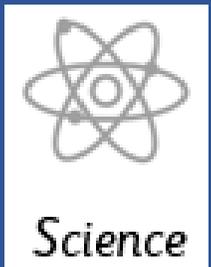




Intent

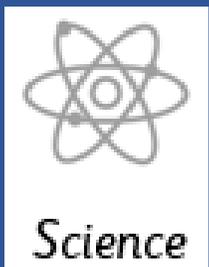


Science

Intent



Intent



Science

Why is science important?

At Ivegill C of E Primary School, all of our teaching and learning builds on our core values; Endurance, Trust and Community. We recognise the importance of Science in every aspect of daily life; we encourage children to be inquisitive throughout their time at our school and beyond. The Science curriculum fosters a natural curiosity of the child, encourages respect for living organisms and the physical environment and provides opportunities for critical evaluation of evidence. We believe that science encompasses the acquisition of knowledge, concept, skills and positive attitudes.

Science



Intent



Aims of the Science Curriculum

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.
- develop the essential scientific enquiry skills to deepen their scientific knowledge
- use a range of methods to communicate their scientific information and present it in a systematic, scientific manner, including I.C.T., diagrams, graphs and charts
- develop a respect for the materials and equipment they handle regarding their own, and other children's safety
- develop an enthusiasm and enjoyment of scientific learning and discovery

Science

Our Science curriculum is knowledge and vocabulary rich, ensuring children gain a deep understanding of fundamental scientific knowledge and concepts as well as embedding key science specific vocabulary and terminology (Tier 3 vocabulary). In addition, children are encouraged to develop their scientific curiosity and understanding by working scientifically.



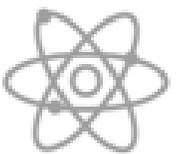
Intent



Science



Intent



Science

Working Scientifically

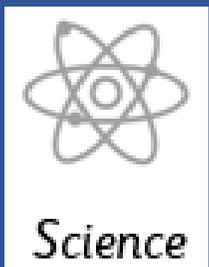
At Ivegill C of E Primary School children will gradually build on their scientific skills throughout the Key Stages based on National Curriculum expectations.

Key Stage 1:

- 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.



Intent



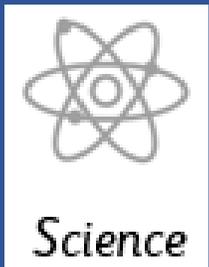
Working Scientifically

Lower Key Stage 2:

- 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.



Intent



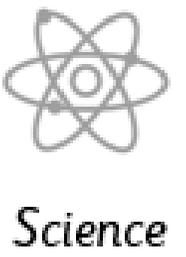
Working Scientifically

Upper Key Stage 2:

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Using test results to make predictions to set up further comparative and fair tests
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
- Identifying scientific evidence that has been used to support or refute ideas or arguments



Intent



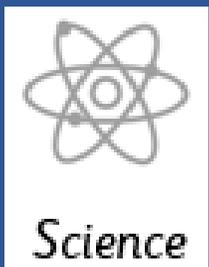
Spaced Retrieval Practice Approach

Our science curriculum is delivered through a series of modules which are deliberately spaced throughout the academic year with opportunities to introduce and revisit key concepts building on previous learning. This approach enables staff to deepen pupil understanding and embed learning.

Our curriculum maps clearly show how we deliver the National Curriculum expectations for science within and across year groups. All Science modules are identified on mixed age class specific overviews using green boxes. As we are mixed age, science is taught on a 2 year rolling cycle covering all the objectives of the year groups. These years are identified as A and B on the class overviews. KS1 also cover modules through continuous provision throughout the year, identified in pink on the plan.



Intent



Early Years

In Early Years, Science is taught through Knowledge and Understanding of the World. The children learn about the scientific world around them in their play and adult led activities. Our curriculum is designed to enable children to make sense of their physical world and community. Children are encouraged to be scientists by:

- Finding out about and showing curiosity and interest in features of objects, events and living things
- Describing and talking about what they see, including noticing similarities and differences
- Showing curiosity and asking questions about why things happen and how things work
- Showing understanding of cause-effect relations
- Noticing and commenting on patterns
- Showing an awareness of change
- Explaining their own knowledge and understanding, and asking appropriate questions of others
- Investigating objects and materials by using all of their senses as appropriate



