

The Edward Worlledge Ormiston Academy Science Curriculum

All children will be able:

- Recall facts to support the development of knowledge that have been identified within each unit.
- Apply specific vocabulary to work scientifically.
- Develop their own questions based on their curiosity of the subject.
- Develop skills so they are equipped with the scientific knowledge required to understand the uses and implication of science, today and for the future.

Non negotiables

- Each year group will follow the order specified on the document below.
- Each unit corresponds to a unit of planning taken from **Switched on Science**. This should form the basis of each year groups planning. Where necessary, additional resources should be used to support this.
- Each unit begins with a **pre-learning** task taken from **Switched on Science**. This should be stuck into the children's book. This same task should be repeated as a **post-learning** task at the end of the unit.
- **Working Scientifically** objectives have been highlighted in blue on the documents below. These must be covered in each unit. These build upon skills from previous year groups.
- Year 1- please take one lesson per half term and focus on seasonal changes. Follow the guidance provided in Switched on Science.

Autumn Term 1

Year Group	Area of study	Key Knowledge / People / Events / Dates / Etc	Key Vocab
1	Who am I? Switched on Science: Topic 1	Children will be able to identify, name, draw and label the basic parts of the human body. They will be able to use vocabulary to say which part of the body is associated with each sense. Children will develop observational skills, gathering and recording data to help in answering questions.	backbone / chin / ears / elbow/ eye socket / eyes / fingers / foot / feet / head / hear / hearing / hip / human / joints / knee / leg / neck / nose / ribs / see / senses / sight /smell / spine / taste / thigh / toes / tongue / touch /vertebrae / wrist
2	Healthy me Switched on Science: Topic 1	Children will describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. They will identify and compare the suitability of everyday materials including wood, metal, plastic, glass, brick rock, paper and cardboard. They will work scientifically by observing closely, using these to suggest answers to questions. They will gather and record data.	calm / calves / cough / exercise / feed / fitness / food / fruit / germs / happiness/health / healthy / hygiene /hygienic / muscle / needs / sneeze / stomach / thighs / vegetables
3	Food and our bodies Switched on Science: Topic 2	Children will identify that animals, including humans, need the right types and amounts of nutrition and that they cannot make their own food. They will identify that humans and some other animals have skeletons and muscles for support, protection and movement. Children will work scientifically to gather, record, classify and present data in a variety of ways. They will record their findings using simple scientific language, labelled diagrams, keys, bar graphs and tables. They will report on findings from enquiries, including oral and written explanations.	Balanced diets/ biceps/ carbohydrates/ contract/ relax/ endoskeleton/ exoskeleton/ fats/ femur/ humours/ joint/muscle/nutrients/protein/skeleton/ triceps/vertebrate
4	Teeth and eating Switched on Science: Topic 4	Children will describe the simple functions of the basic parts of the digestive system in humans. They will identify the different types of teeth in humans and understand their simple functions. They will construct and interpret a variety of food chains, identifying producers, predators and prey. Children will work scientifically by setting up simple practical enquiries, making systematic and careful observations and gathering and recording data to present in a variety of ways. They will identify differences, similarities and changes in relation to simple scientific processes and use these results to	anus/canine/canines/carnivores/decay/digestion/ enamel/energy/herbivore /incisor/large intestine/molar/mouth/ nutrients/oesophagus/omnivores/small intestine/ stomach

		draw conclusions, suggest improvements and raise further questions.	
5	Circle of life Switched on Science: Topic 4	In this topic children look at the life cycles of various species including mammals, amphibians, fish and birds. They also look at and describe the life process of reproduction in plants and animals. Children will work scientifically through planning different types of enquiry, taking measurements using tests to make predictions reporting and presenting findings and identify evidence that has been used to support or refute an idea.	Asexual reproduction/bulb/external fertilisation/fertilisation/gestation/internal fertilisation/larva/metamorphosis/ pollination/sexual reproduction/sperm
6	Healthy bodies Switched on Science: Topic2	Children will identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood. They will recognise the impact of diet, exercise, drugs and lifestyle on the way the bodies function. They will describe the ways in which nutrients and water are transported within animals, including humans. They will work scientifically by planning different types of scientific enquiry to answer questions, including recognising and controlling variables. They will take measurements with increasing accuracy and precision. They will record data and results with increasing complexity alongside making predictions and reporting findings. They will identify scientific evidence that has been used to support or refute ideas.	Addiction/aorta/artery/atrium/blood/capillaries /carbon dioxide/circulatory system/de-oxygenated/exercise/heart/lungs/nicotine /oxygen/oxygenated/pulse/respiration/vein/ventricles.

