



Curriculum Planning

Intent

- Our Science curriculum has been carefully planned and designed to encompass the content of the National Curriculum and the North Yorkshire Scheme of Learning (NySoL).
- Pupils' science education begins in the early years and builds year on year, developing pupils' expertise.
- Curriculum plans have been constructed effectively in line with the NySoL Scheme to ensure that pupils know more, remember more and are able to do more.
- Key knowledge has been mapped out from the early years to the end of KS2 to ensure that the curriculum is coherently sequenced and there is clear progression.
- The organisation of the curriculum builds both knowledge and skills of enquiry so that pupils can draw on it in future learning.
- Each of the 5 types of enquiry (Research, Comparative and Fair Tests, Pattern Seeking, Grouping and Classifying, Observing Over Time) is taught at least once every term.
- Working scientifically skills are embedded into every lesson to ensure these skills are being developed throughout the curriculum.
- Vocabulary has been identified and outlined clearly so that this can be taught explicitly within lessons.
- Clearly defined end points have been identified to ensure that pupils build upon prior learning and develop their knowledge of key concepts.
- Pupils commit knowledge to their long-term memory through recalling and repeated practice outlined in plans.

Implementation

Within and beyond our classrooms we provide a range of opportunities and implement a range of teaching methods to ensure that over the course of study, teaching is designed to help learners to remember in the long term the content they have been taught and to integrate new knowledge into larger concepts.

- Knowledge organisers which outline knowledge (including vocabulary) all children must master and apply in lessons are introduced at the start and referred to throughout a unit of study.
- A well sequenced cycle of lessons carefully plans for progression and depth concentrating on the scientific knowledge and skills suited to the age group.
- Lessons follow a consistent structure of retrieval, explanation, application and assessment which may include such features as questioning, modelling, individual, partner, group or whole class activities.
- Regular practical experiments are carried out focusing on scientific enquiry
- Enrichment activities, including visits and visitors to school
- Working walls reflect what is being taught, vocabulary, relevant diagrams, photos and display the 5 types of science enquiry characters
- Our inclusive approach is demonstrated through the way in which tasks and activities are adapted to ensure that all pupils are able to access the curriculum.
- Through retrieval, teachers make sure that pupils can draw on what they already know so that they can remember more.
- Key vocabulary is explicitly taught to enable pupils to develop their range of geographical vocabulary and understanding.
- Assessment for learning strategies are used at the start, during and at the end of lessons to assess pupils' learning and identify any gaps or misconceptions.

Impact

- Our Science Curriculum is high quality, well thought out and is planned to demonstrate progression. If children are keeping up with the curriculum, they are deemed to be making good or better progress. In addition, we measure the impact of our curriculum through the following methods:
 - Pre and post unit assessments
 - Assessment against end of year expectations detailed on Pupil Progress Records with clearly identified end points. These are then passed to the receiving teacher to ensure any gaps can be addressed when a key concept is revisited.



Progression of Working Scientifically vocabulary

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
What...? How? Why ...? Similar different best and worst Change Plan look biggest and smallest compare sort group	observe change slowly quickly Describe name identify label record measure bigger and smaller pattern notice cycle predict	gradually identify observe Recognise investigate record units table fair evidence research Length observations prediction	similarities differences research and source scientists discovery process cycle Measurements conclude evaluate rank plan vary keep the same/constant bar graph table tally	classify interpret pattern relationship prediction analyse interpret conclude evaluate rank variable constants control repeat key relationship line graph	hypothesis variable constants evaluate plan conclude interpret classify categorise database enquiry control repeat support refute degree of trust scatter graph



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KS1 Medium Term Plans	Autumn Term		Spring Term		Summer Term	
<p>Prior Knowledge (Retrieval)</p>	<p>Year 1 identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>identify and describe the basic structure of a variety of common flowering plants, including trees</p> <p>identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>observe changes across the four seasons</p>	<p>Year 1 distinguish between an object and the material from which it is made</p> <p>identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</p> <p>describe the simple physical properties of a variety of everyday materials</p> <p>compare and group together a variety of everyday materials based on their simple physical properties.</p>	<p>Year 1 identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p>		<p>Year 1 identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>identify and describe the basic structure of a variety of common flowering plants, including trees.</p>	
<p>Working Scientifically (Skills to be taught throughout the year)</p>	<p>PLAN</p>		<p>DO</p>		<p>REVIEW</p>	
	<p>Ask simple questions and recognise these questions can be answered in different ways.</p>	<p>Decide with help, what to find out, observe or measure.</p>	<p>Observe closely, using simple equipment <i>and non-standard units</i>.</p> <p>Identify and classify</p> <p>Perform a simple test.</p>	<p>Gather data and record data to help answer questions.</p> <p>Record what has been found out using e.g., words or pictures, tables or simple prepared formats.</p>	<p>Use observations and ideas to suggest answers to questions</p>	<p>Talk about how I found out what I found out.</p>