Intent



Content and sequence - EYFS to Key Stage 1

	ELG's	How this is achieved in EYFS	Science KS1	
			Year 1	Year 2
Specific Area of Learning Understanding the World	<p>ELG 2 Managing Self</p> <ul style="list-style-type: none"> Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. <p>ELG 14 The Natural World</p> <ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants 	<ul style="list-style-type: none"> Discussions at snack time of the importance of healthy food choices. During lunch time discussions. Through stories and circle time discussions. E.g The story – Now wash your hands and Funnybones. P.E lessons that encourage getting dressed and undressed independently. Naming body parts through songs – Heads, shoulders, knees and toes. RSE link – Correct naming of body parts. Talking about pets at home. Exploring minibeasts and recording our observations. 	Animals, including humans	
	<p>ELG 14 The Natural World</p> <ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants. 	<ul style="list-style-type: none"> Going on walks to observe the local environment and to compare and learn about the seasons. Taking photos to compare seasons and discuss. Planting seeds and plants Looking after the EYFS garden. Creating bug hotels 	Plants	
	<p>ELG 14 The Natural World</p> <ul style="list-style-type: none"> Understanding some important processes and changes in the natural world around them, including seasons and changing states of matter. 	<ul style="list-style-type: none"> Growing plants from bulbs and seeds. Making boats to explore best materials. Water tray activities to explore water, ice, and materials that float and sink. Testing the best material for a raincoat for Paddington bear. 	Seasonal changes Everyday materials	Living things and their habitats. Uses of everyday materials

Content and Sequence: Year 1 and 2



Intent



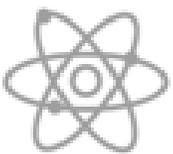
Science

SCIENCE National Curriculum Expectations KS1	Year A 2021/22			Year B 2022/23		
	Autumn	Spring	Summer	Autumn	Spring	Summer
2. Living things and their habitats <ul style="list-style-type: none"> Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the most basic needs of different kinds of animals and plants, and how they depend on each other Identify and name a number of plants and animals in their habitats, including micro-habitats 						
<ul style="list-style-type: none"> 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. Explore and compare the differences between things that are living, dead, and things that have never been alive 						
Plants <ul style="list-style-type: none"> Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 						
Animals, including humans <ul style="list-style-type: none"> Notice that animals, including humans, have offspring which grow into adults Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) 						
<ul style="list-style-type: none"> Describe the importance for humans to exercise, eating the right amounts of different types of food and hygiene. 						
Uses of everyday materials <ul style="list-style-type: none"> Identify and compare the sustainability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 						

Content and Sequence: Year 3 and 4



Intent



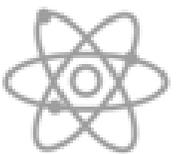
Science

SCIENCE National Curriculum Expectations Year3/4	Year A/C			Year B/D		
	Autumn	Spring	Summer	Autumn	Spring	Summer
Plants <ul style="list-style-type: none"> •identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers •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 •investigate the way in which water is transported within plants •explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal 						
Animals including humans <ul style="list-style-type: none"> •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 •identify that humans and some other animals have skeletons and muscles for support, protection and movement Year4 •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 (Yr4) <ul style="list-style-type: none"> •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 						
States of Matter(Yr4) <ul style="list-style-type: none"> •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 						

Content and Sequence: Year 3 and 4



Intent



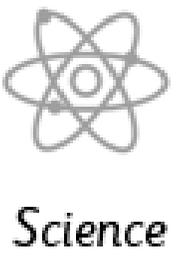
Science

<p>Rocks</p> <ul style="list-style-type: none"> •compare and group together different kinds of rocks on the basis of their appearance and simple physical properties •describe in simple terms how fossils are formed when things that have lived are trapped within rock •recognise that soils are made from rocks and organic matter 						
<p>Light</p> <ul style="list-style-type: none"> •recognise that they need light in order to see things and that dark is the absence of light •notice that light is reflected from surfaces •recognise that light from the sun can be dangerous and that there are ways to protect their eyes •recognise that shadows are formed when the light from a light source is blocked by an opaque object •find patterns in the way that the size of shadows change 						
<p>Sound (Yr4)</p> <ul style="list-style-type: none"> •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 						
<p>Forces and Magnets</p> <ul style="list-style-type: none"> •compare how things move on different surfaces •notice that some forces need contact between 2 objects, but magnetic forces can act at a distance •observe how magnets attract or repel each other and attract some materials and not others •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 •describe magnets as having 2 poles •predict whether 2 magnets will attract or repel each other, depending on which poles are facing 						

Content and Sequence: Year 5 and 6



Intent



SCIENCE National Curriculum Expectations Year 5/6	Year A/C			Year B/D		
	Autumn	Spring	Summer	Autumn	Spring	Summer
<p>Properties and changes of materials</p> <ul style="list-style-type: none"> •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 •know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution •use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating •give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic •demonstrate that dissolving, mixing and changes of state are reversible changes •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 						
<p>Animals including humans</p> <ul style="list-style-type: none"> •describe the changes as humans develop to old age Year 6 •identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood •recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function •describe the ways in which nutrients and water are transported within animals, including humans 						

