



Ferndale Primary and Nursery School

Year 4 Science

Working Scientifically

<p>Planning:</p> <ul style="list-style-type: none"> • Asking relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests 	<p>Observing/obtaining evidence:</p> <ul style="list-style-type: none"> • Making systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers 	<p>Recording:</p> <ul style="list-style-type: none"> • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables 	<p>Concluding:</p> <ul style="list-style-type: none"> • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Identifying differences, similarities or changes related to simple scientific ideas and processes • Using straightforward scientific evidence to answer questions or to support their findings 	<p>Evaluating:</p> <ul style="list-style-type: none"> • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
<p>Language Enrichment</p>	<p>First Hand Experiences</p>	<p>Purpose / Life Skills</p>	<p>Previous Knowledge</p>	
<p>Research, relevant, questions, scientific enquiry, comparative and fair test, systematic, careful observation, accurate, measurements, thermometer, data logger,</p>	<p>Planning experience:</p> <ul style="list-style-type: none"> • Teeth experiment • Chocolate melting experiment • Evaporation experiment • Sound proof headphones experiment <p>Observing/ obtaining evidence: Photos/pictures:</p> <ul style="list-style-type: none"> • Teeth experiment 	<p>Scientists/careers link</p> <p>All experiments linked to real life situations where possible</p>	<p>See Science progression grid for working scientifically</p>	

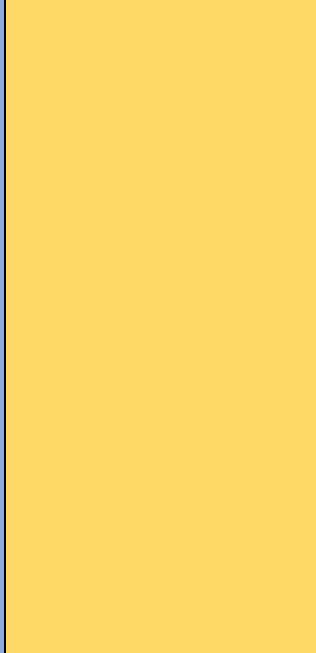


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gather, record, classify, present, drawings, labelled diagrams, keys, bar chart, tables, oral and written explanations, conclusion, predictions, differences, similarities, changes, evidence, improve, secondary sources, guides, keys, construct, interpret enquiry, comparative testing, identifying, classifying, grouping, observing over time, pattern seeking, research using secondary sources

- Gases – bottle experiments
 - Bulb brightness experiment
 - Conductors and insulators
- Use of thermometers:
- Chocolate melting experiment
 - Evaporation experiment
- Use of measuring devices e.g. metre sticks:
- Sound proof headphones experiment
 - Measure sound over different distances
- All experiments involve recording findings and making conclusions





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Biology

Animals including Humans:

- 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

Living Things and their habitats:

- 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.

Language Enrichment

Animals including Humans

Key vocabulary:

Digestive system, digestion, mouth, teeth saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain

Living things and their

habitats Key vocabulary:

Classification, classification keys, environment, habitat,

First Hand Experiences

Animals including humans:

- Digestive process recreation experiment
- Effect of different drinks of teeth – experiment over a number of days + lessons
- Brushing teeth practical (after teeth experiment)

Living things in their

environment:

- Habitat search – Ferndale grounds

Purpose / Life Skills

Scientists/careers link

Watch Operation Ouch video – link to real dentists

Experiments focus on real life contexts – sugary drinks etc

David Attenborough link

Previous Knowledge

Animals including Humans:

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals (Yr1)
- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) (Yr2)
- Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene (Yr2)
- Identify that animals, 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 (Yr3)

Living Things and their habitats:

- Identify and name a variety of common wild and garden plants including deciduous and evergreen trees (Yr1)
- Identify and describe the basic structure of a variety of common flowering plants, including trees (Yr1)



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<p>human impact, positive, negative, migrate, hibernate</p>	<ul style="list-style-type: none">• Creating Classification keys based on observable characteristics - liquorice allsorts + familiar animals• Classification keys – using these to identify invertebrates on school grounds• Pollution activity – bird feathers in oil		<ul style="list-style-type: none">• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals (Yr1)• Describe and compare the structure of a variety of common animals (Yr1)• Identify and name a variety of plants and animals in their habitats including microhabitats (Yr2)
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Chemistry



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States of Matter:

- Compare and group materials together, according to whether they are solids, liquids or gases
- 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)
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

Language Enrichment	First Hand Experiences	Purpose / Life Skills	Previous Knowledge
Solid, liquid, gas, heating, cooling, state change, melting, freezing, melting point, boiling, boiling point, evaporation, condensation, temperature, water cycle	<ul style="list-style-type: none"> • Sorting various materials into solids, liquids , gases • Gases – bottle experiment • Chocolate melting experiment – using thermometers • condensation demonstration • Evaporation – drying towels experiment 	Scientists/careers link Linked to real life objects – fizzy drinks/ chocolate . Evaporation in real life – towels drying etc	<ul style="list-style-type: none"> • Distinguish between an object and the material from which it is made (Yr1) • Identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock (Yr1) • Describe the simple physical properties of a variety of everyday materials (Yr1) • Compare and group together a variety of everyday materials on the basis of their simple physical properties (Yr1) • Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses (Yr2) • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching (Yr2)

Physics



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Sound:

- Identify how sounds are made, associating some of them with something vibrating
- Recognise that vibrations from sounds travel through a medium to the ear
- Find patterns between the pitch of a sound and features of the object that produced it
- Find patterns between the volume of a sound and the strength of the vibrations that produced it
- Recognise that sounds get fainter as the distance from the sound source increases.

Electricity

- 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 or not 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

Language Enrichment	First Hand Experiences	Purpose / Life Skills	Previous Knowledge
<p><u>Sound Key vocabulary:</u> Sound, source, vibrate, vibration, travel, pitch- high/ low- volume, faint, loud, insulation</p> <p><u>Electricity Key vocabulary:</u> Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/ connections, loose</p>	<p>Sound:</p> <ul style="list-style-type: none"> • Sound vibrations demonstrations • Selecting materials to make string telephones • Pitch demonstrations – glass jars • Making sound proof headphones experiment • Volume experiment – measure sounds over different distances 	<p>Scientists/careers link</p> <p>Real life links – sound proofing , electrical circuits in different devices , torches</p>	<p><u>Sound:</u></p> <ul style="list-style-type: none"> • Explore how things work (Nursery) • Describe what they see, hear and feel whilst outside (FS) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense (Yr1) <p><u>Electricity:</u></p> <ul style="list-style-type: none"> • Explore how things work (Nursery)



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connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol

- Experience of different instruments / sound equipment

Electricity:

All lessons include practical components including:

- Creating a simple series circuit
- Practical demo – bulb and battery functions
- Conductors and insulators experiment
- Bulb brightness experiment
- Using switches
- All electricity knowledge then applied in DT project – making a torch