

# SCIENCE

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**AT SHALFLEET AND YARMOUTH CHURCH OF ENGLAND  
PRIMARY SCHOOLS**

# NATIONAL CURRICULUM STATEMENT

## Purpose of study

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A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

## Aims

The national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.



# OUR INTENT

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By the time our children leave our school, our science provision will have encouraged them to develop a questioning mind about ways in which science influences everyday life.

Our children will ask important questions about how things work and why things happen in a certain way. We aim to foster curiosity and excitement about the natural world in our children, as well as understanding that their skills in science can be used today and in the future.

They will be able to understand the world they are growing up in and gain life skills to better access it; becoming adults who strive to seek solutions to problems and answers to life's questions.

We strive to promote a joy and excitement for learning and to approach unknown and unexplainable phenomenon with awe and wonder.



# The Federation of the Church Schools of Shalfleet and Yarmouth - Curriculum for Learning Overview

What are we trying to achieve?

Lifelong Achievement and Wellbeing

Curriculum Values

Design principles to inspire & challenge

How do we implement?

Components

Teaching for Learning

Approaches

EYFS/National Curriculum

What is the impact?

Successful Learning

Our curriculum impact can be measured by...

Our purpose is to educate children in an atmosphere of Christian love where all achieve the very best they can, now and throughout their lives

Conscious Community, Community Map, Cultural Capital

**Relationships**

We have strong partnerships and positive relationships

**Determination**

We are determined to do our very best to achieve

**Respect**

We show respect to others and the environment

Coherent learning links and pathways

Strong working partnerships

High quality outcomes, deep learning

Valuing all children, learning is accessible to all

Challenging, engaging and motivating

Opportunities for memorable experiences

Promotes independence and curiosity

Broad, relevant and balanced  
Local, Mainland, Global

The curriculum as the entire planned learning experience

Lessons

Topics

Events/Trips

Environment

Enrichment/Inspire

Partnerships

Clear understanding of cognition and learning – Good subject knowledge – Skilful instruction, coaching and facilitating – Flexible and responsive teaching strategies – Stimulating and well organised learning environments – Effective use of assessment - High expectations and productive interactions

Sequences of learning that link key ideas in subject domains - rich connected learning journeys – clear progression of learning – flexible inclusion strategies to tackle educational disadvantage - social, moral, spiritual, cultural education

CLL

PSED

PD

Literacy

Maths

UW

EAD

Eng

Ma

Sci

Comp

D&T

Hist

Geo

A&D

Music

PE

MFL

PSHE

RE

Positive relationships and interactions

Appropriate learning opportunities understood by pupils

Children understand how to be successful

Oral and written feedback that has impact

Dialogic talk and rich questioning

Developing meta-cognition

Moderation underpins standards

Effective use of assessment driving tailored learning

Target setting and review

Systematic monitoring, action and review : Do design principles translate into an inspiring and challenging curriculum for all?

Evidenced by...

High achievement and outcomes for all across the curriculum

Good behaviour, positive attitudes and high attendance

Teaching that is engaging and consistently good for all

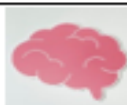
Motivated teams & positive learning culture

Confident, kind, respectful, determined learners



**Federation Vision for Science – Intention for Children**  
By the time our children leave our school, our science provision will have offered our children an understanding of the world through the disciplines of biology, chemistry and physics. Through scientific enquiry, the children will have explored processes and relationships building eagerness and inquisitiveness surrounding natural phenomena.

## Big Ideas



Working scientifically – questioning, formulating investigations, performing tests, recording, concluding and evaluating

Biology – habitats, living things, animals, evolution, humans, plants,

Chemistry – materials and their properties, uses of materials, rocks, states of matter,

Physics – forces, Earth and space, light, electricity, sound, seasonal changes

## Content and Sequencing (Broad, relevant and balanced)



**Animals (including humans)** - name common animals, draw parts of the human body, notice they have offspring, describe basic needs for animals and importance of exercise for humans (KS1) animals and humans needing the right nutrition, having muscles and skeletons for a purpose, know the human teeth, know the human digestive system, create food chains, describe changes to humans up to old age, identify and name the circulatory system, the impact of exercise, drugs and lifestyle on humans, and how nutrients and water are transported in humans and animals (KS2)

**Plants** – identify, name and describe plants and trees and observe plant growth (KS1) Identify and describe plant functions, their life cycle, and requirements for life (KS2)

**Living things and their habitats** – identify plants' and animals' habitats and how they suit them, explore differences between things alive, dead and that have never been alive, create simple food chains (KS1) living things can be grouped, use classification keys, recognise environments can change, describe reproduction in plants and animals, look at differences in life cycles, classify living things into broad groups, give reasons for animal and plant classification (KS2)

**Electricity** – learn about common appliances, create simple circuits with lamps and switches, name parts of a circuit, find insulators and conductors (LKS2) use symbols to draw circuits, explain how a buzzer's volume and bulbs brightness can be affected (UKS2)

**Forces** – focusing on the forces created by magnets, attracting and repelling and their strength (LKS2) explain gravity, water and air resistance, friction, and forces in mechanisms (UKS2)

**Materials** – identify everyday materials, describe and group everyday materials, find out how solid shapes can be changed, compare suitability of materials (KS1) materials can change state when heated or cooled, group based on their properties, reversible and irreversible changes, dissolving materials (KS2)

## Vision for the Federation Learning Principles in Science

Coherent Learning Links and Pathways:	Strong Working Partnerships:	High Quality Outcomes/Deep Learning:	Valuing All Children/Accessible Learning:	Challenging, Engaging and Motivating:	Opportunities for Memorable Experiences:	Promotes Independence and Curiosity:	Local, Mainland and Global:
Science work is underpinned by strong maths skills and report writing language skills.	Children will be able to perform scientific enquiry working together on range of experiments and investigations.	Children will be encouraged to use their scientific language fluently and confidently to explain concepts and phenomena.	All children have an opportunity to explore scientific processes at their level of understanding.	Children will be motivated through the use of practical investigations to bring the science to life in front of their eyes.	Engaging trips that build on scientific knowledge, encompassing a range of investigations.	Giving children ownership to explore scientific questions and natural phenomena that interests them.	Exploring different processes and concepts across local, mainland and global environments.

## Links with English and Maths



Maths – measurement, data analysis, decimals, fractions, percentages, four operations, shape.

Literacy – report writing, research skills,

## Progress



Evidence will be seen in books showing development within scientific enquiry.

Investigations will be recorded and evaluated in a depth suitable for the year group.

Scientific vocabulary will be shown to progress in complexity throughout the year groups.

## Support



Everyone has access to the science National Curriculum. Activities adapted in accordance to previous assessment, where a child may not have got the background knowledge from a previous year group. This would be seen in a number of ways from using more visual links, to recapping key vocabulary etc.

# PROGRESSION OF SKILLS

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1. Knowledge
2. Skills
3. Vocabulary
4. Resources
5. Overview of coverage