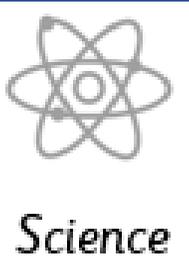
Content and Sequence: Year 5 and 6

Year 5/6 Curriculum Plan

Ivegill CE Primary



Intent

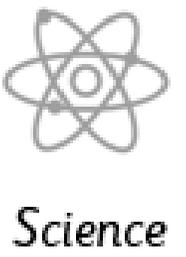


<p>Living things and their habitats</p> <ul style="list-style-type: none"> •describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals •give reasons for classifying plants and animals based on specific characteristics 						
<p>Earth and Space</p> <ul style="list-style-type: none"> •describe the movement of the Earth and other planets relative to the sun in the solar system •describe the movement of the moon relative to the Earth •describe the sun, Earth and moon as approximately spherical bodies •use the idea of the Earth's rotation to explain day/night, the apparent movement of the sun across the sky 						
<p>Forces</p> <ul style="list-style-type: none"> •explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object •identify the effects of air resistance, water resistance and friction, that act between moving surfaces •recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect 						
<p>Evolution and Inheritance</p> <ul style="list-style-type: none"> •recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago •recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents •identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution 						

Content and Sequence: Year 5 and 6



Intent



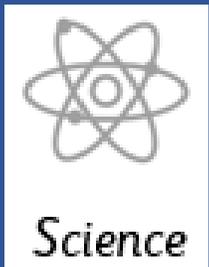
Year 5/6 Curriculum Plan

Ivegill CE Primary

<p>Light</p> <ul style="list-style-type: none">• recognise that light appears to travel in straight lines• 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• 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• use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them							
<p>Electricity</p> <ul style="list-style-type: none">• associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit• 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• use recognised symbols when representing a simple circuit in a diagram							



Implementation

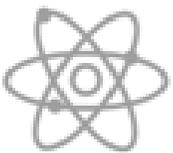


Science

Implementation



Implementation



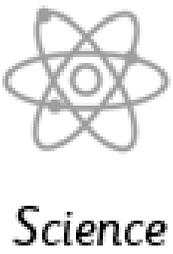
Science

Modular Approach – Knowledge

At Ivegill C of E Primary School, Science is taught across each mixed age class in modules that enable pupils to study in depth key scientific understanding, skills and vocabulary. Each module aims to activate and build upon prior learning, including EYFS, to ensure better cognition and retention. Each module is carefully sequenced to enable pupils to purposefully layer learning from previous sessions to facilitate the acquisition and retention of key scientific knowledge.

