



YEAR 3 SCIENCE CURRICULUM MAP

Overview:

	AUTUMN TERM 1	AUTUMN 2	SPRING 1	Spring 2	SUMMER 1	SUMMER 2
Unit of Work National curriculum	Animals Including Humans. Healthy eating	Animals including humans The body	Rocks	Plants	Forces and magnets	Light
Switched on Science	Topic 2 Food and our bodies	Topic 2 Food and our bodies	Topic 1 Rocks, soils and fossils	Topic 4 How does your garden grow?	Topic 5 Forces and magnets	Topic 3 Light and shadows
Key Vocabulary	nutrition, diet, protein, carbohydrate, minerals, vitamins, fats, sugars, balanced diet, skeleton, protection, movement, spine, vertebrate, invertebrate, muscle,	nutrition, diet, protein, carbohydrate, minerals, vitamins, fats, sugars, balanced diet, skeleton, protection, movement, spine, vertebrate, invertebrate, muscle,	rock, stone, fossils, crystals, marble, chalk, granite, sandstone, soil, appearance, texture, absorb,	function, seed, stem, root, life cycle, nutrients, fertiliser, pollination, fertilisation, seed dispersal,	force, magnetic, non-magnetic, attract, repel, surface, friction, push, pull, poles, north pole and south pole	dull, light source, mirror, opaque, reflect, shadow, shiny, translucent, transparent
Substantive knowledge	Identify that animals, including	Identify that animals, including humans, need the right types	Compare and group together different kinds of rocks on the	Identify and describe the functions of different parts of	compare how things move on different surfaces	Recognise that they need light in order to see things

<p>Key knowledge</p>	<p>humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>basis of their appearance and simple physical properties</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>Recognise that soils are made from rocks and organic matter.</p>	<p>flowering plants: roots, stem/trunk, leaves and flowers</p> <p>Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</p> <p>Investigate the way in which water is transported within plants</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>	<p>Notice that some forces need contact between two objects, but magnetic forces can act at a distance</p> <p>Observe how magnets attract or repel each other and attract some materials and not others</p> <p>Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</p> <p>Describe magnets as having two poles</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>	<p>and that dark is the absence of light</p> <p>Notice that light is reflected from surfaces</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>Recognise that shadows are formed when the light from a light source is blocked by an opaque object</p> <p>Find patterns in the way that the size of shadows change.</p>
<p>Disciplinary knowledge</p> <p>Working scientifically</p>	<p>Pupils might work scientifically by: identifying and grouping animals with and without skeletons and observing and comparing their movement;</p>	<p>Pupils might work scientifically by: identifying and grouping animals with and without skeletons and observing and comparing their movement;</p>	<p>Pupils might work scientifically by: observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time;</p>	<p>Pupils might work scientifically by: comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser; discovering how seeds are formed by observing</p>	<p>Pupils might work scientifically by: comparing how different things move and grouping them; raising questions and carrying out tests to find out how far things move on different surfaces</p>	<p>Pupils might work scientifically by: looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.</p>

	<p>exploring ideas about what would happen if humans did not have skeletons. They might compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They might research different food groups and how they keep us healthy and design meals based on what they find out.</p>	<p>exploring ideas about what would happen if humans did not have skeletons. They might compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They might research different food groups and how they keep us healthy and design meals based on what they find out.</p>	<p>using a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Pupils might research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed. Pupils could explore different soils and identify similarities and differences between them and investigate what happens when rocks are rubbed together or what changes occur when they are in water. They can raise and answer questions about the way soils are formed.</p>	<p>the different stages of plant life cycles over a period of time; looking for patterns in the structure of fruits that relate to how the seeds are dispersed. They might observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.</p>	<p>and gathering and recording data to find answers their questions; exploring the strengths of different magnets and finding a fair way to compare them; sorting materials into those that are magnetic and those that are not; looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another; identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets.</p>	
<p>Cultural Capital Scientists</p>	<p>Marie Curie- Radiation Wilhelm Rontgen - X rays</p>	<p>Marie Curie- Radiation Wilhelm Rontgen - X rays</p>	<p>Inge Lehmann – discovered Earth's solid inner core Mary Anning- Fossil hunter</p>	<p>Joseph D Hooker – botanist, explorer, director of Kew Gardens Joseph Banks- Botanist</p>	<p>Andre Marie Ampere (Amps) – physicist / studied electromagnetism</p>	<p>Arthur James Wilson – invented wing mirrors Justus Von Liebig Mirrors</p>