SCIENCE	Links to EYFS	Key Stage 1		Lower Key Stage 2		Upper Key Stage 2	
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge	<ul style="list-style-type: none"> <li>- Knowing similarities and differences in relation to places, objects, materials and living things.</li> <li>- Knowing features of their own immediate environment and how environments might vary from one another.</li> <li>- To make observations of animals and plants, explaining why some things occur and talk about changes.</li> </ul>	<p><b>Plants</b></p> <ul style="list-style-type: none"> <li>- To be able to identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>- To be able to identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul> <p><b>Animals including humans</b></p> <ul style="list-style-type: none"> <li>- To be able to identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>- To be able to identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>- To be able to describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</li> <li>- To be able to identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</li> </ul> <p><b>Everyday Materials</b></p> <ul style="list-style-type: none"> <li>- To be able to distinguish between an object and the material from which it is made</li> <li>- To be able to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>- To be able to describe the simple physical properties of</li> </ul>	<p><b>All living things and their habitats</b></p> <ul style="list-style-type: none"> <li>- To be able to explore and compare the differences between things that are living, dead, and things that have never been alive</li> <li>- To be able to 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</li> <li>- To be able to identify and name a variety of plants and animals in their habitats, including micro-habitats</li> <li>- To be able to 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.</li> </ul> <p><b>Plants</b></p> <ul style="list-style-type: none"> <li>- To be able to observe and describe how seeds and bulbs grow into mature plants</li> <li>- To be able to find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> </ul> <p><b>Animals, including humans</b></p> <ul style="list-style-type: none"> <li>- To be able to notice that animals, including humans, have offspring which grow into adults</li> <li>- To be able to find out about and describe the</li> </ul>	<p><b>Plants</b></p> <ul style="list-style-type: none"> <li>- To be able to identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>- To be able to 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</li> <li>- To be able to investigate the way in which water is transported within plants</li> <li>- To be able to explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> </ul> <p><b>Animals, including humans</b></p> <ul style="list-style-type: none"> <li>- To be able to 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</li> <li>- To be able to identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> </ul> <p><b>Rocks</b></p> <ul style="list-style-type: none"> <li>- To be able to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> </ul>	<p><b>Living things and their habitats</b></p> <ul style="list-style-type: none"> <li>- To be able to recognise that living things can be grouped in a variety of ways</li> <li>- To be able to explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>- To be able to recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul> <p><b>Animals, including humans</b></p> <ul style="list-style-type: none"> <li>- To be able to describe the simple functions of the basic parts of the digestive system in humans</li> <li>- To be able to identify the different types of teeth in humans and their simple functions</li> <li>- To be able to construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul> <p><b>States of matter</b></p> <ul style="list-style-type: none"> <li>- To be able to compare and group materials together, according to whether they are solids, liquids or gases</li> <li>- To be able to observe that some materials change state when they are heated or cooled, and measure or research the</li> </ul>	<p><b>Living things and their habitats</b></p> <ul style="list-style-type: none"> <li>- To be able to describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>- To be able to describe the life process of reproduction in some plants and animals.</li> </ul> <p><b>Animals, including humans</b></p> <ul style="list-style-type: none"> <li>- To be able to describe the changes as humans develop to old age.</li> </ul> <p><b>Properties and changes of materials</b></p> <ul style="list-style-type: none"> <li>- To be able to compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</li> <li>- I know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li> <li>- To be able to use knowledge of solids,</li> </ul>	<p><b>Living things and their habitats</b></p> <ul style="list-style-type: none"> <li>- To be able to describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</li> <li>- To be able to give reasons for classifying plants and animals based on specific characteristics.</li> </ul> <p><b>Animals, including humans</b></p> <ul style="list-style-type: none"> <li>- To be able to identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>- To be able to recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>- To be able to describe the ways in which nutrients and water are transported within animals, including humans.</li> </ul> <p><b>Evolution and inheritance</b></p> <ul style="list-style-type: none"> <li>- To be able to recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>- To be able to recognise that living things produce</li> </ul>



	<ul style="list-style-type: none"> <li>a variety of everyday materials</li> <li>To be able to compare and group together a variety of everyday materials based on their simple physical properties.</li> </ul> <p><b>Seasonal Changes</b></p> <ul style="list-style-type: none"> <li>To be able to observe changes across the four seasons</li> <li>To be able to observe and describe weather associated with the seasons and how day length varies.</li> </ul>	<ul style="list-style-type: none"> <li>basic needs of animals, including humans, for survival (water, food and air)</li> <li>To be able to describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul> <p><b>Uses of everyday materials</b></p> <ul style="list-style-type: none"> <li>To be able to identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> <li>To be able to find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li> </ul>	<ul style="list-style-type: none"> <li>To be able to describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>To be able to recognise that soils are made from rocks and organic matter.</li> </ul> <p><b>Light</b></p> <ul style="list-style-type: none"> <li>To be able to recognise that they need light in order to see things and that dark is the absence of light</li> <li>To be able to notice that light is reflected from surfaces</li> <li>To be able to recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>To be able to recognise that shadows are formed when the light from a light source is blocked by a solid object</li> <li>To be able to find patterns in the way that the size of shadows change.</li> </ul> <p><b>Forces and magnets</b></p> <ul style="list-style-type: none"> <li>To be able to compare how things move on different surfaces</li> <li>To be able to notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>To be able to observe how magnets attract or repel each other and attract some materials and not others describe magnets as having two poles</li> <li>To be able to predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> <li>To be able to 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</li> </ul>	<ul style="list-style-type: none"> <li>temperature at which this happens in degrees Celsius (°C)</li> <li>To be able to identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul> <p><b>Sound</b></p> <ul style="list-style-type: none"> <li>To be able to identify how sounds are made, associating some of them with something vibrating</li> <li>To be able to recognise that vibrations from sounds travel through a medium to the ear</li> <li>To be able to find patterns between the pitch of a sound and features of the object that produced it</li> <li>To be able to find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>To be able to recognise that sounds get fainter as the distance from the sound source increases.</li> </ul> <p><b>Electricity</b></p> <ul style="list-style-type: none"> <li>To be able to identify common appliances that run on electricity</li> <li>To be able to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>To be able to 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</li> <li>To be able to recognise that a switch opens and</li> </ul>	<ul style="list-style-type: none"> <li>liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li> <li>To be able to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li> <li>To be able to demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>To be able to explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</li> </ul> <p><b>Earth and Space</b></p> <ul style="list-style-type: none"> <li>To be able to describe the movement of the Earth, and other planets, relative to the Sun in the solar system</li> <li>To be able to describe the movement of the Moon relative to the Earth</li> <li>To be able to describe the Sun, Earth and Moon as approximately spherical bodies</li> <li>To be able to use the idea of the Earth's rotation to</li> </ul>	<ul style="list-style-type: none"> <li>offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>To be able to identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul> <p><b>Light</b></p> <ul style="list-style-type: none"> <li>To be able to use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye</li> <li>To be able to explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes</li> <li>To be able to use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> </ul> <p><b>Electricity</b></p> <ul style="list-style-type: none"> <li>To be able to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>To be able to 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</li> <li>To be able to use recognised symbols when representing a simple circuit in a diagram.</li> </ul>
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					<p>closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p> <ul style="list-style-type: none"> <li>- To be able to recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul>	<p>explain day and night and the apparent movement of the sun across the sky.</p> <p><b>Forces</b></p> <ul style="list-style-type: none"> <li>- To be able to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> <li>- To be able to identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>- To be able to recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul>	
<p><b>Skills (Investigations)</b></p> <ul style="list-style-type: none"> <li>- To run as a thread throughout all scientific work.</li> </ul>	<ul style="list-style-type: none"> <li>- Enquiry skills.</li> <li>- Questioning skills – asking and responding to questions posed.</li> <li>- Exploration and observational skills – using first hand experience and secondary sources to explore and gather information to answer to question.</li> </ul>	<ul style="list-style-type: none"> <li>- Asking simple questions and recognising that they can be answered in different ways</li> <li>- Observing closely, using simple equipment</li> <li>- Performing simple tests</li> <li>- Identifying and classifying</li> <li>- Using their observations and ideas to suggest answers to questions</li> <li>- Gathering and recording data to help in answering questions.</li> </ul>	<ul style="list-style-type: none"> <li>- Asking relevant questions and using different types of scientific enquiries to answer them</li> <li>- Setting up simple practical enquiries, comparative and fair tests</li> <li>- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> <li>- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>- Identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>- Using straightforward scientific evidence to answer questions or to support their findings.</li> </ul>	<ul style="list-style-type: none"> <li>- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> <li>- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>- Using test results to make predictions to set up further comparative and fair tests</li> <li>- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</li> <li>- Identifying scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>			