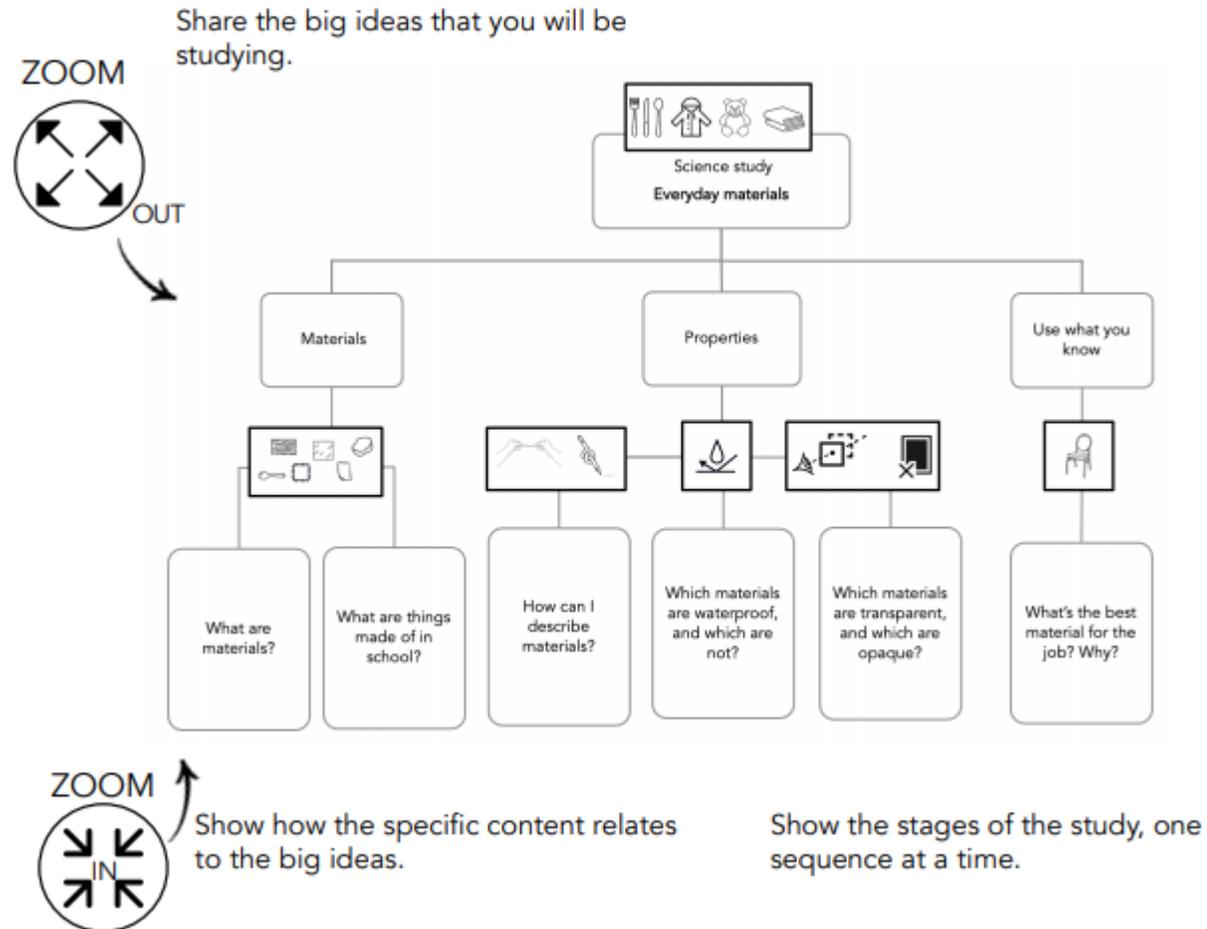


Implementation



The Big Ideas

At Ivegill C of E Primary School we put an emphasis on sharing the big ideas with the children at the beginning of every module. We feel this gives the children a clear vision of their learning and a sense of ownership of their learning.





Implementation



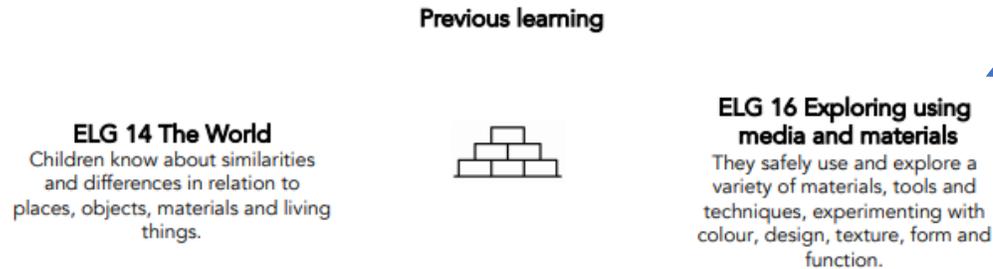
National Curriculum objectives and how these links to prior learning are evident at the beginning of every module.

 SCIENCE Introduce Everyday materials  Year ____
____ Term

Pupils should be taught to:

- distinguish between an object and the material from which it is made
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock
- describe the simple physical properties of a variety of everyday materials
- compare and group together a variety of everyday materials on the basis of their simple physical properties

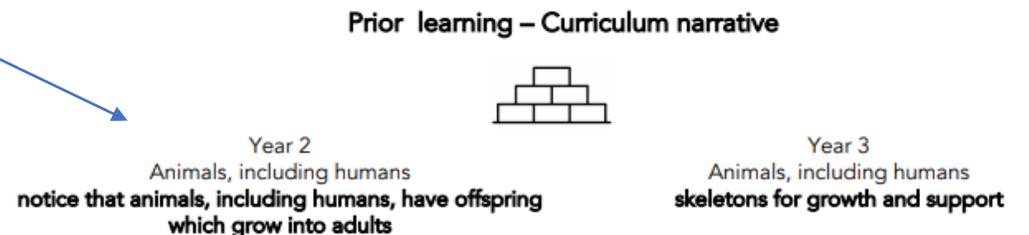
A Year 1 module showing how the learning builds upon ELGs.



 SCIENCE Animals, including humans Year 5
Spring Term

- Pupils should be taught to** describe the changes as humans develop to old age
- Pupils should draw a timeline to indicate stages in the growth and development of humans. They should learn about the changes experienced in puberty.
 - Pupils could work scientifically by researching the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows.

A Year 5 module building on prior learning of Animals including humans from Years 2 and 3.





Development of Scientific skills

As well as ensuring pupils are taught key knowledge, each module is designed to offer pupils the opportunity to undertake scientific enquiries and develop their skills as a Scientist in asking questions, planning and carrying out experiments, collecting and analysing information and drawing conclusions. At Ivegill C of E Primary School, the working scientifically objectives are clearly displayed on each of our science modules for both Key Stage 1 and Key Stage 2. It is clear which of the objectives are being taught throughout a specific module which ensures full coverage and allows for skills to be built upon.

Example of a Year 1 – Animals including humans

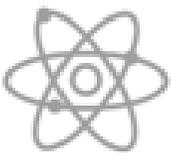
Asking simple questions and recognising that they can be answered in different ways	Observing closely, using simple equipment	Performing simple tests	Identifying and classifying	Using their observations and ideas to suggest answers to questions	Gathering and recording data to help in answering questions

Example of a Year 4 – Animals including humans – Teeth, digestion and food chains.

Ask relevant questions	Set up simple, practical enquiries and comparative and fair tests	Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers	Gather, record, classify and present data in a variety of ways to help in answering questions	Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests	Identify differences, similarities or changes related to simple, scientific ideas and processes



Implementation



Science

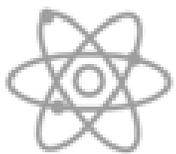
Cumulative Quizzing Model (Supporting Cognitive Load)

Pupils are given opportunities to retrieve their knowledge at regular intervals throughout the unit through a 'teach – test – teach – test' model. The aim of this model is to reinforce and revisit previously taught knowledge and vocabulary. Children are tested using written quizzes.