	Adelle Davis - Nutritionist	Adelle Davis - Nutritionist	Dr Anjana Khatwa Geologist Ursula Marvin- Geologist- William Smith Fossils strata Inge Lehrmasn -Earth's Mantle Katia Krafft - Geologist and Volcanologist	Ahmed Mumin Warfa - Botanist Marianne North- Botanist		James Clerk Maxwell-(Visible and Invisible Waves of Light)
Suggestions for school visits				Garden centre		
Teacher CPD links	Resources - Google Docs https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/425618/PRIMARY_national_curriculum_-_Science.pdf	https://www.reachoutcpd.com/ PLAN Progression - Staff Drive - Google Drive	https://my.risingstars-uk.com/CourseHome.aspx?csid=9781510446151	https://classroom.thenational.academy/subjects-by-key-stage	Science - Staff Drive - Google Drive Science - Staff Drive - Google Drive	https://www.stem.org.uk/primary-science

Units lesson by lesson:

Year 3 - Plants

Pupil previously learnt:

- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.
- Identify and describe the basic structure of a variety of common flowering plants, including trees.
- 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)

Lesson number	North Star Question 	Pupils will learn		Key Vocabulary https://drive.google.com/file/d/1Rf0Tgupl_HoWI8XNslYy2hvOG-70y8Yp/view?usp=share_link
		Substantive knowledge	Disciplinary knowledge	
1	Rising stars assessment Front cover (KWL) Knowledge organiser What do you think you know? What you do not know? What would you like to know?	Teacher assessment		
2 Lesson 1	What are the parts and functions of a plant?	The main parts and functions of a plant How to draw a scientific diagram	draw and label diagrams	Parts/ Functions- Roots, stems, leaves, flowers- conduct, attract, reproduce, absorb, anchor, support, seeds- Carbon Dioxide, sunlight- Photosynthesis, food.
3 4	What does a plant need to	To undertake a fair test to investigate the	Set up fair test by establishing question	Needs, light, water, soil, air, space- fair test, variable,


Lesson 2 Final	survive?	needs of plants.		constant, record,
5 6 Lesson 3	How do plants transport water?	Describe what transpiration is The three main steps of water transport in plants How to prove that water moves up a plants stem	Choose activities from Switched on science resource: 4.1 Plant parts activities 4 and 5.	Water transpiration, stem, transport, petals, absorb, evaporate, conduct, support, roots, leaves, flowers- environmental factors, petals, width, length- expelled, stomata.
7 Lesson 4	What is the life cycle of a flowering plant?	The parts of a flowering plant's life cycle. The conditions required for germination. Three ways in which seed dispersal takes place		Cycle, Germination, roots, leaves, flowering, seed dispersal- conditions, underground, photosynthesis, attract, reproduce, air, water, light, nutrients- Wind, animal wind and explosive dispersals. Pepperpots (Red Champion), Parachuted (Dandelion), Spinners (Sycamore)- Hooks.
8	What is the relationship between structure and function of a plant?	Pupils should be introduced to the relationship between structure and function: the idea that every part has a job to do. They should explore questions that focus on the role of the roots and stem in		

		nutrition and support, leaves for nutrition and flowers for reproduction.		
9	Do plants make their own food?	Pupils can be introduced to the idea that plants can make their own food, but at this stage they do not need to understand how this happens.		
10	Cultural Capital Visit, visitor, scientist			
11	Rising Stars end of unit assessment	Teacher to identify any gaps and plan recap		

Year 3- Animals Including Humans

Pupils previously learnt:

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores.
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).
- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.
- Notice that animals, including humans, have offspring which grow into adults.
- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.