<b>Vocabulary</b>	<ul style="list-style-type: none"> <li>- Environment</li> <li>- Living things</li> <li>- Materials</li> <li>- Change</li> <li>- Animal</li> <li>- Plant</li> <li>- Observation</li> <li>- Feature</li> <li>- Similarity</li> <li>- Difference</li> </ul>	<p>Working scientifically – question, answer, observe, observing, equipment, identify, classify, sort, diagram, chart, map, data, compare, contrast, describe, biology, chemistry, physics, group, record.</p> <p>Plants – wild plants, garden plants, deciduous, evergreen, tree, plant, bud, root, bulb, seed, stem, blossom, petal, growth.</p> <p>Animals including humans – habitat, food chain, living, dead, amphibian, reptile, mammal, bird, fish, carnivore, herbivore, omnivore, survive, human and animal body parts, animal names.</p> <p>Everyday materials – wood, plastic, glass, metal, water, rock, hard, soft, stretchy, stiff, twist, push, pull, rough, smooth, bendy, waterproof, absorbent, brick, paper, fabric, elastic, foil, properties, rigid, flexible.</p> <p>Seasonal changes – summer, spring, autumn, winter, seasons, weather, difference</p>	<p>Working scientifically – as Year 1.</p> <p>Plants – water, light, temperature, grow, healthy, germination, reproduction.</p> <p>Animals including humans – adult, nutrition, survival, reproduce, lifecycle, grow, hygiene, exercise, water, food, air, and further animal names.</p> <p>Living things and their habitat – micro-habitat, food chain, healthy, seashore, woodland, shelter, ocean, rainforest, conditions.</p> <p>Everyday materials – cardboard, squashing, bending, twisting, types of metal objects, types of wooden objects, types of spoons (not glass), opaque, translucent, transparent.</p>	<p>Working scientifically – Research – relevant, scientific enquiry, comparative and fair test, systematic, careful observation, accurate, measurements. Equipment – thermometer, data logger, Data – gather, record, classify, present. Record – drawings, labelled diagrams, keys, bar charts, tables, oral and written explanations, conclusions, predictions, differences, similarities, changes, evidence, improve, secondary sources, guides, construct, interpret.</p> <p>Plants – functions, flowering plants, structure, nutrient, transported, fertiliser, pollination, seed formation and seed dispersal.</p> <p>Animals including humans – food groups – carbohydrate, fat, protein, vitamins, nutrients, minerals, fibre, fruit and vegetables, diet. Skeleton (common names for bones and major organs), protection, support, structure, joint, cartilage, muscles, movement, pull, contract and relax.</p> <p>Rocks – igneous, sedimentary, metamorphic, fossil, appearance, physical, organic matter, absorbent, non-absorbent, grains, crystal. Mary Anning.</p> <p>Light – reflection, dark is the absence of light, dangerous, shadow, spectrum, natural, artificial, surface, blocked, light source, straight, protect, patterns</p> <p>Forces and magnets – attract, repel, magnetism, magnetic, non-magnetic, magnetic field, poles, north, south, strength, surface, cobalt, iron, metal, aluminium, tin.</p>	<p>Working scientifically – as Year 3.</p> <p>Living things and their habitats – moss, nature reserve, fern, population, human impact, development, litter, deforestation, vertebrate, invertebrate.</p> <p>Animals including humans – human digestive system, tongue, saliva, oesophagus, stomach, acid, enzymes, intestines (small and large), waste product, faeces, anus, transport, teeth, incisors, canines, molars, grind, tearing, ripping, chewing, slicing, predators, prey.</p> <p>States of matter – solid, melt, freeze, liquid, evaporate, condense, gas, container, changing state, degrees Celsius, thermometer, temperature, water cycle, condensation, water vapour.</p> <p>Sound – vibrate, vibration, vibrating, air, medium, volume, pitch, faint, loudness, string, percussion, brass, insulate, woodwind, patterns, strength, distance, waves.</p> <p>Electricity – circuit, cells, wires, bulbs, switches, buzzers, lamp, battery, motor, voltage, loop, switch, series circuit, brightness, conductor, insulator, common, open circuit, closed circuit,</p>	<p>Working scientifically – Plan, variables, measurements, accuracy, precision, repeat readings, Record data – scientific diagrams, labels, classification keys, scatter graphs, bar graph and line graph, further comparative and fair test, casual relationships, degree of trust. Evidence – support, refute ideas or arguments, identify, classify and describe, patterns, systematic.</p> <p>Living things and their habitats – reproduction, plants – sexual and asexual prehistoric.</p> <p>Animals including humans – puberty, lifecycle, gestation, growth, foetus, fertilisation, length, mass, life expectancy, adolescence, adulthood, childhood.</p> <p>Properties and changes of materials – transparency, conductive, electrical and thermal, dissolve, solution, filtering, sieving, evaporating, reversible changes, irreversible changes, chemists, quantitative measurements, conductivity and insulation.</p> <p>Earth and Space – Earth, sun, moon, astronomy, telescope, planets (names), planet, solar system, rotate, orbit, axis, spherical, heliocentric, geocentric, hemisphere, season tilt, Aristotle, Ptolemy, Galileo, Copernicus, Brahe, Alhazem.</p> <p>Forces – air resistance, water resistance, gravity, theory of gravitation, accelerate, friction, decelerate and accelerate,</p>	<p>Working scientifically – as Year 5.</p> <p>Living Things and their habitats – micro-organisms, classification,</p> <p>Animals including humans – heart, lungs, liver, brain, kidney, skeletal, muscular, blood vessels, human circulatory system, impact, damage (alcohol/substances).</p> <p>Evolution and inheritance – inherited traits, adaptive traits, natural selection, offspring, vary, non identical, characteristics, genes, DNA, evolution, adaption, inherit, fossilisation, environment, Charles Darwin, palaeontology,</p> <p>Light – periscope, filters.</p> <p>Electricity – consolidate vocabulary learnt so far.</p>
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						direction, mechanism, pulley, gear, spring, break, Isaac Newton.	
Resources – Including link to Reading	<ul style="list-style-type: none"> <li>- Outdoor classroom</li> <li>- Non-fiction and fiction books</li> <li>- Whole class internet use to research and find images</li> <li>- Pens and other recording materials</li> <li>- iPads for pictures</li> <li>- Reading labels and captions</li> <li>- Consumables</li> <li>- Visits</li> </ul>	<ul style="list-style-type: none"> <li>- Outdoor classroom</li> <li>- Animal pictures/models</li> <li>- Online research</li> <li>- Book research</li> <li>- Online videos</li> <li>- Posters</li> <li>- Outside visitors</li> <li>- Material samples</li> <li>- Everyday objects using curriculum specific materials</li> <li>- iPads for pictures</li> <li>- Magnifying glasses</li> <li>- Consumables</li> <li>- Visits</li> </ul>	<ul style="list-style-type: none"> <li>- Outdoor classroom</li> <li>- Animal pictures/models</li> <li>- Online research</li> <li>- Book research</li> <li>- Online videos</li> <li>- Posters</li> <li>- Outside visitors</li> <li>- Material samples</li> <li>- Everyday objects using curriculum specific materials</li> <li>- iPads for pictures</li> <li>- Magnifying glasses</li> <li>- Gardening equipment</li> <li>- Seeds and bulbs</li> <li>- Consumables</li> <li>- Visits</li> </ul>	<ul style="list-style-type: none"> <li>- Outdoor classroom</li> <li>- Seeds and bulbs</li> <li>- Plant diagrams</li> <li>- Animal pictures/models</li> <li>- Online research</li> <li>- Book research</li> <li>- Online videos</li> <li>- Posters</li> <li>- Outside visitors</li> <li>- iPads for pictures</li> <li>- Different rock samples</li> <li>- Torches</li> <li>- Mirrors</li> <li>- Magnets</li> <li>- Magnetic/non-magnetic objects</li> <li>- Everyday objects/materials using curriculum specific materials.</li> <li>- iPads for pictures</li> <li>- Skeleton model</li> <li>- Consumables</li> <li>- Dark tent</li> <li>- Visits</li> </ul>	<ul style="list-style-type: none"> <li>- Animal internal pictures/models</li> <li>- Teeth pictures/models</li> <li>- Online research</li> <li>- Book research</li> <li>- Online videos</li> <li>- Posters</li> <li>- Outside visitors</li> <li>- iPads for pictures</li> <li>- Musical instruments</li> <li>- iPads for pictures</li> <li>- Data logger</li> <li>- Apps relevant to sound and light capture</li> <li>- Thermometer</li> <li>- Examples of different liquids, gases and solids</li> <li>- Digital scales</li> <li>- Electrical circuit kit</li> <li>- Bulbs and batteries</li> <li>- Tape measure</li> <li>- Heating and cooling equipment</li> <li>- Filter paper</li> <li>- Sieve</li> <li>- Solar system model</li> <li>- Space camp equipment</li> <li>- Torches</li> <li>- Lever</li> <li>- Pulleys</li> <li>- Gears</li> <li>- Water tray</li> <li>- Stop watch</li> <li>- Consumables</li> <li>- Visits</li> </ul>	<ul style="list-style-type: none"> <li>- Lifecycle pictures</li> <li>- Outdoor classroom</li> <li>- Diagrams of reproduction</li> <li>- Online research</li> <li>- Book research</li> <li>- Online videos</li> <li>- Posters</li> <li>- Outside visitors</li> <li>- iPads for pictures</li> <li>- Data logger</li> <li>- Thermometer</li> <li>- Examples of different liquids, gases and solids</li> <li>- Digital scales</li> <li>- Electrical circuit kit</li> <li>- Bulbs and batteries</li> <li>- Tape measure</li> <li>- Heating and cooling equipment</li> <li>- Filter paper</li> <li>- Sieve</li> <li>- Solar system model</li> <li>- Space camp equipment</li> <li>- Torches</li> <li>- Lever</li> <li>- Pulleys</li> <li>- Gears</li> <li>- Water tray</li> <li>- Stop watch</li> <li>- Consumables</li> <li>- Visits</li> </ul>	<ul style="list-style-type: none"> <li>- Outdoor classroom</li> <li>- Pictures of humans, animals and micro-organisms</li> <li>- Animal organs for dissection</li> <li>- Scalpel</li> <li>- Model/pictures of the human circulatory system</li> <li>- Online research</li> <li>- Book research</li> <li>- Online videos</li> <li>- Posters</li> <li>- Outside visitors</li> <li>- iPads for pictures</li> <li>- Data logger</li> <li>- Digital scales</li> <li>- Electrical circuit kit</li> <li>- Bulbs and batteries</li> <li>- Tape measure</li> <li>- Torches</li> <li>- Mirrors</li> <li>- Stop watch</li> <li>- Consumables</li> <li>- Visits</li> </ul>