Autumn Term 2

Year Group	Area of study	Key Knowledge / People / Events / Dates / Etc	Vocab
1	Celebrations Switched on Science: Topic 2	Children will be name different materials and be able to say what the properties of these materials are. They will be able to distinguish between an object and the material it is made from. They will be able to name the parts of a plant. <i>Children will practise performing simple scientific tests. They will use observations and ideas to suggest answers to questions. They will gather and record data to answer these questions.</i>	bark / battery / bright / bulb / candle / cool / dark / dull / fast / flame / flower / fruit / high / hot / leaf / leaves / light / liquid / loud / low / mirror / observe / plant quiet / root / senses / shoot / slow / solid / texture / torch / wax / wick
2	Material monster Switched on Science: Topic 2	Children will identify and compare the suitability of a variety of everyday materials. They will find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. <i>They will develop their working scientifically skills by observing closely, performing simple tests and gather and record data to help to answer questions.</i>	absorbent / bend / brittle / bumpy / card / change / concrete / dull / elastic / fabric / flexible / glass / hard / man-made materials / metal / natural materials / opaque / paper / plastic / recycle / rough / rubber / shiny / smooth
3	Light and shadows Switched on Science: Topic 3	Children will recognise that we need light in order to see things and understand that dark is the absence of light. They will notice that light reflects from surfaces. Children will understand that light from the sun can be dangerous and that there are ways to protect their eyes. They will recognise how shadows. <i>They will work scientifically by setting up practical enquiries involving comparative and fair tests. They will make observation and take accurate measurements. They will report on these findings and draw simple conclusions</i>	description/dull/explanation/light source/mirror/observation/opaque/reflect/shadow/shiny/translucent/transparent
4	What's that sound? Switched on Science: Topic 1	Children will identify how sounds are made, associated some of them with vibrating. They will recognise that vibrations from sound travel through a medium to the ear. They will find patterns between the pitch of the sound and the strength of the vibrations that produce it. They will recognise that sounds get fainter as the distance from the sound source increases. <i>They will work scientifically by asking relevant questions through the use of different types of enquiry. They will observe carefully, classifying and presenting</i>	pitch/sound source/vibration/volume

		data in a variety of ways. They will record finding using scientific vocabulary.	
5	Material things Switched on Science: Topic 2	<p>Children will compare and group together everyday materials on the basis of their properties. They will know some materials will dissolve in liquid to form a solution and describe how to recover this. They will decide how mixtures might be separated and demonstrate that dissolving mixing and changes of state are reversible changes.</p> <p>Children will work scientifically by planning different types of scientific enquiry including controlling variables. Children will take measurements, record data and results and use these results to make predications They will report ad present findings as well as identifying scientific evidence that has been used to support or refute ideas.</p>	Dissolve/elastic/electrical conductor/evaporate/filter/flexible/insoluble/ mixture/plastic/rigid/soluble/soluble/solution/solvent/strong/thermal conductor/thermal insulator/tough
6	Light Switched on Science: Topic 4	<p>The topic introduces the concept of light travelling in straight lines. It starts by looking at beams of light and how light travels to enable children to understand how we see things. This understanding is then applied to the production of shadows and starts to look at how light is reflected. The topic then takes the learning into the realm of coloured light and rainbows, using scientific skills to raise and answer questions.</p> <p>Children will work scientifically by planning different types of scientific enquiry including controlling variables. Children will take measurements, record data and results and use these results to make predications They will report ad present findings as well as identifying scientific evidence that has been used to support or refute ideas.</p>	Cornea/iris/lens/light ray/pupil/rainbow/reflection/symmetry