Lesson number	North Star Question 	Pupils will learn		Key Vocabulary https://drive.google.com/file/d/1EPE_t83VBi8Eyy8-u-j0WfDj7aySCVER/view?usp=share_link
		Substantive knowledge	Disciplinary knowledge	
1	Rising stars assessment Front cover (KWL) Knowledge organiser	Teacher assessment		
2 Lesson 1 powerpoint final.pptx	Diagnostic and mind map - what has been the prior learning on animals and their habitats?	Recap Y2 learning		
3 4	How can we keep healthy through what we eat?	Create a nutrient information sheet for the main nutrients. Explain how each nutrient is used by the body (e.g carbohydrates provide energy) Give examples of foods that provide each nutrient.	Asking different questions Recording data	Nutrients Nutrition Carbohydrate (Sugars/starches) Fats Protein Vitamins & minerals Fibre Water
5	What do the food labels on the back of foods mean? What nutrients can be found in some common foods?	Look at a bag of shopping and identify which foods provide which key nutrients. (Science Capital) What is the difference between a nutrient group and a food group? Create a nutrient fact file sheet in a group showing which nutrients some common foods provide.	asking questions gathering and presenting data	Nutrition group Food group Factfile

<p>6 7</p> <p>Balance diet powerpoint final.pptx</p>	<p>How can I use my knowledge to create a healthy meal?</p>	<p>Understand what is meant by a balanced diet. Study Eatwell plate and food pyramid - examine how different food groups offer different nutrients. Use template to draw and label balanced meal (with NUTRIENTS not food groups).</p>	<p>reporting on finding from enquiries making diagrams and labelling</p>	<p>Balanced diet Healthy meal</p>
<p>8</p>	<p>How can I make healthy choices when visiting restaurants?</p>	<p>Use computer to look up nutritional information for favourite options from McDonald's. Make healthy choices for a meal. (Science Capital)</p>	<p>science capital gathering and presenting data</p>	<p>Nutrition calculator</p>
<p>9</p> <p>Animal Skeleton PowerPoint.pptx</p>	<p>What are vertebrates and invertebrates? recap learning from previous years</p>	<ul style="list-style-type: none"> • All animals have a skeleton • All animals are either vertebrates or invertebrates • Vertebrates have an endoskeleton • Invertebrates have a hydrostatic or exoskeleton • Visit from ferrets/snake/tortoise • Sorting activity (labelling) 	<p>Recording and presenting data identifying differences and similarities Making observations</p>	<p>backbone vertebrates invertebrates endoskeleton exoskeleton hydrostatic skeleton ferret tortoise</p>
<p>10</p> <p>Lesson Presentation - Skeletons.pptx The Human Skeleton.pptx</p>	<p>What is the human skeleton made of?</p>	<ul style="list-style-type: none"> • How many bones are in the human body • Why adults have fewer bones than babies • Correct name for bones • Drawing and labelling activity 	<p>Recording and presenting data identifying differences and similarities</p>	<p>skull - cranium rib cage - thoracic cage backbone - spine - vertebral column upper arm bone - humerus jawbone - mandible hipbone - pelvis kneecap - patella inner forearm - ulna outer forearm - radius finger/toe bones -</p>

Type of bones.pptx				phalanges
11 Joints powerpoint.pptx	How do joints help our bodies move?	<ul style="list-style-type: none"> Name different types of joint and examples of where they are in the body. Demonstrate movement to each other. 	setting up practical enquiries drawing simple conclusions	fixed joint movable joints pivot ball-and-socket hinge gliding
12 Muscles.pptx	Why do muscles work in pairs?	<ul style="list-style-type: none"> learn about muscles and how they work. Learn what happens to our muscles when we exercise. How people strengthen and grow their muscles. 	setting up practical enquiries drawing simple conclusions	expand contract
13	Cultural Capital Visit, visitor, scientist			
14	Rising Stars end of unit assessment	Teacher to identify any gaps and plan recap		