# OUR IMPLEMENTATION - ASSESSMENT



Class teachers use assessment to track the achievements of pupils through the computing subsections. This can influence next steps for pupils and the level of support needed.

I will use assessment to analyse summative data through the monitoring and evaluating process.

*Key computing targets for each sequence of lessons and children should be assessed against these.*

*The assessment model is designed to support all pupils to access the computing curriculum and also challenge higher attaining pupils.*

The assessment of computing is supported by the targets from the computing progression map and the assessment document is designed to support staff with accurate assessment measures by identifying children who have achieved targets and importantly inputting the names that have yet to achieve a target.

<div>  <div> <b>FEDERATION CURRICULUM ASSESSMENT</b>  </div> </div>									
	Computing			PE		RE		Art	
	INFORMATION TECHNOLOGY			DANCE		COMMUNICATE		KNOWLEDGE	
	INFORMATION TECHNOLOGY - GENERAL	Use the keyboard confidently to type at a suitable pace		Beginning to recognise dance movements and modify existing sequences when moving		Describe/ explain my own responses to the concept of belonging.		Give detailed observations about notable artists', artists' and designers' work	
		Use common keyboard shortcuts		Describe/ explain my own responses to the concept of interpretation.				Offer facts about notable artists', artists' and designers' lives	
		Organise files effectively using folders (p. 5)		Confidence flexibility, techniques and movements to create a short sequence.		Describe/ explain my own responses to the concept of storytelling.		SKILLS	
	DATA	Use line and dot plots using more complex axes		Move appropriately and with the required style in relation to the situation, e.g. using various levels, speed of travelling and modify.		Describe/ explain my own responses to the concept of justice.		Use a variety of techniques to add effects, e.g. shading, reflection, labelling and cross-hatching	
		Design and create a dot plot		Beginning to show a change of pace and timing in their movements.		Describe/ explain my own responses to the concept of sound patterns.		Display movement and progression in drawings	
		Create a graph from a data (both dot plots and appropriate)		Use the space provided to his maximum potential.		Describe/ explain my own responses to the concept of name.		Use a variety of tools and select the most appropriate	
								Use key vocabulary to	





# FEDERATION CURRICULUM ASSESSMENT



Key area  
of subject

Individual  
target

Insert  
names of  
individuals  
not  
achieving  
target

Key sub-  
area of  
subject

Y E	Computing INFORMATION TECHNOLOGY			PE DANCE		RE COMMUNICATE		Art KNOWLEDGE		
	INFORMATION TECHNOLOGY - GENERAL	Use the keyboard confidently to type at a suitable pace		Recognising the appropriate finger movements and multi-finger sequences when typing		Described/ explained my own progress in the context of learning		Give detailed observations about suitable artists', artists' work and designers' work		
		Use common keyboard shortcuts		Demonstrate short movements throughout a dance sequence.		Described/ explained my own progress in the context of learning		Offer facts about suitable artists', artists' work and designers' work		
		Organise files effectively using folders [or S]		Combine floor skills, techniques and movements to create a short sequence.		Described/ explained my own progress in the context of learning		SKILLS		
	DATA	Generate a database using more complex queries		Move appropriately and with the required style in relation to the situation, e.g. using various levels, ways of travelling and multi.		Described/ explained my own progress in the context of learning		DRAWING	Use a variety of techniques to add effects, e.g. shading, reflection, halftone and cross-hatching	
		Design and create a database		Recognise the value of pace and timing in their movements.		Described/ explained my own progress in the context of learning			Draft movement and progression in drawing	
		Create a graph from a data [both databases and spreadsheet]		Use the space provided to his maximum potential.		Described/ explained my own progress in the context of learning			Use a variety of tools and select the most appropriate	
									Use key vocabulary in drawing	

Key area  
of subject

Individual  
target

Skills  
specific to  
Key Stage

Science		
<u>KNOWLEDGE</u>		
ALL LIVING THINGS AND THEIR HABITATS	To be able to explore and compare the differences between things that are living, dead, and things that have never been alive	
	To be able to 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	
	To be able to identify and name a variety of plants and animals in their habitats, including micro-habitats	

Asking simple questions and recognising that they can be answered in different ways

Observing closely, using simple equipment

Performing simple tests

Identifying and classifying

# MONITORING AND EVALUATING

---

Impact of the implementation of the computing curriculum is measured in a variety of ways.

These include:

- Pupil Conferencing
- Work Scrutiny – alongside teacher's planning
- Assessment data
- Learning walks
- Learning environment

**EVIDENCE ATTAINED FROM THESE FOLLOWS ON THE NEXT SLIDES (SPLIT INTO YEAR GROUPS)**



# OUR IMPLEMENTATION: Long Term Planning

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Link to Federation Long Term Planning for Science

<https://drive.google.com/drive/folders/1loE0Zj-8RTvoyzaKmAxL5ZS8MWtZjXc0?usp=sharing>





# OUR IMPLEMENTATION

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Link to Federation Planning for Autumn Term:

<https://drive.google.com/drive/folders/1IoE0Zj-8RTvoyzaKmAxL5ZS8MWtZjXc0?usp=sharing>

Link to Federation Planning for Spring Term:

Link to Federation Planning for Summer Term:





# FEDERATION COVERAGE – AUTUMN TERM

EYFS Shalfleet





# FEDERATION COVERAGE – AUTUMN TERM

## EYFS Shalfleet





# FEDERATION COVERAGE – AUTUMN TERM

## EYFS Yarmouth





# SCIENCE SKILLS IN KEY STAGE I

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- Asking simple questions and recognising that they can be answered in different ways
- Observing closely, using simple equipment
- Performing simple tests
- Identifying and classifying
- Using their observations and ideas to suggest answers to questions
- Gathering and recording data to help in answering questions.

# SCIENCE IN YEAR I

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- Everyday materials
- Seasonal changes
- Animals including humans
- Plants

# FEDERATION COVERAGE – AUTUMN TERM

## Year One Yarmouth: Everyday Materials

Monday 12th September 2022

I can identify and name different materials.

Write the name of the material shown in the picture. Use the words at the bottom to help you.