Spring Term 1

Year Group	Area of study	Key Knowledge / People / Events / Dates / Etc	Vocab
1	Polar Places Switched on Science: Topic 3	In this topic, children plan an expedition to the polar regions, learning about properties of different materials, and a range of living things in the polar regions. <i>Children will work scientifically by asking simple questions and performing simple tests. They will identify and classify and use their observations and ideas to suggest answers to questions.</i>	Arctic/Antarctic/carnivore/flexible/habitat/herbivore/omnivore/ Waterproof/explorer
2	Squish, bend, twist and stretch Switched on Science: Topic 3	In this unit, children explore how the shapes of objects can be changed by squashing, bending, twisting and stretching. In doing this they raise questions, perform simple tests, and gather and record data. <i>Children will ask simple questions, observe closely, perform simple tests and gather and record data. They will also use observations and ideas to suggest answers to questions.</i>	Bend/squash/stretch/twist/pull/squeeze/elastic
3	Rocks, soil and fossils Switched on Science: Topic 1	Children will compare and group together different types of rocks on the basis of their properties. They will describe in simple terms how fossils are formed when things that have lived are trapped within rock. They will recognise that soils are made from rocks and organic matter <i>Children will work scientifically by asking relevant questions and through setting up simple practical enquiries. They will make systematic and careful observations and report their findings in a variety of ways.</i>	Mineral/rock/permeable/impermeable/crystals/magma/ Sediment/sedimentary/humus/fossil/extinct/palaeontology/ granite/igneous/ metamorphic/soil
4	Looking at states Switched on Science: Topic 3	Children will learn about states of matter. They will compare and group materials together, according to whether they are solids, liquids or gases. They will observe that some materials change state when heated or cooled, and they will identify the part played by evaporation and condensation in the water cycle. <i>Children will work scientifically by asking relevant questions, setting up simple practical enquiries, making systematic observations, gathering, recoding and presenting data in a variety of ways, recoding findings from enquiries, drawing conclusions from results and using evidence to support their findings. They will also identify differences and similarities related to simple scientific ideas.</i>	Boiling point/boiling/condensing/evaporating/freezing/ /gas/liquid/matter/material/melting/melting point/solid/temperature/thermometer/water cycle.

5	Out of this world Switched on Science: Topic 1	<p>Children will describe the movement of the Earth and other planets relative to the Sun. They will describe the movement of the Moon relative to Earth. Children will describe the Sun, Earth and Moon as spherical bodies. They will use the ideas of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.</p> <p>Children will work scientifically by planning different types of scientific enquiry including controlling variables. Children will take measurements, record data and results and use these results to make predictions. They will report and present findings as well as identifying scientific evidence that has been used to support or refute ideas.</p>	Daytime/ geocentric/ heliocentric/night-time/orbit/planet/solar system/star/Sun/time zone
6	Electricity Switched on Science: Topic 5	<p>This topic builds on the Year 4 work on electricity, taking it into the scientific use of symbols for components in a circuit, as well as considering the effect in more detail of changing components in a circuit. The children have the opportunity to apply their learning by creating an electronic game.</p> <p>Children will work scientifically by planning different types of scientific enquiry including controlling variables. Children will take measurements, record data and results and use these results to make predictions. They will report and present findings as well as identifying scientific evidence that has been used to support or refute ideas.</p>	Battery/cell/circuit/complete/current/ filament/fuse/resistor/symbol/variable electrons/