Year 3- Rocks

<p>Pupils previously learnt:</p> <ul style="list-style-type: none"> Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties. Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
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Lesson number	North Star Question 	Pupils will learn		Key Vocabulary https://drive.google.com/file/d/16dnSbk9rISWW7jaoAzOMPefoXvkH1S35/view?usp=share_link https://drive.google.com/file/d/13G6WHYZiffC749sohsCq4Yk_UN0iBbQP/view?usp=share_link
		Substantive knowledge	Disciplinary knowledge	
1 Lesson - To classify rocks based on their appearance.	Rising stars assessment Front cover (KWL) Knowledge organiser What do you think you know? What you do not know? What would you like to know?	Teacher assessment		Crust, mantle, outer core, inner core
2 What is the Rock Cycle?	What is the Rock Cycle? (Might change the order of lesson 2 and 3)	<ul style="list-style-type: none"> Classify rocks based on their appearance Draw and explain the rock cycle Identify how igneous, metamorphic and sedimentary rock is formed. 	make systematic and careful observations, present data in a variety of ways, record findings using simple scientific language, drawings, labelled diagrams, report on findings from enquiries	Size, texture, natural/human-made, pattern, weight, colour, Crust, Mantle, Outer Core, Inner Core, magma, volcano, cools, crystals, igneous rock, sedimentary rock, sediment, heat, pressure, metamorphic rock,
3 What are the 4 What are the	What are the key properties of rock?	<ul style="list-style-type: none"> Identify some properties of rocks I can work scientifically (observation) to identify the 	use results to draw simple conclusions, make predictions for new values, suggest improvements and	durability , permeability, density, igneous, sedimentary, metamorphic, fair test, pumice, slate,

key properties of rock?		properties of rocks	raise further questions, gather, record, classify and present data in a variety of ways to help in answering questions (Year 3 focus)	sandstone,
5 How are fossils formed?	What are fossils? How are fossils formed? What kinds of fossils are there? What can we learn from fossils? Who was Mary Anning?	<ul style="list-style-type: none"> I can identify some of each type of rock. I know how fossils are made. I can identify different types of fossils. Learn about the work of a famous palaeontologist. 	ask relevant questions and use different types of scientific enquiries to answer them	Body fossil, trace fossil, fossilisation, sediment, minerals, weathering, erosion, igneous, sedimentary, metamorphic, properties, flesh, rots, skeleton
7 What is soil made from?	What is soil? What is soil made from?	<ul style="list-style-type: none"> To identify the properties of different soil samples. To compare different soil samples. 	Identifying, grouping and classifying, using scientific equipment	Crust, Mantle, Outer Core, Inner Core, top soil, subsoil, base rock, air, broken up rock, organic matter, volcano, clay, sandstone, chalk, sandy soil, chalky soil, clay soil, particles, silt, sand, organic matter, loam soil, microscope, sieve, observation, magnifying glass.
8 Who was Mary Anning?	Cultural Capital Visit, visitor, scientist			
9	Rising Stars end of unit assessment	Teacher to identify any gaps and plan recap		

Year 3- Light

Pupils previously learnt:


- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.
- Describe the simple physical properties of a variety of everyday materials. Reflective and non-reflective.

Lesson number	North Star Question 	Pupils will learn		Key Vocabulary
		Substantive knowledge	Disciplinary knowledge	
1	Rising stars assessment Front cover (KWL) Knowledge organiser	Teacher assessment		
2 3	What is Light? Why do we need light to see things?	<ul style="list-style-type: none"> • Recognise that light is needed to see things and dark is the absence of light. • To carry out an investigation on the colour of light. • To understand what the Visible light spectrum is. 	setting up simple practical enquiries, comparative and fair tests	Light and dark/ absence of light- Whizzer wheel- Colour of light- Visible light/ White light/ visible light spectrum- straight lines.
4 5	How can you protect your eyes? Why is light from the sun dangerous? What is an eclipse?	<ul style="list-style-type: none"> • Recognise that light from the sun can be dangerous and there are ways to protect their eyes. • State that Earth rotates on an axis. • How the spin of the Earth creates night and day. 	asking relevant questions and using different types of scientific enquiries to answer them	Eclipse- Solar eclipse/ Lunar eclipse- Earth/Sun/ Moon-rotates/ travels- Eyesight, damage- Pinhole projector- Sun safety.
6 7 8	What are reflections? How is light reflected from	Pupils should explore what happens when light reflects off a mirror or other reflective	Complete activities from Switched on science resource	Reflection, surfaces, light sources, straight lines, obstacles, objects, absorb,