Ivegill
C.E. SCHOOL

Implementation



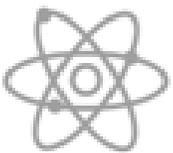
Science

Cumulative Quizzing Model (Supporting Cognitive Load)

Ivegill CE Primary School Quiz								
Science: Living things and their habitats			Year: 3 and 4			Autumn Term		
Question 1: Biodiversity means...			Question 5: Alligators, fish, snakes and frogs are all...			Question 8: Select the 4 main groups of plants.		
Start of unit:	End of unit:		Start of unit:	End of unit:		Start of unit:	End of unit:	
The enormous variety of life on earth			Warm blooded vertebrates			Moss, ferns, flowering plants and conifers		
A biome in geography			Cold blooded vertebrates			Fungi, moss, ferns and trees.		
A biosphere of the plant			Invertebrates			Ferns, plants, conifers and fungi		
I don't know			Don't know			Don't know		
Question 2: An organism is a ...			Question 6: How do scientists explain and sort animals and plants?			Question 9: A habitat is...		
Start of unit:	End of unit:		Start of unit:	End of unit:		Start of unit:	End of unit:	
Any living plant			Talking about their species			A natural home or environment of a plant or animal.		
Any living animal			Describing organisms			A type of flowering plant.		
Any living thing			Use classification and keys			A type of animal.		
Don't know			Don't know			Don't know		
Question 3: Animals with a backbone are called...			Question 8: Snails belong to which group?			Question 10: What could happen if the environment changes in a habitat?		
Start of unit:	End of unit:		Start of unit:	End of unit:		Start of unit:	End of unit:	
Vessels			Arachnid			Nothing – plant and animals carry on.		
Vertebrates			Mollusc			All plants and animals will die.		
Vestibules			Crustaceans			Animals and plants may be affected by change of food, water and shelter		
Don't know			Don't know			Don't know		
Question 4: The features of mammals are...								
Start of unit:	End of unit:							
Warm blooded, breath with lungs and give birth to live young.								
Cold blooded, breath with gills and lay to eggs.								
Warm blooded, have moist scaly skin and have wings.								
Don't know								



Implementation



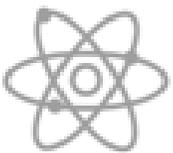
Minimum lesson expectations

All science lessons will incorporate the following elements:

- Explicit teaching of vocabulary
- Revisiting of prior learning
- Use of scientific vocabulary in learning
- Reading
- Working scientifically
- Evidence of learning in pupil's books



Implementation



Science

Vocabulary

EYFS

At Ivegill, we want our children to have an expansive vocabulary and through teacher modelling and planning, children are given opportunity to use and apply appropriate vocabulary. Scientific language is taught and built upon with vocabulary being a focus. This is also encouraged through planning trips and having visitors in school.



Implementation



Vocabulary modules in Years 1 - 6

Vocabulary instruction is at the heart of the curriculum and subject specific words are incorporated in each module.

Vocabulary overview for a Year 3 Forces and Magnets module, including Tier 2 and 3 language as well as prefixes and suffixes.

Y3 Forces and magnets
Vocabulary Essentials: Teacher Guide

Prior vocabulary knowledge

Words I should know	Roots, prefixes, suffixes and spelling rules
materials properties physical metal	re -ward -wise -tion

Vocabulary for explicit instruction

Tier 2 multiple meaning or high frequency		Tier 3 subject specific	
consequence	a direct result or effect	magnet	a material or an object that attracts other materials such as iron
contact	state of touching something else	resistance	a force that slows movement
force	something that causes movement	friction	force acting against the direction of movement
attract	draw something closer	repel	push something away
north	one end of a magnet	pole	one of the two ends of a magnet
south	opposite end of a magnet to north	magnetic field	area around a magnet in which its magnetic force acts

Etymology and morphology for explicit instruction

Prefix / Suffix / Root	Meaning	Examples
con	together, with	contact, consequence, connect
pel	push	repel, compel, impel
tract	draw, pull	attract, traction, tractor
tact	touch	contact, tactile, intact
dict	say, speak	predict, contradict, dictate

Relevant idioms and colloquialisms

when push comes to shove	when something has become so urgent you have to take action
opposites attract	how people who are very different sometimes get along well together

Moving beyond >>>

gravity mechanism lever pulley



Implementation



Explicit teaching of vocabulary

Vocabulary Essentials: Pupil Organiser **KS2** Study: Y3 Forces and magnets

What I already know that will help me

Words materials, properties, physical, metal	Word components and phonic knowledge re -ward -wise -tion
---	--

T2 Multiple meaning or high frequency words

KNOW LINK ANALYSE Use and apply in a sentence

consequence

contact

Children use and apply taught vocabulary. This is often done at the start of the lesson.