Spring Term 2

Year Group	Area of study	Key Knowledge / People / Events / Dates / Etc	Vocab
1	Plants and animals where we live Switched on Science: Topic 4	In this topic, children explore their local environment (school grounds) to find out about the plants and animals that live in their locality. In this topic, children explore their local environment (school grounds or local park) to find out about the plants and animals that live in their locality. <i>Children will ask simple questions, observe closely, perform simple tests and gather and record data. They will also use observations and ideas to suggest answers to questions.</i>	Amphibian/animal/bird/fish/flower/habitat/mammal/plant/reptile/stem/tree
2	Our local environment Switched on Science: Topic 4	This topic brings together study of living things, habitats and growing plants and is strongly focussed on outdoor learning and investigations. Children will explore and compare differences between living things, identify that most living things live in habitats as well as identifying and naming a variety of plants and animals in their habitats. They will describe how animals obtain their food. <i>Children will ask simple questions, observe closely, perform simple tests and gather and record data. They will also use observations and ideas to suggest answers to questions.</i>	alive/dead/food chains/habitat/micro-habitat/predator/prey/carnivore/omnivore/ never alive
3	Forces and Magnets Switched on Science: Topic 5	This topic looks at magnets and their uses, and what makes magnetic poles special, along with the idea that some forces such as magnetic force can act without contact – unlike pushes and pulls, which require direct contact. <i>Children will ask relevant questions and use different types of enquiries including simple practical experiments, comparative and fair tests. They will gather and record data and record findings using correct vocabulary.</i>	Attract/compass/contact/force/iron/magnet magnetic/non-contact /non-magnetic /pole/ prediction/repel
4	Power it up Switched on Science: Topic 5	Children revisit some uses of electricity and the importance of safety before constructing simple circuits. Understanding how to change a circuit by changing its components makes up the third part of this topic, leading in a final application of knowledge and skills when the children design and make an alarm using their knowledge of circuits.	Battery/ bulb/ cell/ circuit/component/conductor/ Insulator/mains/rechargeable/switch/terminal/ Wire

		Children will ask relevant questions and use different types of enquiries including simple practical experiments, comparative and fair tests. They will gather and record data and record findings using correct vocabulary.	
5	Let's get moving Switched on Science: Topic 4	Children will 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. They will identify the effects of air resistance, water resistance and friction. They will recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. Children will work scientifically by planning different types of scientific enquiry including controlling variables. Children will take measurements, record data and results and use these results to make predications. They will report and present findings as well as identifying scientific evidence that has been used to support or refute ideas.	Air resistance/force meter/friction/gravity/Newton/non-contact force/reliable/water resistance/weight
6	Classifying living things Switched on Science: Topic 1	Children first revisit their knowledge of classification and creating keys, before developing their knowledge by looking at fungi and bacteria. Children also look at the work of Carl Linnaeus, the scientist who first made important the function of naming and classifying to 'identify' organisms. Children will work scientifically by planning different types of scientific enquiry including controlling variables. Children will take measurements, record data and results and use these results to make predications. They will report and present findings as well as identifying scientific evidence that has been used to support or refute ideas.	

Summer Term 1

Year Group	Area of study	Key Knowledge / People / Events / Dates / Etc	Vocab
1	On Safari Switched on Science: Topic 5	Children go on safari to explore invertebrates and other plants and animals in the local area. <i>Children will ask simple questions, observe closely, perform simple tests and gather and record data.</i>	Abdomen/antennae/detritivore/food chain/ habitat/insect/invertebrate/thorax/vertebrate
2	Young gardeners Switched on Science: Topic 5	This topic brings together the study of living things and habitats. Children observe and describe how seeds and bulbs grow and find out and describe how plants need water, light and a suitable temperature to grow. This topic has a strong focus on outdoor learning. <i>Children will ask simple questions, observe closely, perform simple tests and gather and record data.</i>	bulb/corms/germinate/properties/root/stem/ tuber/annual/compost/seed/leaf/healthy/stem/ materials
3	How does our garden grow? Switched on Science: Topic 4	Children learn about the different parts of plants, what plants need to live, water transportation in plants and pollination. <i>Children will work scientifically by asking relevant questions, setting up simple practical enquiries, making systematic observations, gathering, recoding and presenting data in a variety of ways, recoding findings from enquiries, drawing conclusions from results and using evidence to support their findings</i>	Carpel/flower/germinate/leaves/life cycle/ nutrients/ovary/ovule/petal/photosynthesis/ pollen/pollination/root/seed dispersal/sepals/stamen/stem/style/stigma/ veins
4	Living things Switched on Science: Topic 2	This topic teaches the children to recognise that living things can be grouped in a variety of ways. They explore and use keys to identify and name a variety of living things. Finally, they look at how changes to habitats can pose dangers to living things. <i>Children will work scientifically by asking relevant questions, setting up simple practical enquiries, making systematic observations, gathering, recoding and presenting data in a variety of ways, recoding findings from enquiries, drawing conclusions from results and using evidence to support their findings.</i>	Bird/centipede/classify/ fish/fish/flowering plant/habitat/insect/invertebrate/key/mamma /organism/reptile/ vertebrate
5	Growing up and growing old Switched on Science: Topic 5	Children will look at and describe the changes as humans develop to old age. Children will draw a timeline to indicate stages in the growth and development of humans and learn about the <i>changes experienced in puberty.</i> <i>Children will work scientifically by reporting and presenting findings from enquiries, record data and results and plan different types of scientific enquiry.</i>	Adolescence/ adolescent/adult/arthritis/gestation period/ life expectancy menstruation/pregnant/ puberty/teenager.