Wood

Plastic

glass

water

rock

metal

glass

plastic

metal

wood

rock

water

What is your chair made from?  
PPU3000

Tuesday 20th September 2022

I can tell the difference between an object and the materials it is made from.

Look at the pictures and read the sentences. Choose the right words from the word bank at the bottom of the page to make the sentences make sense.

The scissors are made from plastic and metal.

The window is made from wood.

The table is made from wood and plastic.

metal

glass

scissors

wood

window

plastic

table

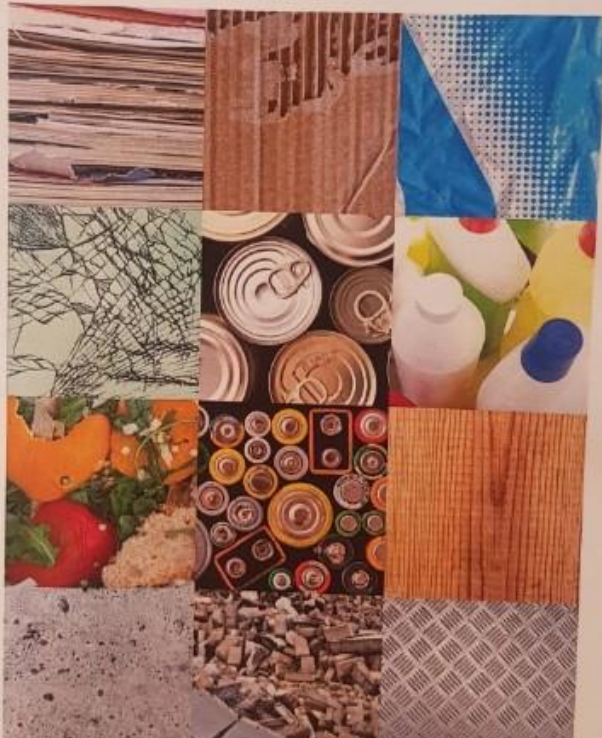
rock

It is made from plastic and metal.



## Year One Shalfleet: Everyday Materials

# Materials and their properties



The image displays four worksheets for a 'Labelling Materials' activity, arranged in a collage. Each worksheet includes a title, a goal statement, a matching exercise, and a table for recording observations.

**Top Left Worksheet:**

- Title:** Labelling Materials
- Goal:** I can identify and name different materials.
- Matching Exercise:** Match the label to the same material. Labels: plastic, metal, glass. Images: a pile of stones, a pile of wood, a pile of colorful plastic beads.
- Table:**

What is the object?	Draw a picture of the object	What material is the object made from?
glass		glass
log		wood
		plastic

**Top Right Worksheet:**

- Title:** Labelling Materials
- Goal:** I can identify and name different materials.
- Matching Exercise:** Match the label to the same material. Labels: plastic, metal, glass. Images: a pile of stones, a pile of wood, a pile of colorful plastic beads.
- Table:**

What is the object?	Draw a picture of the object	What material is the object made from?
glass		glass
log		wood
		plastic

**Bottom Left Worksheet:**

- Title:** Labelling Materials
- Goal:** I can identify and name different materials.
- Matching Exercise:** Match the label to the same material. Labels: plastic, metal, glass, wood, rock. Images: a pile of stones, a pile of wood, a pile of colorful plastic beads, a pile of rocks, a pile of wood.
- Table:**

What is the object?	Draw a picture of the object	What material is the object made from?
glass		glass
log		wood
		plastic

**Bottom Right Worksheet:**

- Title:** Labelling Materials
- Goal:** I can identify and name different materials.
- Matching Exercise:** Match the label to the same material. Labels: plastic, metal, glass, wood, rock. Images: a pile of stones, a pile of wood, a pile of colorful plastic beads, a pile of rocks, a pile of wood.
- Table:**

What is the object?	Draw a picture of the object	What material is the object made from?
glass		glass
log		wood
		plastic



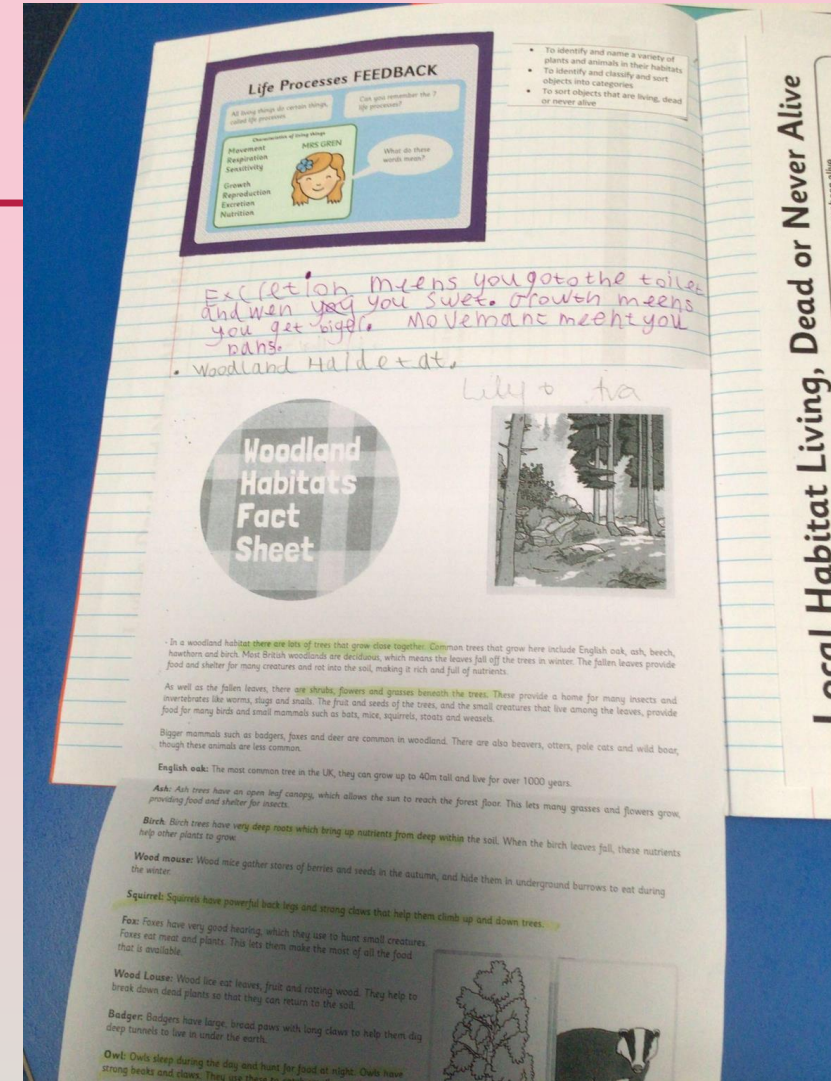
# SCIENCE IN YEAR 2

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- All living things and their habitats
- Animals including humans
- Plants
- Uses of everyday materials
- Plants revisited

