints allow movement in the same way.	All find alternatives for animal products and dairy. Humans have different diet choices and is possible without animals. Recap omnivore, carnivore and herbivores in animals. Step 4: Identify 5 bones (skull, femur, pelvis, spine and ribcage) and functions. Skeleton is for movement, support and protection. Functions of the 5 bones above. Step 5: Skeleton in different animals. With and without spines. Skeletons of mammals, birds, fish, amphibians and reptiles. Look at similarities and differences. Exoskeleton – skeleton on outside. Use terms with and without spine not vertebrate and invertebrates until Year 4. Explore insects, spiders, slugs. Step 6: Joints and how we move. Identify 2 joint types – hinge and ball and socket joints. E.g. hips, elbows, knees and shoulder. Hip joint connects pelvis and femur. Joints allow humans to move. White Rose End of Unit Assessment.

Year 3 Animals including Humans

Working Scientifically - disciplinary knowledge (knowledge of how scientific knowledge is generated).

Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	
	Step 1 – **Identify and classify 5 food groups.** **Step 2 – Identify a balanced diet. Step 5 – Identify and classify skeletons.**			**Step 2: Research the functions of the 5 food groups.**	

Year 4 – Animals, including Humans

Substantive Knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Substantive Knowledge	Vocabulary
*** Describe simple functions of the basic parts of the digestive system in humans.** ***Identify different types of teeth in humans and**	Step 4: Carnivores have long, sharp teeth to help them with ripping and tearing through meat. Herbivores have large, flat teeth to grind and chew through grasses and plants.	Step 4: Teeth, Carnivore, Herbivore, Omnivore. Step 5: Teeth, Incisors, Linked Texts

their simple functions. ***Construct and interpret a variety of food chains, identifying producers, predators and prey.**	Omnivores have a combination of sharp and flat teeth, allowing them to tear through meat and grind plants.	**Defenders Pitch Invasion by Tom Palmer**
Prior Learning	**Key Questions**	**Steps of Learning**
In Year 3 children should – ***Identify animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat.** ***Identify that humans and some other animals have skeletons and muscles for support, protection, and movement.** **Future Learning**	Step 4: Which types of animal hunt and eat other animals? What does a carnivore eat? How are carnivores' teeth suited to their diet? What does an herbivore eat? How are herbivores' teeth suited to their diet? What does an omnivore eat? How are omnivores' teeth suited to their diet? Why do animals have different types of teeth? Step 5: Which type of tooth is used for biting into food? Which type of tooth helps with ripping and tearing? Which type of tooth guides food towards the molars at the back of the mouth? Which is the largest type of tooth? Which type of tooth is sharp and pointed?	Step 1: KASH – Year 2 recap name basic needs of animals and humans e.g. water, food and air. Importance of exercise? Year 3 - Food can be sorted into 5 groups – Fruit and vegetables, carbohydrates (starch and sugars), protein, dairy (and alternatives) and fats. Step 2: What is digestion? What are the parts of the digestive system? What happens in each part for digestion to occur? Step 3: Digestion Model.

In Year 5 children will: • **Describe the changes as humans develop to old age.** **Year 5 Living things & their habitats. • Describe differences in the life cycles of a mammal, an amphibian, an insect and a bird.** • **Describe the life process of reproduction in some plants and animals.**	Why do humans have different types of teeth? What would happen if humans only had molars? **Misconceptions –** Step 4: May think that all animals have similar teeth. Present images, videos and models of familiar animals, including carnivores, herbivores and omnivores, to demonstrate differences. Step 5: May have lost teeth and have gaps in their gums where their adult teeth are growing through. Ensure children are aware that most mammals have 2 teeth sets in their lifetime. • May use different words to describe their first teeth e.g. milk teeth, baby teeth or first teeth.	Step 4: Teeth – Herbivore, Carnivore and Omnivore. Recap terms from Year 1. Group animals based on what they eat. Explore how what they eat has an impact upon teeth structure. Step 5: Human Teeth and Tooth Decay Experiment. Why do humans have different types of teeth? Learn the 4 types of teeth. Year 2 learnt that teeth were to bite and chew. Digestion begins in the mouth. Step 6: Layers of Teeth Step 7: White Rose End of Unit Assessment.

Year 4, Animals including Humans

Working Scientifically - disciplinary knowledge (knowledge of how scientific knowledge is generated).

Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	

	Step 1 – **Identify and classify 5 food groups.** **Step 2 – Identify a balanced diet. Step 5 – Identify and classify skeletons.**			**Step 2: Research the functions of the 5 food groups.**	

Year 5 – Animals, including Humans

Substantive Knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Substantive Knowledge	Vocabulary
*** Describe the changes as humans develop to old age.** **Year 5 Living things and their habitats.** ***Describe the differences in**	.Human life cycle has 6 stages 1) Foetus 2) Baby 3) Child 4) Adolescent 5) Adult 6) Elderly adult All humans go through these in same order. All start as foetus in womb. After puberty, Humans can reproduce. Babies are	Adolescent, baby, toddler, foetus, adult, elderly adult, life cycle, milestone, puberty, reproduce, offspring, period, gestation, mammal, gestation, lifespan, correlation, anomaly, Linked Texts

the life cycles of a mammal, an amphibian, an insect and a bird. *Describe the life process of reproduction in some plants and animals.	dependent. Throughout childhood, children grow and Develop at a rapid rate (mass, height and brain Development). .Puberty prepares humans for reproduction. . Hormones are chemicals released in puberty Which cause physical and chemical changes. . Females – start periods, underarm and pubic Hair, emotional changes, spots, growth of breasts. Males – body hair, growth of penis and Testicles, spots, emotional changes, voice deepens. .Humans are mammals as they are warm blooded, give birth to live young and feed	Room 13

	offspring with milk. Gestation is time foetus is in womb. Mammals have different gestation periods. Human gestation period is about 9 months. •Lifespan and life expectancy. Lifespan is how Long animal is alive. Usually longer for larger Animals.	
Prior Learning	**Key Questions**	**Steps of Learning**
In Year 4 children should – ***Describe the simple functions of the basic parts of the digestive system in humans.** ***Identify the different types of teeth in humans and their simple functions.** ***Construct and interpret a variety of food chains, identifying producers, predators and prey.** **Future Learning**	What are the 6 stages of the human life cycle? What age roughly are we in each stage? When do we grow the most? What are the differences in stages? During which stages might a human have a baby? Why does a baby depend upon an adult? How does length and mass change as age increases? What is puberty and on average when does it start? What are the key changes? Why is puberty important? What are hormones? What is a mammal? What are offspring? How long are different gestation periods? Can you identify a pattern when comparing gestation periods? **Misconceptions –** May think a foetus grows in a stomach instead of a womb. May think baby and foetus mean the same. May think all babies hit milestones at exactly the same time. May think all babies are the same length and mass when born. May think puberty begins at same age for all. Girls often are earlier than boys.	Step 1: KASH – recap Year 2 human life cycle. Describe stages of human growth and development. 6 stages of human life cycle and look at key features of 1) Foetus 2) Baby, 3) Child 4) Adolescent 5)Adult 6) Elderly adult. Timeline stages of human growth and development. Babies and children grow rapidly (mass and height). Peak as an adult. Planning matrix – what questions could they investigate linked to growth? Step 2: Babies growth and development. Babies are completely dependent on an adult. Cry to communicate – hunger,

Year 6 learning -	May think changes are quick. It is a gradual process over several years.	uncomfortable, too hot/cold. As grow into a child –

***Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.** ***Recognise impact of diet, exercise, drugs and lifestyle their bodies function.** ***Describe ways in which nutrients and water are transported within animals, including humans.** **Year 6 Living Things and their Habitats** ***Describe how living things are classified into broad groups according to common observable characteristics and based upon similarities and differences, including micro organisms, plants and animals.** *** Give reasons for classifying plants and animals based on specific characteristics.**	May think all mammals have same gestation period. (Usually larger the mammal the longer the gestation period. There are exceptions e.g. blue whale is 12 months and African elephant is 22 months). May think there is no correlation between length of gestation and lifespan.	learns to walk, run, jump and eat independently. Most communicate by talking and learn to read and write. Record data in tables and graphs – how a baby grows (length and mass). In first year of life length and mass increase drastically. Read and interpret data. Plot line graphs to show how length changes in first few months. Step 3: Identify changes in adolescence, puberty, adults and the elderly. Puberty is the change child to adult (8-16). Why do physical changes occur as we get older? Hormones – chemicals released by body to cause physical and emotional changes. Step 4: Gestation periods. Humans are mammals – hair/fur, warm blooded, give birth to live young, milk for offspring. Gestation period – time a foetus is in womb. Compare – humans, elephants, cats, dogs, blue whale and wild rabbits. Report findings from enquiry about different gestation periods. Identify patterns e.g. larger the mammal, the longer the gestation period. Step 5: Lifespans – record data using graphs and models. Lifespan -

		18 an adult. Rapid growth slows. Life

		expectancy varies for humans with health, sex and where you live. Reinforce previous learning about health and looking after ourselves. Investigate relationship between gestation periods and lifespan. E.g. African elephant, blue whale, cat, dog, wild rabbits, horse and sheep. (Longer the gestation, the longer the lifespan, except humans). Step 6: Research and present. How has the life expectancy of humans changed over time? White Rose Assessment

Year 5, Animals including Humans

Working Scientifically - disciplinary knowledge (knowledge of how scientific knowledge is generated).

Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	

	Identify all the stages in the human life cycle. **Identify changes during puberty.** **Group changes that occur in late adulthood into 'physical changes' and 'other changes.'**	**Learn about and observe changes during the stages of human growth and development.** **Identify how animals change as they go through**	Use data and information to find patterns in length and mass changes as a baby grows. Plot line graphs to look for a pattern. Pattern Seeking in gestation periods. (The larger the mammal the longer the gestation period).	**How has life expectancy changed over time?** **Use Animal Gestation Periods Tables to research**	Step 1 – Planning question matrix for investigations within this topic
		puberty.		**gestation periods of mammals.**	

Year 6 – Animals, including Humans

Substantive Knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Substantive Knowledge	Vocabulary

* Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. *Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. * Describe the ways in which nutrients and water are transported within animals, including humans. **Year 6 Living Things and their Habitats** ***Describe how living things are classified into broad groups according to common observable characteristics and based upon similarities and differences, including micro-organisms, plants and animals.** ***Give reasons for classifying plants and animals based on specific characteristics.**	.Circulatory system moves blood around the body. Made of heart, blood vessels and blood. Veins – blood back to heart. Arteries – away From the heart. Capillaries small blood vessels Linking arteries and veins. .Blood transports nutrients and oxygen. .Removes waste e.g. carbon dioxide. .Oxygen carried by red blood cells. Blood with Oxygen is oxygenated. Blood without is deoxygenated. Oxygen is gained from lungs. .Heart is a muscle which beats, pumping blood. .Has 4 chambers. 2 atria and 2 ventricles. . Veins have valves to stop blood flowing Backwards. Then into right atrium, right Ventricle, to lungs. Blood from lungs into left Atrium ⬜⬜ left ventricle then to rest of body. .Left ventricle is thicker than right as blood Pumped all round body, needs more force than Other side just pumping to lungs.	Circulatory system, heart, blood vessels, arteries, vein, capillary, red blood cells, blood, lungs, nutrients, plasma, oxygen, oxygenated, deoxygenated, heart, atrium, ventricles, drug, painkiller, stimulant, depressant, cigarette, vape, tar, nicotine, carbon monoxide, calories, saturated, unsaturated and trans fats. Linked Texts Diver's Daughter by Patrice Lawrence **Steps of Learning** Step 1: KASH – Year 4 – Digestion. Year 3 – Food groups. Learning a different system. Circulatory system with a different function.

	• Drugs are chemicals to change you body or brain's function. Painkillers dull pain. Stimulants make you more awake and alert. Depressants make you feel calm or drowsy. Some are legal and some illegal. • Cigarettes contain tar, nicotine and other harmful substances. Tar is sticky and can cause cancers. Nicotine is addictive. Carbon monoxide is a poisonous gas which stops the blood from carrying as much oxygen. Smoking damages the body and causes breathing problems. Also increases risk of heart and lung disease. • Balanced diet – right amounts of carbohydrate, Fat, protein, vitamins, minerals, fibre and Water. Fats – can be unsaturated, saturated And trans fats. Unsaturated give energy And absorb some vitamins. Saturated and Trans fats cause people to gain weight and Increases heart disease.	Components – heart, blood vessels and blood. Work together to circulate blood. 3 types of blood vessel (arteries, veins and capillaries). Arteries – away, blood taken away from heart. Veins – VeIN, blood back into the heart. Capillaries -link veins and arteries. Step 2: Blood – Red blood cells – function to carry oxygen from lungs to whole body. Plasma – carries nutrients and water around the body. Blood with oxygen is called oxygenated. Little oxygen in blood is called deoxygenated. Picks up oxygen in lungs. Step 3: Heart – a muscle, a pump. Pumps blood through blood vessels. Has 4 chambers. 2 halves right and left. 2 chambers atrium and ventricles. Blood flows in one direction around the body and through heart. Valves in veins stop blood flowing backwards. Pathway of blood through heart as a double pump. Step 4: Heart rate experiment

		and exercise. Plan fair test to explore how Exercise duration affects heart rate. Independent, dependent and

