Saltford School Science Curriculum

Curriculum Intent

The purpose of the Saltford Science curriculum is to help students understand and question the world around them. It gives them the scientific knowledge and skills that they need in order to be successful in their future lives and make a contribution to the wider community. Students are empowered with a strong knowledge base that they can then use to evaluate important issues, analyse evidence and problem solve. They develop the confidence to form their own opinions and articulate themselves effectively. Our engaging and challenging curriculum means that students who have studied Science at Saltford School will continue to enjoy learning about Science and how the world works throughout their lives.

Aims of the Science rolling programme:

- Children should develop a good range of scientific vocabulary and skills as required by the curriculum.
- Their enthusiasm for the subject should be driven by investigations.
- They should have high quality SRE delivered throughout their time at primary school.

EYFS:

'Understanding the World' is the area of learning most closely associated with Science in Early Years Foundation Stage. The children enjoy a play-based curriculum, learning through their experiences and asking questions about the world around them.

The curriculum for our youngest children can be found here:
https://www.saltfordschool.org.uk/assets/uploads/documents/EYFS/EYFS%20Curriculum%20Areas%20Three%20I's.pdf

KS1 SCIENCE Curriculum

Working Scientifically Outcomes:

- I can use my observations and ideas to suggest answers to questions
- I can ask simple questions and recognise that they can be answered in different ways
- I can observe closely, using simple equipment
- I can perform simple tests
- I can identify and classify
- I can gather data to help in answering questions
- I can record data to help in answering questions

Year 1	Year 2
Term 1 and 2: Animals, including humans -identify and name a variety of common animals, including fish, amphibians, reptiles, birds and mammals. -identify and name a variety of common animals that carnivores, herbivores and omnivores. -describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) -identify, name, draw and label the basic parts of the human body and say which part of the human body is associated with each sense. Builds towards: Y2 offspring LKS2 grouping and classifying, digestive system, teeth, skeletons and muscles Y5 circulatory system, nutrient and water transport Y6 changes to old age, scientific classification, evolution	**Term 1 and 2: Animals, including humans** -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). - describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene. Previous learning: Y1 naming animals and parts, grouping Builds towards : LKS2 digestive system, skeletons and muscles Y5 circulatory system, nutrient and water transport Y6 changes to old age, scientific classification, evolution
Term 3 and 4: Everyday materials -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. Builds towards: Y2 comparing materials, suitability LKS2 rocks, states of matter Y5 scientific properties of materials, change of materials	**Term 3 and 4: Uses of Everyday Materials** -identify and compare the suitability 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. Builds towards: LKS2 rocks, states of matter Y5 scientific properties of materials, change of materials
Term 5 (Year A) / Term 6 (Year B): Plants - identify and name a variety of common, wild and garden plants. These should include deciduous and evergreen trees. - identify and describe the basic structure of a variety of common flowering plants, including tree. Builds towards: Y2 growth and needs LKS2 functions of plant parts, lifecycles, requirements for life	**Term 5 (Year A) / Term 6 (Year B): Plants** -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. Previous learning: Y1 naming and labelling Builds towards: LKS2 functions of plant parts, lifecycles, requirements for life

Y5 comparing lifecycles, plant reproduction Y6 classification	Y5 comparing lifecycles, plant reproduction
Term 6 (Year A) / Term 5 (Year B): Seasonal Changes -observe changes across the four seasons. -observe and describe whether associated with the seasons and how day-length varies. Builds towards: LKS2 changing environments Y5 Sun's effect on Earth	**Term 6 (Year A) / Term 5 (Year B): All living things and their habitats** - Explore and compare the differences between things that are living, and dead, and things that have never been alive. -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. -identify and name a variety of plants and animals in their habitats, including micro-habitats. -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. Builds towards: LKS2 changing environments Y6 changes to old age, scientific classification, evolution

Lower KS2 SCIENCE Curriculum

Working Scientifically Outcomes:

- I can ask relevant questions and use different types of scientific enquiries to answer them
- I can set up simple practical enquiries, comparative and fair tests
- I can make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- I can gather, record, classify and present data in a variety of ways to help in answering questions
- I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- I can identify differences, similarities or changes related to simple scientific ideas and processes
- I can use straightforward scientific evidence to answer questions or to support my findings