# FEDERATION COVERAGE – AUTUMN TERM

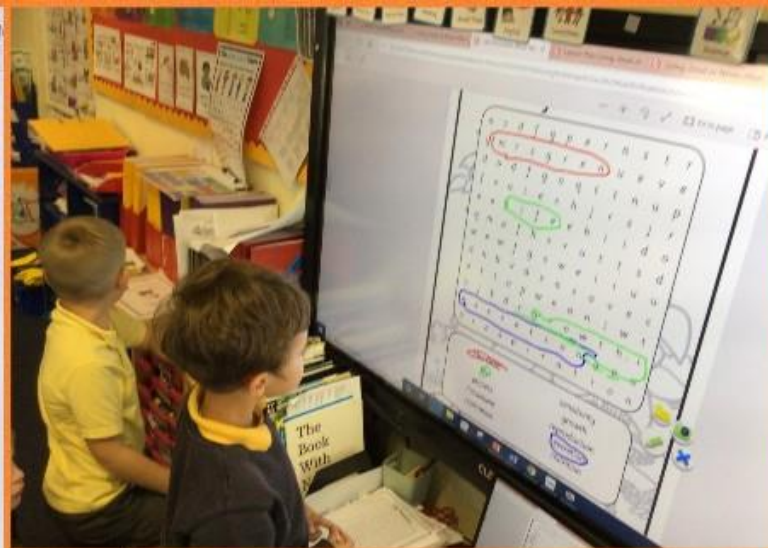
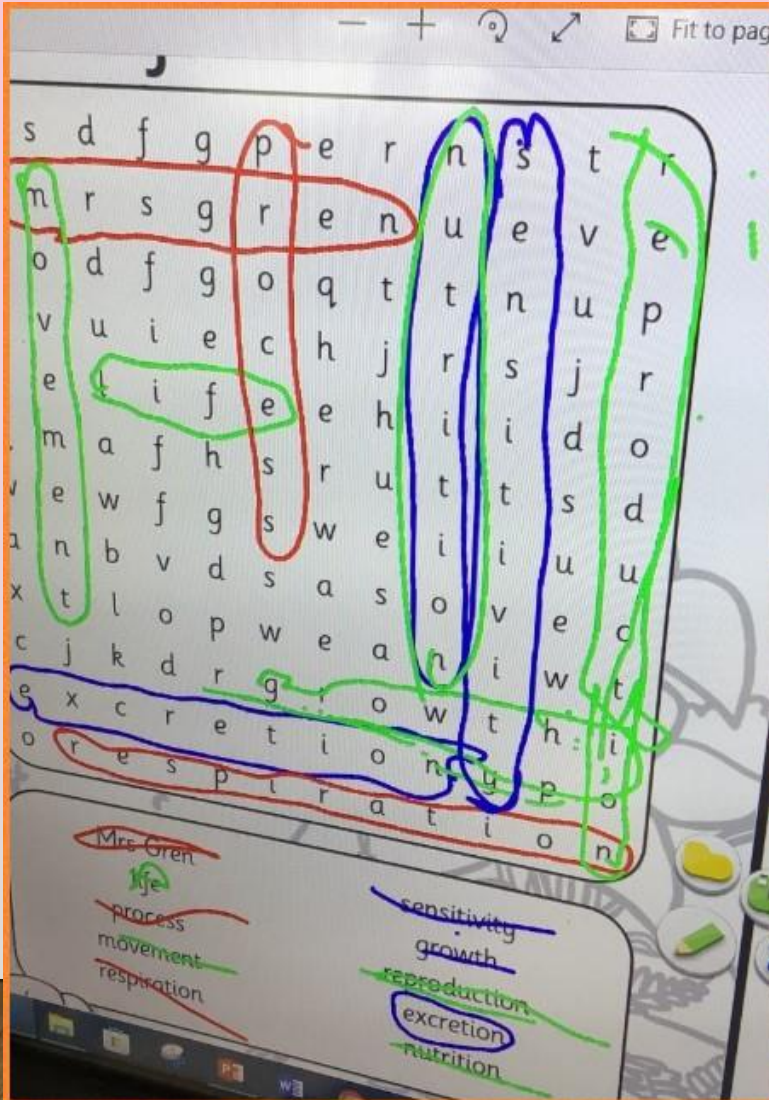
## Year Two Yarmouth: All Living Things and Their Habitats





# FEDERATION COVERAGE – AUTUMN TERM

## Year Two Yarmouth: All Living Things and Their Habitats



**All  
Living  
Things  
&  
Their  
Habitats**

We can move!  
We breathe oxygen  
We have 5 senses  
We grow  
We have babies when  
we are adults  
We get rid of waste  
by excretion  
We get our nutrition  
from food and drink

PICCOLLAGE




# FEDERATION COVERAGE – AUTUMN TERM

## Year Two Shalfleet All Living Things and Their Habitats

Oliver's

What is a microhabitat like?



damp muddy  
cool wet  
small dark

undern

Why do you think it is like this and why do minibeasts like it?

minibeasts like microhabitats because they can hide in the right temperature and the can find food and water.

### Microhabitats Enquiry

Edward


I can identify animals in their habitats.

Look carefully at your two habitats. Count up the number of each kind of mini

Minibeast	Habitat 1	Habitat 2
Woodlouse	11	
Slug	11	
Snail	11	
Spider	5	
Beetle	11	
Fly		
Bee		
Millipede		
Butterfly	5	
Caterpillar		


J.10.22

How Do I Survive?




a shark a shark  
Dung live in  
the rainforest  
it lives in  
the ocean but  
the ocean is  
so big.

How Do I Survive?



a polar bear Dung  
live in the  
desert because  
it ~~was~~ to hot  
fres the polar  
bear.

How Do I Survive?



PICCOLLAGE



# SCIENCE

## SKILLS IN KEY STAGE 2

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- Asking relevant questions and using different types of scientific enquiries to answer them
- Setting up simple practical enquiries, comparative and fair tests
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- 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
- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identifying differences, similarities or changes related to simple scientific ideas and processes
- Using straightforward scientific evidence to answer questions or to support their findings.

# SCIENCE IN YEAR 3

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- Rocks
- Animals including humans
- Plants
- Light
- Forces and magnets
- Plants

# FEDERATION COVERAGE – AUTUMN TERM

## Year Three Yarmouth: Rocks and Soil

igneous rock	Rock that has been formed from molten material or lava.
sedimentary rock	Rock that has been formed by layers of sediment being pressed down hard and sticking together. You can see the layers of sediment in the rock.
metamorphic rock	Rock that started out as igneous or sedimentary rock but changed due to being exposed to extreme heat or pressure.
magma	Molten rock that remains underground.
lava	Molten rock that comes out of the ground is called lava.
sediment	Natural solid material that is moved and dropped off in a new place by water or wind, e.g. sand.
permeable	Allows liquids to pass through it.
impermeable	Does not allow liquids to pass through it.

Natural Rocks			Human-Made Rocks
Igneous	Sedimentary	Metamorphic	
Obsidian	Chalk	Marble	Brick
Granite	Sandstone	Quartzite	Concrete
Basalt	Limestone	Slate	Cobble Stone

Some words you might use to discuss the properties of a rock:  
hard, soft, permeable, impermeable, durable (meaning resistant to weathering), high density, low density. Density measures how 'bulky' the rock is (how tightly packed the molecules are).

To look at all the planning resources linked to the Rocks unit, [click here](#).

Hand-drawn diagrams of rock samples with labels:

- Sample 2: This rock is fossiliferous limestone
- Sample 3: Bumpy, This rock is Granite
- Sample 5: (empty)
- Sample 6: (empty)

### Rocks

K	W	L
What I know	What I want to know	What I have learnt
A knistle is a form of a rock same for gems. jasper is a gem.	What is the world's most expensive gem? Is it gold and gems are artificial.	

### Rocks and Soil

absorbent, permeability, permeable, non-permeable

particles, cliffs, hills, sandstone, limestone, marble, granite, clay

Types of rocks: Igneous, Sedimentary, Metamorphic

Metamorphic Rock: A metamorphic rock is one that has been changed from one type of rock into another by heat and pressure.

Sedimentary Rock: Sedimentary rock is formed from the remains of plants and animals that have died and been buried under layers of sand and silt.

Granite: A hard, crystalline igneous rock.

PICCOLLAGE



# FEDERATION COVERAGE – AUTUMN TERM

## Year Three Shalfleet: Rocks and Soil

**Palaeontology**  
(pay-lee-on-tolo-jee)

*the scientific study of fossils*

**Palaeontologist**  
(pay-lee-on-tolo-jist)

*A person that studies fossils*

Chemical Fossils	Body Fossils	Trace Fossils
Petroleum oil	Replacement	Coal
Footprints	Whole Body	Coprolites

Thursday 6 October 2023

To explain many meanings for contribution to palaeontology

**Types of Fossils**

- body Fossils**  
the remains of animals or plants
- Trace Fossils**  
Show animal activity  
Footprints and
- Chemical Fossils**  
Matter containing carbon

**Rock Cycle:**

- Magma (checked)
- Igneous Rock (checked)
- Sedimentary Rock (checked)
- Metamorphic Rock (checked)
- Sediment (checked)

Processes shown: volcanic eruption, sedimentation, metamorphism, and melting.