Prior Learning	Key Questions	
In Year 3 children should – ***Identify animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat.** *** Identify that humans and some other animals have skeletons and muscles for support, protection, and movement.** **Future Learning** In KS 3 children will learn about: *hierarchical organisation of multicellular organisms: from cells to tissues to organs to systems to organisms. *tissues and organs of the human digestive system, including adaptations to function and how the digestive system digests food (enzymes simply as biological catalysts) *calculations of energy requirements in a healthy daily diet *consequences of imbalances in the diet, including obesity,	What is the function of the circulatory system? What are the 3 main parts? What are the 3 main blood vessels called? What is their function? What is the function of the blood? Where do we get oxygen and nutrients from? Why are they needed? What is the role of the heart in the circulatory system? What are the parts of the heart? Why does the heart pump blood? How do veins make sure blood only moves in one direction? Why is it important that blood flows in one direction? What is exercise? What are the positive impacts of exercise on the body? How will you measure heart rate? What are the independent, dependent and controlled variables? How will you record results? What is a drug? What are some examples? What are their effects on the body e.g. painkillers, stimulants? What is addiction? Why are some legal and some illegal? What do cigarettes contain? What is vaping? What are the effects of tar, nicotine and carbon monoxide? How does smoking affect the heart? Why is smoking/vaping bad for you? How is it possible to be addicted to smoking or vaping? What is a balanced diet? What are saturated/ unsaturated/ trans fats? What are the positives of eating unsaturated fats? • How does eating too much saturated/trans fat negatively affect the body? What are vitamins and minerals? How do humans get vitamins and minerals in their diets? What are the benefits of eating foods high in vitamins and minerals? **Misconceptions –**	controlled variables. Carry out the experiment. Step 5: Drugs e.g. painkillers, depressants, stimulants, smoking and vaping. What is in a cigarette and effects on body? Impacts upon heart. Contains tar, nicotine and carbon monoxide. Difference between legal and illegal drugs. Research drugs and effects. Step 6: Diet - In Yr 3, children explored balanced diets and learnt about the 5 food groups. In Yr 6, children should explore the impact of diet on overall heart health. Fats can be saturated, unsaturated and trans fats. The body needs vitamins (A, C and D) and minerals (iron and calcium). Impact of too many or too little calories on the body and how this also affects general and heart health. White Rose End of Unit Assessment.

starvation and deficiency diseases. *structure and functions of the gas exchange system in humans, including substance misuse) on behaviour, health and life processes.	May think the circulatory system is 1 thing, not parts working together. May think blood has only 1 function.	

	May think blood is only made of red cells as it is red. May think the heart gives blood oxygen. May think deoxygenated blood is blue. May not realise the heart is a muscle. May think the heart is solid or empty and not 4 chambers. May think blood flows top of heart to bottom due to gravity. May think only sports e.g. football, basketball is exercise. Remind them there are many types. May think painkillers cure a person of illness. Painkillers only reduce pain. May believe drugs decrease stress and problems. May think all drugs are bad – clarify some help and reduce symptoms and pain. May think you have to smoke a long time for adverse effects. May believe if you are pregnant and smoke, the mother protects the baby.	

Year 6 – Animals including Humans

Working Scientifically - disciplinary knowledge (knowledge of how scientific knowledge is generated).

Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	

	Which organs of the body make up the circulation system, and where are they found? Identify the function of different blood vessels.	How does my heart rate change during a day?	How does duration of exercise affect heart rate?	Research different drugs and their effects upon the body. Research balanced and healthy diets	

				e.g. calories, minerals, vitamins, different types of fats.	

Year 6 – Evolution and Inheritance

Substantive Knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Sticky Knowledge	Vocabulary

.Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. **.Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.** **.Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.**	Living things change over time, this is Evolution. Offspring vary to increase the chances of survival e.g. those most suited will survive. Fossils give information about living things that inhabited the Earth millions of years ago. Over time the characteristics that are most suited to the environment become increasingly common. *NB: This could be duplicated in Yr 6 Living things and their habitats.* Organisms best suited to their environment are more likely to survive long enough to reproduce. Organisms that are best adapted to reproduce are more likely to. Variation exists within a population (and between offspring of some animals and plants). Adaptation may lead to evolution.	Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics, Variation, Inherited, Environmental, Mutation, Competition, Survival of the Fittest, Evidence, Darwin. Linked Texts On the Origin of Species by Sabina Radeva. Moth, by Isabel Thomas Steps of Learning Step 1 – KASH. Introduction - What is DNA? Inheritance? How are characteristics passed from parent to offspring? Step 2 – Adaptation. How are animals adapted to different climates? Compare Arctic and Desert fox. Step 3 – Natural Selection – how are those
Prior Learning	Key Question(s):	