Use of dual coding

Vocabulary Essentials: Pupil organiser **KS2** Study: Y3 Forces and magnets

What I already know that will help me

Words materials, properties, physical, metal	Word components and phonic knowledge re -ward -wise -tion
---	--

T3 Subject specific vocabulary for this study

KNOW LINK ANALYSE Use and apply in a sentence

magnet

resistance

Use of vocabulary within a Year 3/4 lesson

Is soil just dirt?
What makes up soil?

FALSE
Soil is just dirt

TRUE
Soil is made from
tiny pieces of broken up rock + decaying organic material (e.g. leaves) + micro-organisms (e.g. bacteria)

Geologists call the layers of soil - horizons

Humus
remains of plants and animals that have died and are decaying

top layer
of soil with lots of nutrients and minerals

weathered rock
breakdown of rocks into smaller pieces

solid rock
that soil sits on

Soil is decaying animals, minerals and plants. Soil is made from many plants and decaying things. Soil is very important to us humans because soil makes plants grow because of the minerals. Soil is made from plants and decaying animals. With soil you can get different trees such as humus. Top layer, weathered rock and solid rock.



Humus
Top layer
Weathered rock
Solid rock

Humus
Humus is the top just below the grass. Humus has animals and decaying animals in it decaying takes a very long time.

Top layer
The top layer has the same as the next top layer. The top layer is more crumbly than others and that's where all of the nutrients come from.

Weathered rock
The weathered rock is broken up into pieces.

Solid rock
The solid rock does all the work because that has to carry all of that soil.



Implementation



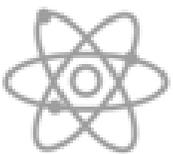
Science

Knowledge organisers and Knowledge Notes

Accompanying each module is a Knowledge Organiser which contains key vocabulary, information and concepts which all pupils are expected to understand and retain. Knowledge notes are the elaboration and detail which help pupils acquire the content of each module. They support vocabulary and concept acquisition through a well-structured sequence that is cumulative. Each Knowledge Note begins with questions that link back to the cumulative quizzing, focussing on key content to be learnt and understood. Knowledge Organisers and Knowledge Notes are dual coded to provide pupils with visual calls to aid understanding and recall. Knowledge Organisers and Knowledge Notes are referenced throughout each module.

