



Science

Intent: Science at Chaddlewood is planned using the NC objectives as assigned to each year group. Learning activities have then been designed to meet these objectives and are mapped to ensure progression of skills, knowledge and vocabulary. In addition the skills, methods and processes needed to 'work scientifically' are also planned to progress across the school with the intention that children can experience different types of scientific enquiry, which are embedded into topic planning. Recording of outcomes are also planned to progress across year groups and ensure that the children have the opportunity to record in different ways.

The planning format follows that of other subjects in that there is an immersion, review and assessment and knowledge rich phases. For instance, an immersion activity at the beginning of a volcanoes module might ask the children to make a model of an active volcano.

Knowledge is taught to be remembered, not merely encountered therefore we use retrieval practice to support this and ensure the essential 'milestones' of each subject are taught and embedded. Planning provides the opportunity to embed previous learning or 'overlap of learning'. KWL grids are used to ascertain children's prior knowledge and gaps in previous learning and is used as a mechanism to shape the planning for the module. These assessments are then feedback to previous year group teachers to inform and improve their planning effectiveness.

Knowledge organisers are also shared to allow prior understanding of the knowledge and vocabulary which will be taught in the module.

Assessments are made formatively using the KWL and retrieval grids and summatively with end of unit tests.

Chaddlewood Primary School's Science Progression Grid

Topics/WS Working scientifically	Foundation	Year 1	Year 2
Plants	<p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>Visit a forest school and look at trees around the school site.</p> <p>Leaf identification based on forest school visits</p>	<p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>Visit a forest school and look at trees around the school site.</p> <p>Flower identification based on forest school visits and seed donations from children that we plant in our planters outside classrooms.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees</p>	<p>Observe and describe how seeds and bulbs grow into mature plants</p> <p>1 lesson spent on looking at seeds and planting them and another lesson looking at and growing bulbs. Observe these over time and describe what we can see happening using photos. Look at the life cycle of a plant and use sequencing cards to place them in the correct order.</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>

	<p>Grow vegetables from seeds, planting them outside in our planters</p> <p>Harvest vegetables and taste with the children</p> <p>Label a basic plant - stem, petal, leaf, root</p>	<p>Label a plant structure Plant a seed and watch it grow over a period of time</p> <p>Vocab: Deciduous, Evergreen trees, Leaves, Flowers (blossom), Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem</p>	<p>Set up an experiment using crests and comparing each variable to a control plant. E.g compare a plant that has everything to a plant that has no light. Observe and describe what happens over time.</p> <p>Vocab:reproduce, produce, young,produce new plants, animals, plants, shoot, within, under,next to, fruit, earth,soil, seeds, grow, germinate</p>
<p>Animals including humans</p>		<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Label and match names of animals to common animal groups.</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores Sort pictures of animals into different categories using Venn diagrams.</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Label the structure of an animal.</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 Label a child in the classroom using key body part labels. Match senses to activity and also linked to which body part we used each sense for.</p> <p>Vocab: Fish, Reptiles, Mammals, Birds, Amphibians (+ examples of each) Herbivore, Omnivore, Carnivore, Leg, Arm, Elbow, Head, Ear, Nose, Back, Wings, Beak</p>	<p>Notice that animals, including humans, have offspring which grow into adults Look at the human life cycle and describe each stage. Look at a variety of animals' offspring and what they grow into. Look at the life cycle of a frog and a butterfly to show that there are different life cycles.</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Look at what a human needs to survive and a basic explanation as to why they need these- list these in books. Look at what animals (pets) need to survive- discuss and label.</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene Find out where our food comes from and categorize it into food groups. Do a food diary of what the children eat in a week and then analyze this to see what food groups they have too much or too little in. Describe three different exercises and see what effect these have on the body. Discuss the importance of exercise and how it is beneficial to the human body.</p> <p>Vocab: Survival, Water, Air, Food, Adult, Baby, Offspring, Kitten, Calf, Puppy, Exercise, Hygiene</p>

<p>Materials</p>	<p>Children begin to know the properties of some materials and can suggest some of the purposes they are used for</p> <p>Look at different materials to see which would make a suitable shoe/house/spoons (Linked to Traditional Tales)</p> <p>Make a kite and test to see if it will fly</p>	<p>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 Learning to walk around school to identify objects made from different materials.</p> <p>describe the simple physical properties of a variety of everyday materials Make a pirate boat and test whether it would sink or float. Test the strength of the pirate boats using multilink cubes.</p> <p>compare and group together a variety of everyday materials on the basis of their simple physical properties Sort materials into different categories according to properties.</p> <p>Vocab: Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth</p>	<p>identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Identify each material and what they look like. Explain what is meant by material and properties. Discuss what the materials might be used for. Walk around the school grounds to see what materials they can see and discuss what they are being used for. Look at a raincoat and what materials it is made from. Then see if we can replace it with different materials. Children test alternative materials on teachers to see if they will get wet or not.</p> <p>find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching Discuss that some materials can be used for more than one thing. Show the children that some materials when manipulated change shape and some revert back to their original form. Give children a selection of objects to squash, bend, twist and stretch and record findings on a results table. Paper Bridge experiment- children change the shape of a paper bridge to strengthen it. Children test to see which shape allowed the bridge to hold the most pennies.</p> <p>Vocab: Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent Brick, Paper, Fabrics, Squashing, Bending, Twisting, Stretching Elastic, Foil</p>
<p>Seasonal changes</p>	<p>observe changes across the 4 seasons</p> <p>observe and describe weather associated with the seasons</p>	<p>observe changes across the 4 seasons observe and describe weather associated with the seasons and how day length varies Using the BBC weather website.</p>	