	surfaces?	surfaces, including playing mirror games to help them to answer questions about how light behaves.		light rays, reflective surfaces, light levels.
9	Reflections	<ul style="list-style-type: none"> • Notice that light is reflected from surfaces. • What happens to light when it is reflected. • Differences between reflective and non-reflective materials. • Sorting reflective and non-reflective materials. 	gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Reflection, surfaces, light sources, straight lines, obstacles, objects, absorb, light rays, reflective surfaces, light levels.
10 11	What are shadows? How do shadows change over time?	<p>Finding patterns and investigating how to change the size of a shadow by moving it further from/closer to the light source.</p> <p>Find patterns in the way that the size of shadows change.</p>	making systematic and careful observations and, where appropriate, taking accurate measurements using standard units	Shadow size/ Early morning shadow/ Midday shadow/ late afternoon shadow- Sun's rays- Longer/ Shorter- Light source- wide, narrow, angle, sun, cm, m, length, direction, shape.
11 12	How are shadows formed?	<ul style="list-style-type: none"> • Recognise that shadows are formed when the light from a light source is blocked by a solid object. • Compare transparent, translucent and opaque objects . • How to make shadows 	reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Size of shadows- light source- blocked- opaque, translucent, transparent objects- items- projector.
13	Cultural Capital Visit, visitor, scientist			
14	Rising Stars end of unit	Teacher to identify any gaps and plan		

	assessment	recap		
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Year 3- Forces and Magnets

Pupils previously learnt:				
<ul style="list-style-type: none"> Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 				
Lesson number	North Star Question 	Pupils will learn		Key Vocabulary
		Substantive knowledge	Disciplinary knowledge	
1	Rising stars assessment Front cover (KWL) Knowledge organiser	Teacher assessment		
2	What is a force?	<ul style="list-style-type: none"> Define what a force is. Understand and identify different types of forces. 	record findings using simple scientific language, sort and classify	Push, pull, twist, force, object, motion
3	What is friction?	<ul style="list-style-type: none"> Understand how friction affects the way objects move on different surfaces. Carry out a fair investigation comparing how objects move on different surfaces. 	Measuring, fair test, set up simple practical enquiries, comparative and fair tests, make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, gather, report on findings from enquiries,	Friction, surfaces, sliding, opposite, direction, object, movement, slows down, moving object, quickly, further, rough/bumpy, smooth/shiny surface,

			including oral and written explanations, displays or presentations of results and conclusions, identify differences, similarities or changes related to simple scientific ideas and processes (Year 3 focus)	
4 5	Which objects are magnetic?	Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.	Grouping and classifying, recording observations, predictions, scientific vocabulary, fair test,	Magnetism, horseshoe magnets, bar magnets, circular magnets, south pole, north pole, attraction, repulsion, metals, magnetic/non-magnetic,
6 7	Which magnet is the strongest?	<ul style="list-style-type: none"> To recognise that some forces need contact between two objects, but magnetic forces can act at a distance. To set up an enquiry in order to investigate the strength of some of our magnets. 	Fair test, prediction, setting up an enquiry, Global capital: magnets in a scrap yard / toys	Magnetism, magnet, magnetic, non-magnetic, force, poles, push, pull, repel, attract, north, south, similar, opposite.
8 9	Choose activities from the switched on science resource			
10	Cultural Capital Visit, visitor, scientist			
11	Rising Stars end of unit assessment	Teacher to identify any gaps and plan recap		