**PICCOLLAGE**



# SCIENCE IN YEAR 4

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- Living things and their habitats
- Animals including humans
- States of matter
- Sound
- Electricity

## FEDERATION COVERAGE – AUTUMN 2 TERM

# Year Four Yarmouth: Living Things

[illegible]



# FEDERATION COVERAGE – AUTUMN 2 TERM

## Year Four Shalfleet: Living things and their habitats

To identify the seven processes of living things.

**When is a Thing a Living Thing?**

If a thing is living it will move, however far or fast or slight.

a falcon swooping on a shrew, the turning of a leaf to light.

All living things can reproduce, remake themselves as young and new, the growing of a rose from seed, your mother giving birth to you.

A living thing must feed or die so bats go hunting moths at night, sheep must graze and insects nibble and green plants conjure food from light.

And life means growth, things getting bigger, from tiny sapling to enormous tree, from foal to horse, from calf to cow, you, from what you are to what you'll be.

by Trevor Parsons

*The missing processes are excretion and sensitivity and reproduction*

*Labels: Sensitivity, Movement, Reproduction, Growth, Nutrition*

Thursday 27 September 2022

To recap the seven life processes

Life Processes	What it means
<b>Movement</b>	Animals usually move their whole body from one place to another, whereas plants move towards the light. Plant roots grow down into the soil towards water.
<b>Reproduction</b>	Animals have babies. Plants produce seeds which grow into new plants.
<b>Sensitivity</b>	Both plants and animals react and respond to what is happening around them, e.g. plants turn and grow towards light, animals see and hear danger and move away.
<b>Nutrition</b>	Green plants make their own food using sunlight, carbon dioxide and water. Animals eat plants and/or other animals.
<b>Excretion</b>	Animals get rid of (excrete) carbon dioxide (a waste gas) by breathing it out.
<b>Respiration</b>	Plants and animals use oxygen (from air) to help turn food into energy.
<b>Growth</b>	Baby animals grow into adult animals. Seedlings grow into bigger plants.

Animal classification

Does it bark? Yes/No

Is it a carnivore? Yes/No

Does it store food in its cheeks? Yes/No

Does it live in water? Yes/No

Has it got four legs? Yes/No

To classify living things

Today we were asked to group in my group named like a...

These were the groups:

- Similar Physical
- Unicellular
- Share colour
- Share texture
- Eye colour

There are 9,000,000 different things on Earth.

There are 5 different kingdoms: animal kingdom and the...

*Your tree is now complete.*

We sorted some living things into groups, on paper. After this, we used branching database software to create an electronic version. Also, we got to choose animals or insects to do our databases on line.

*Labels: Movement, Reproduction, Sensitivity*

**PICCOLLAGE**



# SCIENCE IN YEAR 5

---

- Earth and Space
- Forces
- Properties and changes of materials
- All Living Things and their Habitats
- Animals Including Humans

# FEDERATION COVERAGE – AUTUMN TERM

Year Five Yarmouth: Earth and Space

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# FEDERATION COVERAGE – AUTUMN 2 TERM

## Year Five Shalfleet: Earth and Space

What is a planet?

A body that orbits a star, is round and has cleared its orbit.

Star - a large ball of gas that gives out light and heat.

Solar system - the Sun and all the planets, moons, asteroids, comets, etc. that orbit it.

Planet - a large body that orbits a star and is round.

Star - a large ball of gas that gives out light and heat.

Solar system - the Sun and all the planets, moons, asteroids, comets, etc. that orbit it.

13.10.2022

L.O. To be able to describe the movement of the Earth, and other planets, relative to the Sun in the solar system.

Question: Which planet is closest to the Sun? Which is the furthest planet? Which planet is the largest?

Time taken for a planet to orbit the Sun

Planet	Time taken to orbit the Sun
Mercury	88 Earth days
Venus	225 Earth days
Earth	365 Earth days
Mars	687 Earth days
Jupiter	12 Earth years
Saturn	29 Earth years
Uranus	84 Earth years
Neptune	165 Earth years

What scientific conclusion could we make from this?

The further a planet is from the Sun, the longer it takes to orbit.

Earth and Space Vocabulary

Planet	Star	Comet	Asteroid	Meteorite	Galaxy	Universe
Mercury	Sun	Halley's Comet	Asteroid Belt	Meteorite	Spiral Galaxy	Universe
Venus	Sun	Halley's Comet	Asteroid Belt	Meteorite	Spiral Galaxy	Universe
Earth	Sun	Halley's Comet	Asteroid Belt	Meteorite	Spiral Galaxy	Universe
Mars	Sun	Halley's Comet	Asteroid Belt	Meteorite	Spiral Galaxy	Universe
Jupiter	Sun	Halley's Comet	Asteroid Belt	Meteorite	Spiral Galaxy	Universe
Saturn	Sun	Halley's Comet	Asteroid Belt	Meteorite	Spiral Galaxy	Universe
Uranus	Sun	Halley's Comet	Asteroid Belt	Meteorite	Spiral Galaxy	Universe
Neptune	Sun	Halley's Comet	Asteroid Belt	Meteorite	Spiral Galaxy	Universe

Orbit - the path that a planet or moon takes around a star.

Revolution - the movement of a planet or moon around a star.

Diagram showing the orbit of the Earth around the Sun. The Moon orbits the Earth.

The diagram shows the orbit of the Earth around the Sun. The Moon orbits the Earth.

A. First Quarter

B. Second Quarter

C. Third Quarter

D. Fourth Quarter

E. Last Quarter

Diagram showing the phases of the Moon as seen from Earth.

Through history, there has been two major models that were used to represent the solar system as we now know it. The original model was known as the geocentric model and was later replaced by the heliocentric model.

**Geocentric Model**

The term geocentric means 'earth-centered' which meant that people believed the Earth was at the center of the universe.

The geocentric model was developed by Ptolemy, a Greek philosopher. He compiled the astronomical observations taken by the ancient Greeks and Egyptians and used these for the framework for his theory. His model illustrated that the Earth was stationary whilst the Sun, Moon, planets and stars moved around in perfect circles.

Aristotle, another prominent Greek philosopher advocated the model and it was widely accepted until the emergence of the heliocentric model in the 1500's.

**Heliocentric Model**

The term heliocentric means 'sun-centered' which suggested that the Sun was at the center of the universe.

Nicolas Copernicus, a Polish cleric, was the first person to propose the heliocentric model. He argued that it was in fact the Sun that was stationary whilst the planets revolved around it. He also suggested that stars were stationary and that the Moon orbited the Earth.

Copernicus' theory of a heliocentric model was initially rejected by both the public and majority of the scientific community. However, his theory gained support from Galileo and Johannes Kepler, with Kepler going on to prove the geocentric model was correct.

Wednesday 12<sup>th</sup> October 2022

L.O. To order and name the planets in the Solar System.

Memorise for learning the order of the planets is:

My Very Educated Mother Just Served Us Noodles.

Mercury

Venus

Earth

Mars

Jupiter

Saturn

Uranus

Neptune

What does 'what' mean?

It's the first on earth.

The sun is our main source of light.

Earth is the only planet with life we know about.

Pluto has rings.

Neptune is the furthest away from the sun.

Jupiter is the biggest planet.

Saturn has rings and a large shadow on the southern hemisphere.

Planets are spherical.

Galaxies are made up of billions of stars.

Space is endless and all we have is space.

Space has no air.

Space is full of stars.

More important for the weather because it's the biggest house for the sun.

It's the first on earth.

Figure is 365 days or 12 months. On a leap year it is 366 days or 12 months and 1 day. A year is also the time it takes for a planet to spin around 365 or 366 times. There is a leap year every 4 years.

A year is defined as the time it takes for a planet to orbit the Sun. It takes Earth 365.25 days for the Sun to complete one orbit. It takes Mars 687 days for the Sun to complete one orbit. It takes Jupiter 12 years for the Sun to complete one orbit. It takes Saturn 29 years for the Sun to complete one orbit. It takes Uranus 84 years for the Sun to complete one orbit. It takes Neptune 165 years for the Sun to complete one orbit.

Diagram showing the Earth's orbit around the Sun. The Earth is shown at different points in its orbit, with the Sun at the center.

Geocentric model - The term geocentric means earth-centered which made people believe Earth was at the center of the universe.