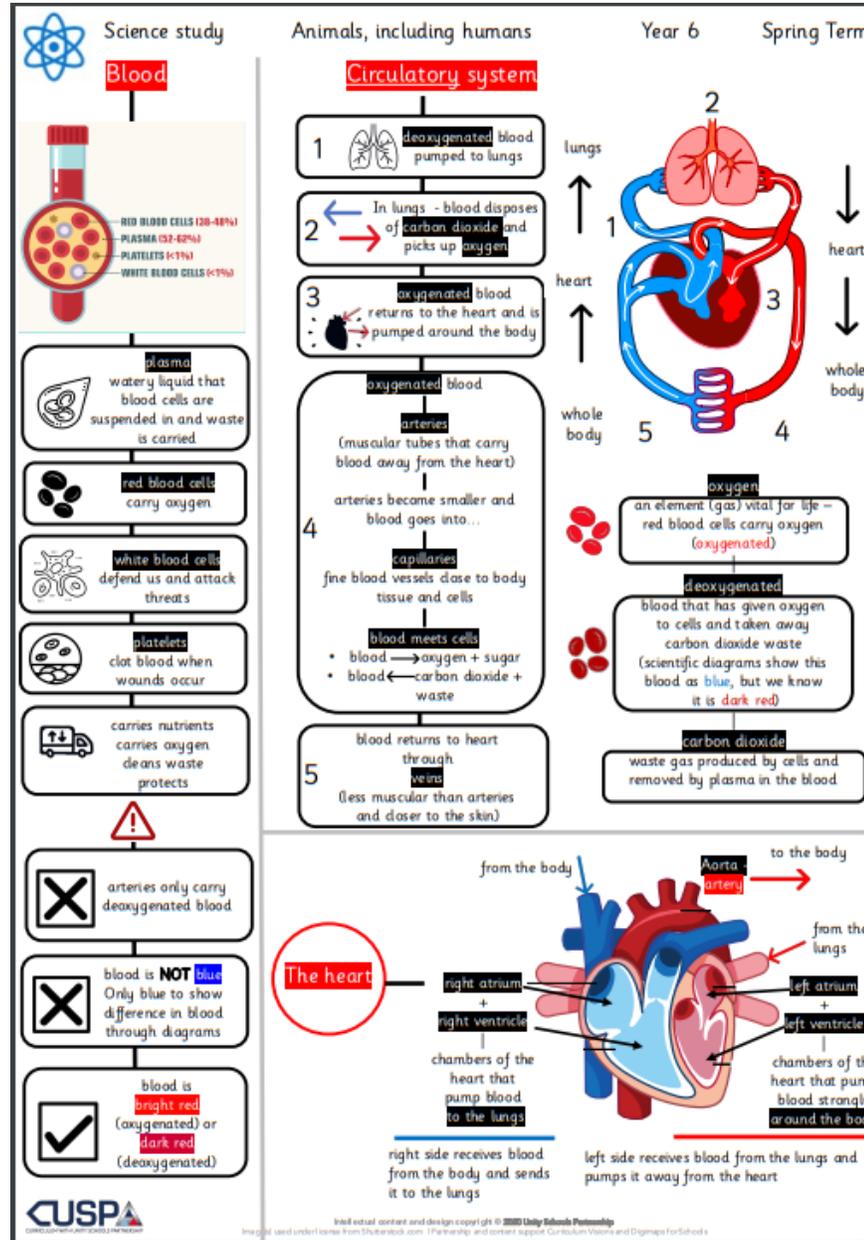


Implementation



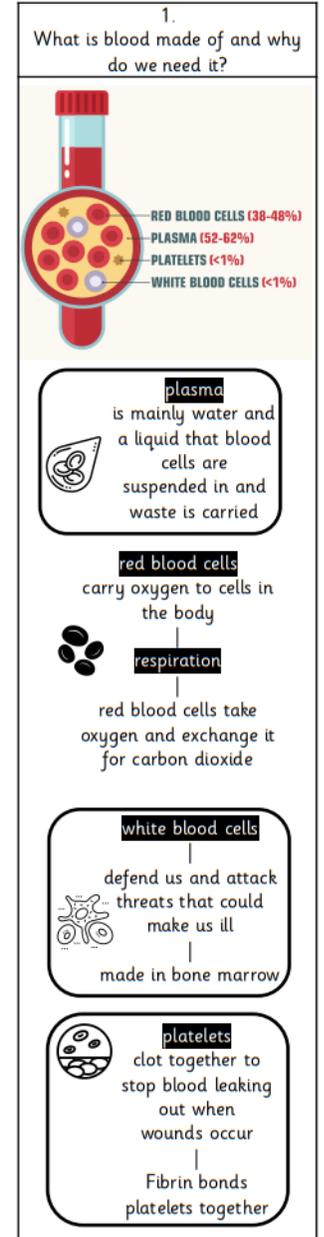
Science

Knowledge organisers and Knowledge Notes



Year 6 Knowledge Organiser

Accompanying Year 6 Knowledge Note





Planning using CUSP materials

Lesson planning is completed with the use of our suggested lesson sequence, in conjunction with prior quizzing and content from the Knowledge Organisers.

SCIENCE Introduce Everyday materials Year 1 Summer Term

Implementation

Suggested Lesson	Learning question
ESSENTIAL 1	What are materials?
DESIRABLE 2	What are things made of in school?
ESSENTIAL 3	How can I describe materials?
ESSENTIAL 4	Which materials are waterproof and which are not?
ESSENTIAL 5	Which materials are transparent and which are opaque?
DESIRABLE 6	What's the best material for the job? Why?

Science Introduce Everyday materials Year 1 Summer Term

These are ALL materials
the material that things are made from

wood plastic glass metal rock paper or cardboard fabric

What a material is like

hard soft
stiff stretchy
rough smooth
bendy not bendy (rigid)
waterproof not waterproof
see through transparent not see through opaque

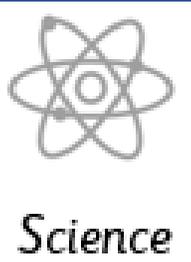
everything is made from something

3. How can I describe materials?

wood	metal
plastic	glass
rock	paper and cardboard
fabric	

materials can be described as...

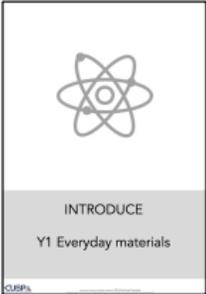
hard	soft
stiff	stretchy
rough	smooth
bendy	not bendy (rigid)
waterproof	not waterproof
see through transparent	not see through opaque



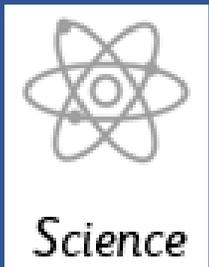


Science planning

Example of Year 1 planning for the Everyday materials module

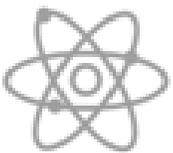
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y1 Everyday materials</p> 	<p>Chemistry*</p> <p>the study of the composition, behaviour and properties of matter</p>	<p>Managing Self Manage their own basic hygiene and personal needs, including dressing, going to the toilet, and understanding the importance of healthy food choices.</p> <p>The Natural World Explore the natural world around them, making observations and drawing pictures of animals and plants.</p> <p>Explore the natural world around them, making observations and drawing pictures of animals and plants.</p> <p>Understanding some important processes and changes in the natural world around them, including seasons and changing states of matter.</p>	<p>Materials What are materials? What are things made of in school?</p> <p>Properties How can I describe materials? Which materials are waterproof and which are not? Which materials are transparent and which are opaque?</p> <p>Use what you know What's the best material for the job? Why?</p>	<p>absorb rough smooth waterproof metal plastic</p>	<p>materials properties flexible transparent opaque physical</p>

Implementation





Implementation



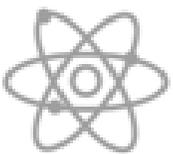
Science

Tailoring for SEND

At Ivegill we aim for all science lessons and learning questions to be accessible to all pupils. The use of dual coded Knowledge Notes and Organisers provide visuals to aid understanding and recall. In addition, knowledge notes are utilised in all lessons to minimise cognitive overload, so children can use and apply their knowledge more easily. Sentence stems can be used where necessary to aid with written evidence.



