Year 1
Science Curriculum

Whole-school definition of science

Science is a way to understand our world by carefully thinking about it and testing our guesses with observations and experiments.

Year 1 Overview

Block 1	Biology: Animals including Humans
Block 2	
Block 3	Chemistry: Everyday Materials
Block 4	
Block 5	Earth Science: Seasonal Changes
Block 6	Biology: Plants

Year 1 Working Scientifically

New vocab: properties, observe, test, magnifying glass, object, record, equipment

- **Know that we can ask questions about the world and that when we observe the world to answer these questions, this is science**
- **Know that we can use magnifying glasses to observe objects closely**
- **Know that we can test our questions to see if they are true**
- **Know that objects can be identified or sorted into groups based on their observable properties**
- **Know that we can write down numbers and words or draw pictures to record what we find**

- Sc1/1.1 asking simple questions and recognising that they can be answered in different ways
- Sc1/1.2 observing closely, using simple equipment
- Sc1/1.3 performing simple tests
- Sc1/1.4 identifying and classifying
- Sc1/1.5 using their observations and ideas to suggest answers to questions
- Sc1/1.6 gathering and recording data to help in answering questions

THE BIG IDEAS OF SCIENCE

Physics
P1: The universe follows unbreakable rules that are all about forces, matter and energy.
P2: Forces are different kinds of pushes and pulls that act on all the matter that is in the universe. Matter is all the stuff, or mass, in the universe.
P3: Energy, which cannot be created or destroyed, comes in many different forms and tends to move away from objects that have lots of it.

Chemistry
C1: All matter (stuff) in the universe is made up of tiny building blocks.
C2: The arrangement, movement and type of the building blocks of matter and the forces that hold them together or push them apart explain all the properties of matter (e.g. hot/cold, soft/hard, light/heavy, etc).
C3: Matter can change if the arrangement of these building blocks changes.

Biology
B1: Living things are special collections of matter that make copies of themselves, use energy and grow.
B2: Living things on Earth come in a huge variety of different forms that are all related because they all came from the same starting point 4.5 billion years ago.
B3: The different kinds of life, animals, plants and microorganisms, have evolved over millions of generations into different forms in order to survive in the environments in which they live.

Earth science
E1: The Earth is one of eight planets that orbit the sun.
E2: The Earth is tilted and spins on its axis leading to day and night, the seasons and the climate.
E3: The Earth is made up of several layers, including a relatively thin rocky surface which is divided into tectonic plates, and the movement of these plates leads to many geologic events (such as earthquakes and volcanoes) and geographical features (such as mountains.)

Block 1
Biology
Animals including Humans

Year 1 Block 1 Animals Including Humans Big Idea(s): B2, B3	**New vocab:** energy, growth, habitat, fish, amphibian, reptile, bird, mammal, offspring, carnivore, herbivore, omnivore, vertebrate, skeleton, organ
	Composites: I can classify animals based on what they eat I can describe the structure of a variety of common animals (fish, birds, mammals, amphibians, insects,reptiles) I can emphasize the uniqueness and dignity of each individual, highlighting the idea that every person is special and valuable.
Week 1	• **Know that science is a way to understand our world by carefully thinking about it and testing our guesses with observations and experiments** • Know that a trout is an example of a fish; a frog is an example of an amphibian; a lizard is an example of a reptile; a robin is an example of a bird; a rabbit and a human are examples of a mammal and explore further examples of each animal type
Week 2	• **Know that herbivorous animals eat plants; carnivorous animals eat other animals; omnivorous animals eat both animals and plants**
Week 3	• Know that a cat is an example of a carnivore; that a rabbit is an example of a herbivore; know that many humans are examples of omnivores (though not vegetarians)
Week 4	• **Know that fish, amphibians, reptiles, birds and mammals are similar in that they have internal skeletons and organs; these are known as vertebrates, which means they are animals that have a backbone**
Week 5	• **Know that fish are different to other animals in having gills so that they can breathe underwater and scaly skin**
Week 6	• **Know that amphibians are different to other animals in that they begin their lives with gills but then develop lungs and breathe on land**

Block 2
Biology
Animals including Humans

Year 1 Block 2 Animals Including Humans Big Idea(s): B2, B3	**New vocab:** energy, growth, habitat, fish, amphibian, reptile, bird, mammal, offspring, carnivore, herbivore, omnivore, vertebrate, skeleton, organ
	Composites: I can describe the structure of a variety of common animals (fish, birds, mammals, amphibians, insects,reptiles), I can recognise the basic parts of the human body I can emphasize the uniqueness and dignity of each individual, highlighting the idea that every person is special and valuable.
Week 1	• **Know that science is a way to understand our world by carefully thinking about it and testing our guesses with observations and experiments (retrieval)** • **Know that reptiles are different to other animals in that they breathe air and have scaly skin**
Week 2	• **Know that birds are different to other animals in that they have feathers and wings**
Week 3	• **Know that mammals are different to other animals in that they have fur/hair and they feed milk to their young**
Week 4	• **Know that feet, legs, arms, hands, torso, head, skin, ears, eyes, nose, mouth and tongue are parts of the body and identify them**
Week 5	• **Know that eyes are associated with sight, ears with sound, nose with smell, tongue with taste and skin with touch**
Week 6	• Know that Ibn Sina (known also as Avicenna) was a scientific genius during early Islamic civilisation • Know that he wrote books about medicine and healing people • Know that he helped guide the modern world towards the idea of using evidence in medicine • Know that he also made major contributions to other areas of science, mathematics and philosophy