Heliocentric model - It means that people believed the Sun was at the center of the universe.

What does 'what' mean?

Aristotle, another prominent Greek philosopher advocated the model and it was widely accepted until the emergence of the heliocentric model in the 1500's.

Diagram showing the Earth's orbit around the Sun. The Earth is shown at different points in its orbit, with the Sun at the center.



# SCIENCE IN YEAR 6

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- Evolution and inheritance
- Living things and their habitats
- Animals including humans
- Electricity
- Light

# FEDERATION COVERAGE – AUTUMN TERM

## Year Six Yarmouth: Evolution and Inheritance

1. those days

2.

3.

4.


5.

1. Kingdom ✓  
2. class ✓ ← Phylum  
3. order ✓  
4. genus ✓ ← Family  
5. species ✓

LO: To be able to create a classification key.



I think whale is the odd one out because it's the only one with gills.

Which of these is the odd one out and why?



I think the crocodile is the odd one out because it's the only one with gills.

Friday 12th September 2022



Do they have a mane?

yes lion

no jaguarundi

are they orange?

yes

no

do they have stripes?

yes

no

are they not land animals?


yes

no

are they water animals?

yes

no



Wednesday 7th September 2022

LO: To understand how classification works.

What are these and how do you know?



1. It looks like a fish because it has fins.
2. It looks like a flower because it has leaves.
3. It looks like an insect because it has 6 legs.
4. It looks like a human because it's standing properly.
5. It looks like a bird because it has wings.
6. It looks like a tree because it also has leaves.

### Learning about Linnaeus

1. What does he specialise in?
2. What is his biggest scientific achievement called?
3. What is an organism?
4. Where was he when he came up with his idea?
5. What was a key skill he used to create classifications?
6. How many ways did he come up with to classify animals?
7. How are the organisms ordered?
8. Why is everything classified in Latin?
9. What was his book called?



PICCOLLAGE



# FEDERATION COVERAGE – AUTUMN TERM

## Year Six Shalfleet:

### Light

Year 6

light travels straight


reflect reflection

light source

object shadows

mirrors periscope


rainbow filters



To present scientific ideas about thinking about light.

there are many different light sources. one is LED which the human eye can see. light is a fast steady ray that helps you to see.

Light



Sight

lights can be seen by your eyes. if you look at a blue light before bed it will disrupt your sleep.

#### Light Sources

Which is the odd one out and why?

White lines in the road A car headlight A box reflector Cat's eyes in the road	Why? I think it is this one because it is not actually a light because it is a bright color and your eyes think that it is glowing.
A piece of white paper A picture A television A mirror	Why? I think it is this because it doesn't actually give off its light.
A Christmas tree decoration Aluminium foil A traffic warden's coat A torch	Why? I think it's this because this is the only one that has an actual light source.
The sun The moon The Earth The planet Venus	Why?
A knife A belt buckle A burning candle A drawing pin	Why?

of the object by changing its.

Thursday 22nd September 2022


I.D. To explain how the size of a shadow can be changed to determine what causes the color of a shadow.

Prediction

I have predicted that if you take the torch away from the object the shadow will get bigger and if you move it forwards the shadow will get smaller.

Distance of torch (cm)	Height of shadow (cm)	
10 cm	33 cm	✓
15 cm	25 cm	✓
20 cm	21 cm	✓
25 cm	19 cm	✓
30 cm	18 cm	✓

Shadow of glass block



PICCOLLAGE

# MONITORING THE SUBJECT:



## Working Scientifically Progression

Statements taken from:

Science programmes of study: key stages 1 and 2, National curriculum in England (2013) DfE

Statutory framework for the early years foundation stage (2017) DfE

stage skills	EYFS	KS1	Lower KS2	Upper KS2
<b>PLAN</b>	<ul style="list-style-type: none"> <li>choose the resources they need for their chosen activities and say when they do or don't need help</li> </ul>	<ul style="list-style-type: none"> <li>ask simple questions and recognising that they can be answered in different ways</li> </ul>	<ul style="list-style-type: none"> <li>ask relevant questions and using different types of scientific enquiries to answer them</li> <li>set up simple practical enquiries, comparative and fair tests</li> </ul>	<ul style="list-style-type: none"> <li>plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> </ul>
<b>DO</b>	<ul style="list-style-type: none"> <li>know about similarities and differences in relation to places, objects, materials and living things</li> <li>make observations of animals and plants</li> <li>explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> <li>select and use technology for particular purposes</li> </ul>	<ul style="list-style-type: none"> <li>observe closely, using simple equipment</li> <li>perform simple tests</li> <li>identify and classify</li> </ul>	<ul style="list-style-type: none"> <li>make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers</li> </ul>	<ul style="list-style-type: none"> <li>take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> </ul>
<b>RECORD</b>	<ul style="list-style-type: none"> <li>represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories</li> </ul>	<ul style="list-style-type: none"> <li>gather and record data to help in answering questions.</li> </ul>	<ul style="list-style-type: none"> <li>gather, record, classify and present data in a variety of ways to help in answering questions</li> <li>record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> </ul>	<ul style="list-style-type: none"> <li>record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> </ul>
<b>REVIEW</b>	<ul style="list-style-type: none"> <li>talk about the features of their own immediate environment and how environments might vary from one another</li> <li>explain why some things occur and talk about changes</li> </ul>	<ul style="list-style-type: none"> <li>use their observations and ideas to suggest answers to questions</li> </ul>	<ul style="list-style-type: none"> <li>report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>identify differences, similarities or changes related to simple scientific ideas and processes</li> <li>use straightforward scientific evidence to answer questions or to support their findings</li> </ul>	<ul style="list-style-type: none"> <li>use test results to make predictions to set up further comparative and fair tests</li> <li>report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</li> <li>identify scientific evidence that has been used to support or refute ideas or arguments</li> </ul>



## PUPIL VOICE QUESTIONNAIRE

Class / Year group:	Agree	Neutral	Disagree
I enjoy science lessons.			
My teacher enjoys science lessons.			
Science is difficult.			
I do lots of thinking and talking in science.			
I do lots of writing in science.			
I use lots of equipment in science.			
I work in small groups in science.			
I would like to do more science lessons.			
I can use some scientific words.			
You must be clever to be good at science.			

### Extra questions:

How often do you have a science lesson?

What is science?

What do you like about science?

Is there anything that you do not like about science?

What has been your favourite science lesson?

How could your science lessons be better?



# NEXT STEPS IN THE SUBJECT:

## 2022/2023 One Page Subject Action Plan

**Subject – Science**

**Subject Lead – Sylvie Poulton**

## **FDP Links –**

**Strategic Objective 1: Aspire**

Ensuring the provision of high quality curriculum

**Strategic Objective 3: Collaborate**

Sharing good practice – Federation. Seeking good practice further afield.

**Strategic Objective 5: Stabilise**

High quality CPD



ACTION	WHY?	HOW? <i>Success Criteria</i>	WHO?	COST/RESOURCES?	OBJECTIVE ACHIEVED?	EVALUATION <i>What has been the impact?</i>	NEXT STEPS
<b>To ensure that Science Literacy is threaded through the wider curriculum</b>  Develop knowledge organisers for whole school  Promote opportunities for science to be taught within other subjects	To show clear phase progression of vocabulary, sentence stems and key questions.  To ensure the profile of the subject and specific vocabulary is raised	Book checks – half termly  Portfolio evidence submitted  Pupil Voice  Science displays	Subject leader	<a href="https://psstt.org.uk/resources/curriculum-materials">https://psstt.org.uk/resources/curriculum-materials</a>  <a href="https://www.planassessment.com/plan-knowledge-matrices-teacher">https://www.planassessment.com/plan-knowledge-matrices-teacher</a>			
<b>To audit the CPD needs of teachers in the federation</b>	Supporting quality teaching of science  Supporting colleagues to cover a broad science curriculum	Create teacher's subject self-evaluation Gather responses  Source funding/CPD relevant to needs	Subject leader  Finance  SLT	<a href="https://psstt.org.uk/resources/curriculum-materials/subject-leader">https://psstt.org.uk/resources/curriculum-materials/subject-leader</a>			