From Key Stages 1 and Year 3, 4 and 5, children should: **Understand there is a variety of life on Earth** **Know that animals and plants have differences and these are important to their survival.** **Know how animals and plants reproduce. Know how fossils form over time. (Year 3)** **Future Learning -** In Key Stage 3 children will learn about: heredity as the process by which genetic information is transmitted from one generation to the next the variation between individuals within a species being continuous or discontinuous, to include measurement and graphical representation of variation the variation between species and between individuals of the same species means some organisms compete more successfully, which can drive natural selection changes in the environment may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction the importance of maintaining biodiversity and the use of gene banks to preserve	What is adaptation? What is evolution? What evidence is there for evolution? How does the Peppered Moth demonstrate adaptation and change? What can we learn from fossils? How does evolution happen? Who was Charles Darwin? How have scientific ideas developed surrounding the Theory of Evolution? How does adaptation lead to evolution? How has the human skeleton changed over time?	most adapted more likely to survive? Peppered Moth (camouflage). Step 4 – Natural Selection – evolution over time. Bird Beak investigation. Step 5 – Selective Breeding. Apply knowledge of inheritance and selection to create an animal. Step 6 – Fossils provide information about living things that have inhabited the Earth millions of years ago. What and how are they created? What do fossils tell us about evolution?

hereditary material.		

Year 6 – Evolution and Inheritance

Working Scientifically – disciplinary knowledge

(knowledge of how scientific knowledge is generated).

	tests Identify & Classify	Observation over time	Pattern Seeking	Research	Assessment Opportunity
	Classify inherited and environmental characteristics.	How have fossils in different periods of time changed? (Using tapestry in Cliffe Castle). How have Scientific ideas developed surrounding the Theory of Evolution? How has the skeleton of humans changed over time?	Is there a pattern between the size and shape of a bird's beak and the food it will eat?	From the fossils can we find out which type of creature they came from? Where did Charles Darwin visit that enabled his ideas to develop?	What is evolution, how does it happen and how do scientists know?

Year 2 – Living Things and Their Habitats

Substantive Knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Sticky Knowledge	Vocabulary

Explore and compare the differences between things that are living, dead and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including micro habitats. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name the different sources of food. Link to Year 2 Animals Including	Recap - Animals including Humans – offspring grow into adults. Some things are living, some were once living but now dead and some things never lived. Different animals and plants live in different places. These are their habitats. Different habitats provide for different animals and plants. Animals and plants depend on each other (basic food chain). Name specific plants and animals in habitats. Simple food chain e.g. grass ⬥⬥ rabbit ⬥⬥ fox.	Living, dead, never alive, habitats, micro habitats, suited, dry, dusty, damp, muddy, shade, dark, food chain, food, leaf litter, seashore, woodland, ocean, desert. Linked Texts Animal Architects

Humans Notice that animals, including humans, have offspring which grow into adults.		
Prior Learning	Key Question(s)	
In Early Years (ELG) children should: Know about 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 some changes. Future Learning Year 3 – Plants	Is it dead, alive, or has it never been alive? Which animals and plants live in our school environment? Where does the animal/plant live? What is it like in this habitat? Are all habitats the same? What are different examples of habitats and microhabitats? Why do some animals/plants live in this habitat? How do animals get their food? Which animals hunt? Which are hunted/prey? How do habitats change over	

Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	our school year?	

In Year 4 children will: Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose danger to living things. Year 4 – Animals Including Humans Construct and interpret a variety of food chains, identifying producers, predators and prey.		

Year 2 – Living Things and their Habitats

Working Scientifically – disciplinary knowledge

(knowledge of how scientific knowledge is generated).

	tests Identify & Classify	Observation over time	Pattern Seeking	Research	BIG Question – Assessment Opportunity
	Classify – Living, non-living, Never lived. How would you group these plants and animals based upon their habitat?	How does the school field habitat change over the year?	Which living things can be found in our school environment – is there a pattern?	Which animals live in the ocean, seashore, desert, school grounds, leaf litter?	Why do different animals live in different places?

Year 4 – Living Things and Their Habitats

Substantive Knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Substantive Knowledge	Vocabulary
In Year 4 children will: Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things. Link to Year 4, Animals, including humans Construct and interpret a variety of food chains, identifying producers, predators and prey.	Step 2: Animals with a spine are called vertebrates. All mammals, birds, fish, amphibians and reptiles are vertebrates. Vertebrates are animals with a spine. Each vertebrate group has different physical features. Step 3: Animals without a spine are called invertebrates e.g. insects and spiders. Slugs and snails are soft bodied invertebrates. Step 5: Classification keys can be used to classify animals. Closed questions are used in classification keys. Living things can be classified into groups based upon their characteristics. Differences in characteristics between animal groups e.g. Mammals have hair/fur, live young, feed young	Step 3: Vertebrate, fish, amphibians, reptiles, mammals, bird, Environment, flowering, nonflowering, plants, animals, invertebrate, human impact, nature reserves, deforestation. Step 4: Invertebrate, exoskeleton, insect, spider, soft-bodied invertebrate - Linked Texts The Great Kapok Tree by Lynne Cherry *There's a Rang-Tan in my Bedroom.*

	with milk. Environmental change affects different habitats differently. Different organisms are affected differently by environmental change. Human activity significantly affects the environment.	
Prior Learning	**Key Question(s):**	**Small Steps (White Rose)**