Block 3
Chemistry
Everyday Materials

Year 1 Block 3 Everyday Materials Big Idea(s): C1, C2	**New vocab:** absorption, matter, property, wood, plastic, glass, metal, water, rock
	Composites: I can recognise a variety of everyday materials, I can describe the simple physical properties of a variety of everyday materials.
Week 1	• **Science is a way to understand our world by carefully thinking about it and testing our guesses with observations and experiments (retrieval)** • **Know that an object is made from/of a material and know some examples of materials in the real world Stewardship – Gods creation and not spoiling it. Option for the poor – recycling our toys rights and responsibilities – God gives us all we need to be happy**
Week 2	• **Know that materials can be hard, soft, strong, weak, absorbent, heavy, light, solid and runny, smooth and rough; these descriptions denote the properties of a material**
Week 3	
Week 4	
Week 5	
Week 6	

Block 4
Chemistry
Everyday Materials

Year 1 Block 4 Everyday Materials Big Idea(s): C1, C2	**New vocab:** absorption, matter, property, wood, plastic, glass, metal, water, rock **Composites: I can recognise a variety of everyday materials, I can describe the simple physical properties of a variety of everyday materials.** **Stewardship – Gods creation and not spoiling it. Option for the poor – recyciling our toys rights and responsibilities – God gives us all we need to be happy**
Week 1	• **Know from observation how to distinguish between materials made of wood, plastic, glass, metal, water, rock**
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	• **Know that matter (stuff) is made from tiny building blocks**

Block 5
Earth Science
Seasonal Changes

Year 1 Block 5 Earth Science Big Idea(s): E2	**New vocab:** energy, freezing, melting, orbit, reflection, Sun, clouds, wind, snow, ice, spring, summer, autumn, winter (NB: the Sun and the Earth are capitalized when being discussed in an astronomical context.)
	Composites: I can recognise and describe seasonal changes within the UK. I can describe how the weather changes across the seasons within the UK. I can say how the weather impacts human lives.
Week 1	• **Science is a way to understand our world by carefully thinking about it and testing our guesses with observations and experiments (retrieval)** • **Know that days are longer in the summer and shorter in winter**
Week 2	• **Know that weather changes through the year, getting hotter in the summer and colder in the winter** • **Know that the four seasons are spring, summer, autumn and winter and know the order of the cycle**
Week 3	
Week 4	• **Know that the winter is likely to bring ice on the ground when water freezes due to the cold**
Week 5	
Week 6	• **Know that the Earth orbits the Sun with one orbit constituting a year of roughly 365 days**

Block 6
Biology
Plants

Year 1 Block 6 Plants Big Idea(s): B2	**Retrieval vocab:** energy, habitat **New vocab:** component, energy, growth, deciduous, evergreen, flower, plant, tree, structure, roots, stem, leaf, trunk, flower
	Composites: I can recognise a variety of common wild and garden plants. I can recognise the basic structure of a variety of common flowering plants, including trees. I can recognise the beauty of Gods creation and know how to look after it.
Week 1	• **Know that science is a way to understand our world by carefully thinking about it and testing our guesses with observations and experiments (retrieval)** • Know a rose bush, a sunflower and a dandelion by sight
Week 2	• Know an oak tree, a birch tree and a horse chestnut tree by sight
Week 3	• **Know that evergreen trees maintain their leaves throughout the year and that deciduous trees shed their leaves in autumn**
Week 4	• **Know that a flowering plants consist of roots, stem, leaves and flowers, and that a tree's stem is called a trunk**
Week 5	
Week 6	• Know that there are many kinds of jobs as a scientist including communicator scientist and teacher scientist • Know that teacher scientists teach others - often children - about science • Know that communicator scientists help the world to understand about science • Know that David Attenborough is a famous communicator scientist who has created and presented some of the most famous television programmes ever made about plants and animals

Working Scientifically: Enquiries

Topic	Small Question	Enquiry	Big Idea	Enquiry Type	Working Scientifically Skill
Animals and humans	Are we all the same or are we all different?	Chdn discover what is the same and what is different about their bodies.	**B2:** All living things are related.	Noticing patterns	Sc1/1.6
Animals and humans	Are all animals totally different?	Using pictures of animals, chdn find out if they can find anything that is the same for all of the animals, thinking about what they do and how they look. Show smaller and larger versions of each animal.	**B1:** Living things are special collections of matter that make copies of themselves, use energy and grow.	Noticing patterns	Sc1/1.4
Everyday materials	Are all materials the same?	Chdn compare a variety of materials, deciding which are hard, soft, strong, weak, smooth, rough, etc.	**C1 and C2:** All matter (stuff) in the universe is made up of tiny building blocks. (This determines why some materials are soft or hard, etc)	Simple comparative test	Sc1/1.2, Sc1/1.3, Sc1/1.4, Sc1/1.6
Everyday materials	Are all materials the same?	Chn undertake actions to test whether each material has the property (e.g. touching, weighing, etc)	**C1 and C2:** All matter (stuff) in the universe is made up of tiny building blocks. (This determines why some materials are soft or hard, etc)	Simple comparative test	Sc1/1.2, Sc1/1.3, Sc1/1.4, Sc1/1.6
Seasonal changes	Is the weather the same every day?	Chn keep a weather diary across a period of time and compare this to a pre-made one for a different period of the year, drawing conclusions.	**E2:** The Earth is tilted and spins on its axis leading to the seasons.	Observing over time Noticing patterns	Sc1/1.1, Sc1/1.2
Plants	What parts is a plant made of?	Chdn use pages from a science encyclopaedia to draw and label different plants, spotting similarities and differences.	**B2:** Living things on Earth come in a huge variety of different forms.	Finding out things from secondary sources	Sc1/1.4, Sc1/1.5