Year A	Year B
Term 1: Rocks - 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	**Term 1: States of matter** - compare and group materials together, according to whether they are solids, liquids or gases - observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) - identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature Builds towards: Y5 scientific properties of materials, change of materials
Term 2: Animals, including humans - 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 Previous learning: Y1 naming animals and parts, grouping Y2 offspring, exercise, diet Builds towards: Y5 circulatory system, nutrient and water transport Y6 changes to old age, scientific classification, evolution	**Term 2: Electricity** - identify common appliances that run on electricity - construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers - identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery - recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit - recognise some common conductors and insulators, and associate metals with being good conductors Builds towards: Y6 variation in function of components, circuit diagram

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<tr>
<td>Term 3: Plants
- 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
Previous learning:
Y1 naming and labelling
Y2 growth, requirements for life, habitats
Builds towards:
Y5 plant reproduction
Y6 classification</td>
<td rowspan="2">Term 3 and 4: Animals, including humans
- describe the simple functions of the basic parts of the digestive system in humans
- identify the different types of teeth in humans and their simple functions
- construct and interpret a variety of food chains, identifying producers, predators and prey
Previous learning:
Y1 naming animals and parts, grouping
Y2 offspring, exercise, diet
Builds towards:
Y5 circulatory system, nutrient and water transport
Y6 changes to old age, scientific classification, evolution</td>
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<tr>
<td>Term 4: Plants
- explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal
Previous learning:
Y2 growth, requirements for life
LKS2 plant part functions
Builds towards:
Y5 comparing lifecycles</td>
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<td>Term 5: Sound
- identify how sounds are made, associating some of them with something vibrating
- recognise that vibrations from sounds travel through a medium to the ear
- find patterns between the pitch of a sound and features of the object that produced it
- find patterns between the volume of a sound and the strength of the vibrations that produced it
- recognise that sounds get fainter as the distance from the sound source increases</td>
<td>Term 5: Living things and their habitats
- recognise that living things can be grouped in a variety of ways
- explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
- recognise that environments can change and that this can sometimes pose dangers to living things
Builds towards:
Y6 classification</td>
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<td>Term 6: Light
- 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
Builds towards:
Y6 light in straight lines, shadow shapes, light travels to eyes to see</td>
<td>Term 6: Forces and magnets
- 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
Builds towards:
Y5 effects of different forces</td>
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Upper KS2 SCIENCE Curriculum

<table>
<tr><td colspan="2">Working Scientifically Outcomes:
I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
I can taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
I can use test results to make predictions to set up further comparative and fair tests
I can 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
I can identify scientific evidence that has been used to support or refute ideas or arguments</td></tr>
<tr><td>Year 5</td><td>Year 6</td></tr>
<tr><td>Term 1: Properties of materials
-compare and group together everyday materials of the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.
-give reasons, based on evidence from comparative and fair tests, for particular uses of everyday materials, including metals, wood and plastic.</td><td>Term 1: Electricity
-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.</td></tr>
<tr><td>Term 2: Earth and Space
-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 and night and the apparent movement of the Sun across the sky.</td><td>Term 2: Changes of materials
-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.
-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.</td></tr>
<tr><td>Term 3 and 4: Living things and their habitats /Life Cycles
- describe the differences in the lifecycles of a mammal, an amphibian, an insect and a bird
- describe the life process of reproduction in some plants and animals.
Previous learning:
Y1 naming and labelling
Y2 growth, requirements for life, habitats
LKS2 plant part functions, environmental changes
Y5 comparing life cycles, reproduction
Builds towards:
Y6 evolution</td><td>Term 3: Living things and their habitats/ Classification
- 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.
Previous learning:
Y1 naming and labelling
Y2 growth, requirements for life, habitats
LKS2 plant part functions, environmental changes
Y5 comparing life cycles, reproduction</td></tr>
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	Term 4: Evolution and inheritance -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, 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.
Term 5: Animals, including humans **Y6 NC – moved to accommodate drugs education work.** -identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. -describe the ways in which nutrients and water are transported within animals, including humans. - recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Previous learning: Y1 naming animals and parts, grouping Y2 offspring, exercise, diet LKS2 nutrition, skeleton and muscles, digestive system, teeth, food webs	**Term 5: Animals, including humans** **Y5 NC – moved to accommodate sex and relationships education work.** -describe the changes as humans develop to old age Previous learning: Y1 naming animals and parts, grouping Y2 offspring, exercise, diet LKS2 nutrition, skeleton and muscles, digestive system, teeth, food webs Y5 circulatory system, effects of drugs / exercise / nutrition
Term 6: Forces -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.	**Term 6: Light** -use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light. -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.