	<p>Daily calendar - talk about the weather</p> <p>Visits to Forest school across the year, talking about and comparing the similarities and differences with the change of each season</p>	<p>Vocab: Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark</p>	
<p>Living things and their habitats</p>	<p>To be able to identify and talk about similarities and differences between living things and their habitats</p> <p>Observe and identify minibeasts in their own habitats</p> <p>Create suitable habitats for the different minibeasts in our school environment</p> <p>Look at different animals, patterns and colours and how it helps them to hide</p> <p>(Elmer and Forest School)</p> <p>Recognise how to keep healthy and the effects that exercise and healthy eating have on our bodies</p> <p>Identify, name, draw and label the basic parts of the human body Label a child in the classroom using key body part labels.</p> <p>Name the senses</p> <p>Activities linked to senses - smelling pots, feely bags, tasting food, listening and looking walks</p>		<p>Explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p>Discuss characteristics on (energy, move, grow, respond, respire, reproduce and waste. Use the powerpoint to look at things that are alive, which are now dead but were once alive and things that have never been alive. Compare the different characteristics of the things in the pictures. Children then independently sort and classify pictures.</p> <p>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</p> <p>Define the word habitat. Look at different habitats for different animals e.g polar. Give children a picture of an animal and ask them to discuss what habitat they would live in. Encourage habitat vocab- hot/cold climates, jungle areas, forest, woodland, lake, rivers, desert etc.</p> <p>Go on a mini beast hunt to find micro habitats, record down where habitats were found and discuss which would be best for a woodlouse. Look closely at the habitat of zebras, elephants, cheetahs and gorillas in Africa and why they live in their particular habitat. Look at the grasses of the Savannah and how they have adapted to the habitat. Talk about how the animals depend on the grass in the droughts.</p> <p>identify and name a variety of plants and animals in their habitats, including micro-habitats</p> <p>Children look at the habitat of the pond and start to identify what they have found (animals</p>

			<p>and plants) using a key. Children record this and discuss why it is a good place for these to live.</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>Discuss what animals eat - to survive, to stay healthy, to grow, for energy etc. Define what is meant by the food chain. Look at some food chains. Look at the different 'links' in the chain producer, consumer and secondary consumer and how the consumer (animal) is reliant on the producer (plant). Children create simple food chains using cards given to them. Focus on Zebra, elephant, gorilla and cheetah..</p> <p>Vocab: Living, Dead, Habitat, Energy, Food chain, Predator, Prey, Woodland, Pond, Desert</p>
WS		<p>asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment Observe whether their pirate boat sinks or floats. Learning to walk through the school to distinguish what different objects are made from.</p> <p>performing simple tests identifying and classifying Classify animals according to their animal group (through Venn and Carroll diagrams).</p> <p>using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions Collect data regarding the most common type of material(s) throughout the school. E.g. Why are most things made out of plastic?</p>	<p>asking simple questions and recognising that they can be answered in different ways KWL grids before each topic. Encourage open end questions throughout topics to be answered in different ways. Eg - Do you think...? I wonder why...? How will we find...? I wonder how...? I wonder if...? How could we strengthen the paper bridge? What do you think will happen? Do you think the seeds will grow without light or water? Why? How could we make a coat waterproof? What materials would work the best?</p> <p>observing closely, using simple equipment Plants- observe over time seeds, bulbs and cress growing and record in books. Woodlouse?</p> <p>performing simple tests Materials- selection of objects to squash, bend, twist and stretch. Paper bridge experiment whereby they change its shape to improve its strength.</p>

			<p>identifying and classifying Animals habitats- Where does an animal come from? Can you tell by looking at the features of that animal and where it lives? Plants- Look at national plants and find similarities and differences to classify.</p> <p>using their observations and ideas to suggest answers to question. Materials- selection of objects to squash, bend, twist and stretch. Paper bridge experiment whereby they change its shape to improve its strength. Plants- make predictions about what will happen to their cress in the different conditions.</p> <p>gathering and recording data to help in answering questions. Materials- selection of objects to squash, bend, twist and stretch Plants- make predictions about what will happen to their cress in the different conditions</p>
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