In Year 2, children should: Explore and compare the differences between things that are living, dead and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including micro habitats. Describe how animals obtain their food from plants and other	Step 2: Is a _____ a mammal? How do you know? What features do mammals/ birds/ fish/reptiles/amphibians have? Is a whale a fish? Why/why not? How are amphibians and reptiles similar/different? What group does a _____ belong to? Why is it difficult to group this animal? Step 3: What is a classification key? Why would scientists use a classification key? Step 4: What is an invertebrate? What is an exoskeleton? What features do insects/ spiders have? How can invertebrates be grouped? How many ways can you find to group	Step 1: KASH and classification ideas. Revisit Year 2 - Animals, what they need, where they live. Animals in our locality. Recap plants and how they grow and survive. MRS GREN – what living things need. Animal groups. Step 2: Vertebrate group classification. Introduce 'vertebrate' to describe an animal with a spine. Include animals found in the rainforest to link with Topic discussion e.g. Orangutans. Step 3: Keys - questions to help people classify living things. Use simple keys to sort animals. Create closed questions that can be answered with 'yes,' or 'no'. E.g. Does it have fur? Step 4: Invertebrate group classification. Invertebrates- an animal without a spine.

animals, using the idea of a simple food chain, and identify and name the different sources of food. Link to Year 2 Animals Including Humans Notice - Animals, including humans, have offspring which grow into adults. Future Learning In Year 5: Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals.	these invertebrates? Step 5: How is deforestation affecting the rainforest?	Identify and name familiar animals from insect, spider and soft-bodied invertebrate groups. Group animals based on easily identifiable features. Include spiders and insects from the rainforest to link to Topic. Step 5: Recognise environments can change. This poses dangers to living things. Step 6: Assessment
	Misconceptions	

	Step 2: *May use questions based on opinion rather than factual knowledge. *May create questions that are too broad and therefore do not help to classify. Model writing a broad question and a specific question. Allow discussion	

	about which example is more useful and why. Step 3: Children may incorrectly group animals. For example, they may classify a whale as a fish because it lives in water. Step 4: May incorrectly group worms and spiders as insects. Classified in a different category of invertebrate. May think that all invertebrates have an exoskeleton. May think that all invertebrates move in the same way.	

Year 4 – Living Things and Their Habitats

Working Scientifically – disciplinary knowledge

(knowledge of how scientific knowledge is generated).

	tests Identify & Classify	Observation over time	Pattern Seeking	Research	Assessment
	Grouping and sorting living things by observable characteristics. Create classification keys			Why are people cutting down the rainforests and what effect does this have e.g. upon animals and plants? (Possible – Animals in our Local Area)	
	to identify animals? Identify and classify vertebrate animals. Identify and classify invertebrate animals.				

Year 5 – Living Things and Their Habitats

Substantive Knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Substantive Knowledge	Vocabulary
Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals.	Some organisms reproduce sexually where offspring inherit information from both parents. Some organisms reproduce asexually by making a copy of a single parent. Environmental change can affect how well an organism is suited to its environment. Different types of organisms have different lifecycles. Lifecycle of a Mammal, Amphibian (frog), Insect and a bird.	Reproduction, Sexual, Asexual, Pollination, Dispersal, reproduction, cell, fertilisation, pollination, male, female, young, mammal, metamorphosis, incomplete metamorphosis, amphibian, insect, egg, embryo, bird, plant. ~~Linked Texts~~ Outlaw by Michael Morpurgo
Prior Learning	Key Question(s):	Future Learning

In Year 4 children will: Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things.	What is a life cycle? What types of life cycles are there? Are all life cycles the same? What is the lifecycle of a mammal? What is the lifecycle of an amphibian? What is the lifecycle of an insect? What is difference between complete and incomplete metamorphosis? What is the lifecycle of a bird? Do plants reproduce in the same ways as	

Link to Year 4, Animals, including humans Construct and interpret a variety of food chains, identifying producers, predators and prey. Future Learning in Year 6: Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. Give reasons for classifying plants and animals based on specific	humans?	

characteristics.

Year 5 - Living Things and Their Habitats

Working Scientifically - disciplinary knowledge

(knowledge of how scientific knowledge is generated).

Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	BIG Question – Assessment Opportunity
Compare growing cuttings from different plants and different growing mediums. Compare animals based upon similarities and differences in their lifecycles. How does a bean change as it germinates? Can I re-grow vegetables from their 'tops' e.g. carrot, celery, lettuce, or bottom of spring onion? Is there are relationship between number of petals and number of stamens? Do larger animals always have longer gestation periods? What are the differences between the life cycle of an insect and a mammal? Do all animals either give birth to live young or lay eggs? ~~Are all animals pregnant~~ for the same amount of time? What can you find out about gestation periods? Why do some animals lay more eggs than they need? Can any male animals have babies? Do all plants and animals reproduce in the same way?					

Year 6 – Living Things and Their Habitats

Substantive Knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Science Knowledge	Vocabulary
Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. Give reasons for	Living things reproduce, move, grow and excrete. Plants move to light. Microorganisms, such as bacteria, viruses and fungi, can be classified. The classification of microorganisms is based on their features, such as shape. Bacteria, viruses and fungi have different shapes. 5 groups of vertebrates – birds,	Organisms, excretion, reproduction, living, non-living, vertebrate, invertebrate, flowering, non-flowering, population, Classification, characteristics, flowering, non flowering, plants, animals, vertebrates, fish, amphibians, reptiles, mammals, invertebrate, classify, compare, microorganism, organism, invertebrates, vertebrates, Linnaean, mould.
		Linked Texts

classifying plants and animals based on specific characteristics.	reptiles, amphibians, mammals and fish. Plants are grouped into flowering or non flowering. Variation exists within a population (and between offspring) – *NB: Key Idea duplicated in Yr 6 Evolution & Inheritance.* *We have systems to classify (Linnaean system)* Linnaeus did not have all the information then that we have now and so his system was not accurate. For example, he was not aware of the existence of microorganisms, and he did not classify reptiles as a separate vertebrate group.	On the Origin of Species by Sabina Radeva. Moth, by Isabel Thomas

	Carl Linnaeus was a Swedish botanist who wrote a book called Systema Naturae or System of Nature. Linnaeus was famous for developing the first system to classify animals and plants. The classification was based on a hierarchical system. Linnaeus initially divided the Kingdom Animalia into six classes. These were mammals, birds, amphibians, fish, insects and worms.	

Prior Learning	Key Question(s):	Small Steps of Learning
In Year 5, children should: Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals. Future Learning – Key Stage 3 Children will learn about: the dependence of almost all life on Earth on the ability of photosynthetic organisms, such as plants and algae, to use sunlight in photosynthesis to build organic molecules that are an essential energy store and to maintain levels of oxygen and carbon dioxide in the atmosphere the adaptations of leaves for photosynthesis. the interdependence of organisms in an ecosystem, including food webs and	Step 1 – KASH. What is an organism? What do animals/plants need to survive? How do plants/animals get food? How do you know if something is living/non-living? Step 2 – What are micro-organisms? How can they be classified? Step 3 - What are vertebrates/invertebrates? What are the features of these groups? How can we group? Why do we need to classify living things? How do we classify? Which characteristics are we using to decide into which group the animal is placed? How have ideas of classification changed over time? What are the difficulties with classification? (platypus) Step 4 – Which characteristics are we using to decide which group the plant is placed? How can they be classified?	Step 1 – KASH. Difference between Living, non-living and never lived. Living things. Animals need – food, water, shelter, oxygen and space. Plant needs are similar, but plants make their own food, water through roots and sunlight. Carbon dioxide not oxygen. Living things – move, breathe, growth, reproduce, excrete and eat (nutrition). (Research skill - Research the discovery of penicillin and or yeast and bread). Step 2 – Micro-organisms. How does changing the location of bread impact upon how much mould grows? Observe over time. Lesson early in topic to allow for observation. (Research skill. Homework – Research the platypus and its characteristics). Step 3 – Grouping organisms – how would they classify cat, crocodile, frog, falcon, ibis bird, cobra, horse, Nile perch, Tigerfish (chosen for Science classification and link to Ancient Egyptians). Then discuss the vertebrate 5 group classification system. Difficulties with classification e.g. platypus. Do all

insect pollinated crops the importance of plant reproduction through insect pollination in human food security how organisms affect, and are affected by, their environment, including the accumulation of toxic materials.	Step 6 - Who was Carl Linnaeus? Why did Linnaeus create a classification system? How did Carl Linnaeus classify animals? How did Carl Linnaeus classify plants? What challenges did Linnaeus face? Why do you think Linnaeus did not classify microorganisms? How have advances in science allowed us to identify, group and classify microorganisms?	animals that fit the same group have the same characteristics? (Pattern seeking). Step 4- Grouping organisms. Plants – Flowering and Non-Flowering. Step 5 - Grouping invertebrates. Step 6 – Carl Linnaeus (Research skills – What is the Linnaean System of classification?) Explore the impact Linnaeus's work has on how organisms are classified today. Step 7 – Classify animals/plants using the Linnaeus classification system. E.g. Tardigrade – how would you classify it? https://explorify.uk/en/activities/zoom-in-zoom out/nozzle Step 8 – Assessment