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Y2	Knowledge and Skills to be developed:		Knowledge and Skills to be developed:		Knowledge and Skills to be developed:	
	<p>Living things and their habitats L1 – <u>Research</u> identify a habitat and what might live in that habitat</p> <p>L2/3- <u>Classifying and pattern seeking</u> identify a micro habitat and the minibeasts that live there. Record information in a table.</p> <p>L4 – <u>Classifying</u> identify and sort: living, dead and never lived.</p> <p>L5 – describe how animals obtain their food from plants and other animals using a simple food chain.</p>	<p>Materials L1 – use correct scientific vocabulary to describe materials.</p> <p>L2 – Identify objects and consider the materials properties and what else it could be used for.</p> <p>L3/4 - <u>Comparative and fair testing</u> Fair test Compare the suitability of materials for keeping sandwiches dry.</p> <p>L5 – <u>Classifying</u> identify and describe the suitability of everyday materials for a variety of purposes</p> <p>L6 – learn scientific vocabulary for changing shape.</p> <p>L7 – <u>Pattern Seeking</u> test objects to see if the materials change shape</p>	<p>Animals, including humans L1 – What do we know about keeping healthy? What do we want to know and how could we find out?</p> <p>L2 – Describe the importance of hygiene – germs lessons.</p> <p>L3- Why is it important for humans to eat the right amount of different food types?</p> <p>L4/5 - <u>Fair testing</u> Describe the importance of exercise. Children create their own fair test</p> <p>L6 – Describe the basic needs of animals, including humans – water, food, air and shelter.</p> <p>L7- <u>Grouping and Classifying</u> grouping based on habitat. Fact file on Barn Owl</p> <p>L8 pattern seeking Which habitat do woodlice prefer to live in?</p> <p>L9 – <u>Research</u> Notice that animals, including humans have offspring that grow into adults.</p> <p>L10 – <u>Observing over time</u> (children to observe a real butterfly lifecycle) Animal growth and lifecycles – make a lifecycle of a human and butterfly.</p>	<p>Plants L1 – What do I already know about plants? What would I like to find out about? How can I find out?</p> <p>L2- <u>Research</u> What do plants need to grow and stay healthy?</p> <p>L3 – <u>Observing over time</u> (revisit every week) Describe how plants need water, light and temperature to stay healthy. Observe and describe how seeds and bulbs grow into mature plants.</p> <p>L4 – Describe how to plant a sunflower seed.</p> <p>L5 – <u>Pattern Seeking</u> Do bigger seeds grow into bigger plants?</p>	<p>Time to review content of Year 2 learning.</p> <p><u>Living things and their habitats</u> <u>Grouping and Classifying</u> How you group things to show which are living, dead or have never been alive?</p> <p><u>Plants</u> <u>Comparative and fair testing</u> Do cress seeds grow quicker inside or outside?</p>	
Future Learning	<p>Year 4 recognise that living things can be grouped in a variety of ways</p> <p>explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>recognise that environments can change and that this</p>	<p>Year 4 compare and group materials together, according to whether they are solids, liquids or gases</p> <p>observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)</p>	<p>Year 3 identify that animal, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</p> <p>identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>Year 3 identify and describe the functions of different parts of 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>		



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		can sometimes pose dangers to living things.	identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.		
Vocabulary	All	Living, dead, never been alive basic needs, food, food chain, shelter, move, feed, names of local habitats e.g., pond, woodland etc., names of micro-habitats e.g., under logs, in bushes etc.	Materials – wood, plastic, glass, metal, water, rock, brick, paper, fabric, card, rubber Properties – rough/smooth, strong/weak Changing Shape - squashing, bending, twisting and stretching, pushing and pulling	growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly, egg), exercise, breathing, germs, fruit and vegetables, life cycle	As for year 1 plus - light, shade, sun, warm, cool, water, grow, healthy, bulb (Yr 1 Leaf, flower, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud. Living, dead, never been alive, basic needs, food, food chain, shelter, move, feed, names of local habitats e.g., pond, woodland etc., names of micro-habitats e.g., under logs, in bushes etc.
	Most	suited, suitable	transparent flexible/rigid	Offspring, heartbeat, hygiene, disease, larvae, pupa, food types (examples – protein, carbohydrate, dairy)	Blossom, germinate, seedling suited, suitable
	Some		translucent, opaque reflective/non-reflective	reproduction	
Quality Texts		Habitats and food chains (Ruth Owen) Animals in alphabets and their habitats (Jessica Cheong)	Everyday materials (Peter Riley)	Life cycles (Sam Falconer)	All about plants (Peter Riley) Curious questions and answers about plants (Miles Kelly)
Enrichment Activities (e.g. visitors/visits)		Manor Road Park -L2		Fun filled food journey. Filey bird and animal park	
National Curriculum		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	distinguish between an object and the material from which it is made identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock describe the simple physical properties of a variety of everyday materials compare and group together a variety of	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 the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	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.



	<p>identify and name a variety of plants and animals in their habitats, including microhabitats</p> <p>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</p>	<p>everyday materials based on their simple physical properties.</p>		
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