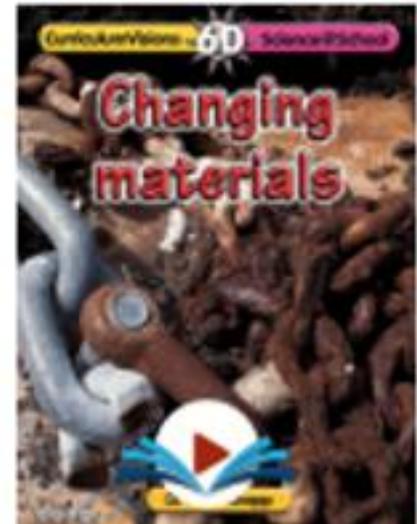
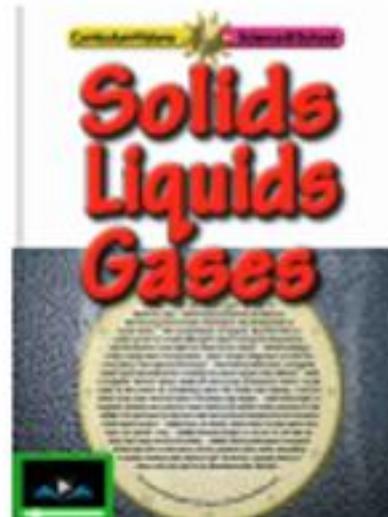
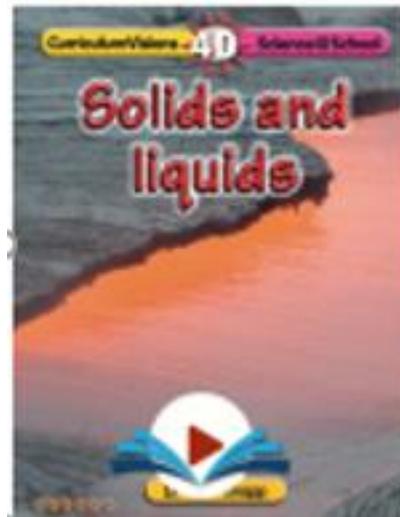
Implementation



Science

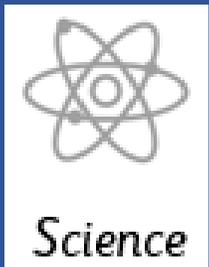
Reading

Our Science curriculum is supported by a wealth of high quality texts which support pupil's learning and develop their skills in accessing information from a range of sources. We also access, 'Curriculum Visions,' to ensure that our subject content has materials that can be accessed by pupils both in school and at home.





Implementation



Oracy

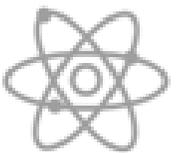
When discussing their findings or presenting information, pupils are encouraged to speak using full sentences and incorporating key scientific vocabulary. This is modelled by teachers e.g. using my turn, your turn.

Writing

Pupils are expected to write across all areas of the curriculum with teachers modelling how to write purposefully in each subject.



Implementation



Science

Continuous Professional Development

All staff have undergone CPD in Cognitive Load Theory, Spaced Practice Retrieval Theory and planning the wider curriculum through the use of Knowledge Notes. This has supported the development of the wider curriculum.

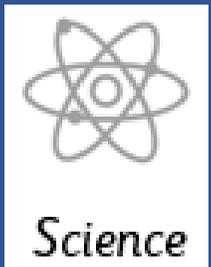
In addition to this, staff have accessed planning sessions with Alex Bedford (author of CUSP) to support them in effectively planning sequences of work using the materials provided within the modules.



Impact

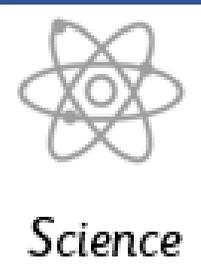
Science

Impact





Impact



How do we measure the impact of science teaching?

<i>Science</i>	Living things and their habitats						
	Quiz			End of unit Teacher Assessment (WTS,EXP or EXC)			
	Start	End	Difference				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
0-59%	0	0%	0	0%	WTS	0	0%
60-79%	0	0%	0	0%	EXP	0	0%
above 80%	0	0%	0	0%	EXC	0	0%

Teachers record start and end of unit quiz scores. They also assess the pupils against the learning objects and provide a teacher assessment.

Pupil end of module results are compared to show how much pupils have gained and retained across the module.