6	Evolution and Inheritance Switched on Science: Topic 3	Children find out more about how living things have changed over time. They are introduced to the idea that characteristics are passed from parent to their offspring, but that they are not exactly the same. They should also appreciate that variation over time can make animals more or less likely to survive in particular environments (adaptation). Children look at evolution and Charles' Darwin's theory of natural selection, as well as palaeontologist Mary Anning's work with fossils. Children work scientifically by identifying scientific evidence that has been used to support or refute ideas.	adaptation/dinosaur/evolution/fossil/inherited/ Natural selection/prehistoric/ variety
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Summer Term 2			
Year Group	Area of study	Key Knowledge / People / Events / Dates / Etc	Vocab
1	Holiday Switched on Science: Topic 6	Children will plan what they need to pack for a holiday, and explore the different animals they might encounter at the seaside and the human impact on the environment.	Habitat/Marine Biologist/ pollution/sunburn/ beach/ protect
2	Little MasterChef Switched on Science: Topic 6	This topic explores food, including making healthy food choices, and cooking various different foods.	Hygiene/bones/bread/change/cook/dehydrate/digest/ Energy/fork/frying pan/grow. Heat/ingredients. temperature/whisk
3	The Nappy Challenge Switched on Science: Topic 6	This topic looks at disposable nappies and provides opportunities for children to ask their own questions and make decisions on how to answer their questions using different scientific enquiry activities.	Absorb/bamboo/cloth/cotton/disposable/elastic Faeces/liquid/material/nappy/plastic/properties/urine waterproof
4	Big build Switched on Science: Topic 6	Children will learn about building towers and bridges, starting with constructing tall towers, then exploring bridges, next they look at animals as builders and finally engage in researching famous engineers and architects and the structures they built. Children will already know many things about the materials they will encounter, how different materials stretch and their uses. They will use and develop working scientifically skills and understanding though comparative and fair	Structure/tower/comparative/fair/measure/repeat/ accurate

		tests, measuring, repeat readings and drawing and reading bar and line graphs.	
5	Amazing changes Switched on Science: Topic 6	In this topic, the children learn about materials, how they change and which changes are reversible and irreversible. The topic concludes by looking at how these properties are applied in the real world.	Reversible/irreversible/burning/rust
6	Titanic Switched on Science: Topic 6	Children engage in a different approach to their science in this topic. They use their science and link it to an historical event in context; the sinking of the Titanic. This topic is based around applying the working scientifically skills that they have learned so far in their science lessons, to explore some of the scientific concepts behind the Titanic, e.g. floating and sinking. It can be used as a good opportunity to embed, assess and observe working scientifically skills, as well as laying foundations for transition to KS3 science.	Buoyancy/density/floating/hypothermia/iceberg /thermal insulator/ up thrust.