Misconceptions

May think animals move, but plants don't. They move towards sunlight.
Difficulties with understanding what is living and how we know.
May think all animals in the sea are fish. Whales are mammals and they are in the sea.
May think all plants are flowering. Discuss non-flowering plants.
Difficulties with classification e.g. may think mushrooms are plants etc.
May think micro-organisms can't be classified. Also, may think that all micro-organisms are harmful. That all micro organisms can be seen with the human eye.
May think that Linnaeus created the classification system that we have today.
May think that Linnaeus only classified animals. He created a classification system for plants also. Linnaeus did not classify reptiles as a separate vertebrate group

Year 6 – Living Things and Their Habitats

Working Scientifically – disciplinary knowledge

(knowledge of how scientific knowledge is generated).

	tests Identify & Classify	Observation over time	Pattern Seeking	Research	Assessment
How does changing the location of bread impact how much mould be found on bread?	How would you classify creatures e.g. platypus? Why? Which key features would you use to help you? Identify features/characteristics that fit the animal or plant into each group. Classify animals/plants using the	Observe bread mould growth over a period of time.	Do all animals that fit the same group have the same characteristics?	Who is Linnaeus? What is the Linnaean System of classification? Research the Platypus and its characteristics. Research the discovery of penicillin and/ or The Ancient Egyptians discovered that yeast could make bread rise. But how does this happen?	White Rose End of Topic Assessment

	Linnaeus classification system.				

Year 4 – Electricity

Substantive Knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Sticky Knowledge	Vocabulary

Year 4 Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.	A source of electricity (mains or batteries) are needed for electrical devices to work. A complete circuit is needed for electricity to flow and devices to work. Some materials allow electricity to flow easily and these are called conductors. Materials that don't allow electricity to flow easily are called insulators.	Electricity, electric current, appliances, mains, crocodile clips, wires, bulb, battery cell, battery holder, motor, buzzer, switch, conductor, electrical insulator, component. Linked Texts Blackout Poetry by John Rocco
Prior Learning	Key Question(s):	Future Learning
In Early Years children: Children know about similarities and differences in relation to places, objects, materials and living things.	What is electricity? What would life be like without electricity? What sorts of things use/need electricity? Which of these do I use? What is a circuit? Which components are used to make a	In Year 6 children will: Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Compare and give reasons for variations in how components function, including the brightness of

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.	simple circuit? How does the number of batteries added to the circuit affect a device? What are conductors and insulators of electricity? Is our material a conductor or an insulator? How can we use an electrical circuit?	bulbs, the loudness of buzzers and the on/off position of switches. Use recognised symbols when representing a simple circuit in a diagram.

Year 4 Electricity

Working Scientifically – disciplinary knowledge

(knowledge of how scientific knowledge is generated).

	tests Identify & Classify	Observation over time	Pattern Seeking	Research	BIG Question – Assessment Opportunity
	Can you classify objects into those that use electricity? Can you classify these materials into conductors and insulators?				Can we use our own circuit to design our own toy?

Year 6 – Electricity

Substantive knowledge (scientific knowledge and conceptual understanding)

Lees Curriculum Objectives	Substantive Knowledge	Vocabulary
*** Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.** *** Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.** *** Use recognised symbols when**	Step 1 – Series circuit is where all components are connected in one continuous loop. * A series circuit has a cell, wires, plus components e.g. bulb, buzzer and a switch. Each component in a circuit diagram is represented by a circuit symbol. * Current is the flow of electricity in a circuit. * Voltage causes the current to flow. Step 2 - For a circuit to be complete, all the components, including a cell, must be connected by wires and the switch must be closed. • An incomplete circuit may have a break in the wires, a switch may be open, or the cell may be in the holder the wrong way. The current does not flow at all in an incomplete circuit. Step 3: The more components there are in a circuit, the dimmer the bulbs and the quieter the buzzers. The more components there are in a circuit, the more difficult it is for current to flow. Step 4: How will the circuit be constructed? .Which materials are needed? .Which independent variables will you change? Which variables will you measure (dependent variables)?	Step 1 - Series circuit, cell, battery, bulb, current, voltage. Step 2 - Complete circuit, Incomplete circuit, Switch, Buzzer. Step 3 – Series circuit, cell, bulb, current, voltage, buzzer. Step 4 – Dependent variables, Independent variables, Controlled variables, voltage, current, repeatability. **Linked Texts** – The Journey

	Which variables will you keep the same (controlled variables)? Predict- what do you think will happen?	