SCIENCE SUBJECT MAP 2023-2024 KS2

<table>
<tr><th></th><th>Autumn 1</th><th>Autumn 2</th><th>Spring 1</th><th>Spring 2</th><th>Summer 1</th><th>Summer 2</th></tr>
<tr><td>Title</td><td colspan="2">Homeland</td><td colspan="2">Passport to the World</td><td colspan="2">Norfolk Now</td></tr>
<tr><td>National Curriculum Requirements</td><td colspan="6">
Lower Key 2 Working Scientifically objectives:
During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:
● 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

UKS2 Working Scientifically objectives:
During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:
● 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 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.

There is specific content for each year group (see NC document).
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Year 3	**Subject Focus**: Rocks and fossils **Key content:** Compare and group together different kinds of rocks based on 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. **Big enquiry question:** How are fossils formed? What can be learned from looking at fossils?	**Subject Focus:** Animals including humans - Keeping healthy **Key content:** Identify 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. **Big enquiry question:** What do different animals need to eat?	**Subject Focus:** Forces and Magnets - Amazing magnets **Key content:** 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 based on 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. **Big enquiry question:** How far does a toy vehicle travel on different surfaces?	**Subject Focus:** Light and shadows **Key content:** Recognise that they need light 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. **Big enquiry question:** How do we create shadows? How can we change the shape of a shadow?	**Subject Focus:** Living things and their habitats - Roots and shoots **Key content:** 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. **Big enquiry question:** How do plants eat and drink?	**Subject Focus:** Living things and their habitats - Flower power **Key content:** Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. **Big enquiry question:** What is pollination?
Year 4	**Subject focus** Scientists and Inventors – working scientifically. **Key content:** To ask relevant questions and use	**Subject Focus:** States of matter. **Key content:** Compare and group materials together, according to whether	**Subject Focus:** Animals including humans: Excuse me, are these your teeth? **Key content:** Describe the simple functions of the basic	**Subject Focus:** Living things and their habitats: name that living thing. **Key content:**	**Subject Focus:** Electricity: It's Electric. **Key content:** Identify common appliances that run on electricity.	**Subject Focus:** Sound: Listen Up! **Key content:** Identify how sounds are made, associating some of them with something vibrating.

	different types of scientific enquiries to answer them. To set up simple practical investigations, compare things and make fair tests. To gather, record, sort and present data in a variety of ways to help in answering questions. **Big enquiry question** Can I work like a scientist?	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. **Big enquiry question:** Why does it rain?	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. **Big enquiry question:** Whose teeth are those?	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. **Big enquiry question:** How can we help to protect our local wildlife?	Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether a lamp will light in a simple series circuit, based on whether 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 a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors. **Big enquiry question:** How do light switches work?	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. **Big enquiry question:** Which material is best used to soundproof?
Year 5	**Subject Focus:** Properties of materials **Key content:** compare and group together everyday materials on the basis of their properties,	**Subject Focus:** Changes of materials **Key content:** know that some materials will dissolve in liquid to form a solution, and	**Subject Focus:** Animals including humans **Key content:** describe the changes as humans develop to old age.	**Subject Focus:** Living things and their habitats (Plants) **Key content:** describe the life process of reproduction in some plants and animals.	**Subject Focus:** Earth and Space **Key content:** describe the movement of the Earth, and other planets, relative to the Sun in the solar system	**Subject Focus:** Forces **Key content:** explain that unsupported objects fall towards the Earth because of the force of gravity acting

	including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic **Big enquiry question:** Can all plastics be recycled?	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. **Big enquiry question:** Can I make salt disappear?	describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird **Big enquiry question:** What changes occur as a human grows older?	**Big enquiry question:** What is the life cycle of a flower? Which of the parts of a flower are male parts, which are female parts and which are neither?	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. **Big enquiry question:** Where does the sun go at night? Where does the moon go in the day?	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 **Big enquiry question**: Which surface will a push car run quickest/slowest on?
Year 6	**Subject Focus:** Light **Key content:** 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	**Subject Focus:** Electricity **Key content:** 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	**Subject Focus:** Evolution and inheritance **Key content:** Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.	**Subject Focus:** Living things and their habitats **Key content:** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including	**Subject Focus:** Animals including humans **Key content:** Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.	**Subject Focus:** The environment **Key content:** This unit 'Looking after the Environment' takes children through six lessons and is designed to complement the DfE's sustainability science curriculum this unit.

	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. **Big enquiry question:** Who or what does that shadow belong to?	bulbs, the loudness of buzzers and the on/off position of switches. Use recognised symbols when representing a simple circuit in a diagram. **Big enquiry question:** What happens to a bulb or buzzer when you increase the voltage of cells used?	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. **Big enquiry question:** What can fossils tell us about the past? Who am I and where did I come from?	micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics. **Big enquiry question:** What does a stingray and a human have in common?	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. **Big enquiry question:** Why does my heart beat faster when I exercise?	To align with the National Curriculum this unit is delivered to further develop children's working scientific skills. Children explore: the core concepts – 'so what the climate is, how it changes, the difference between a man-made and natural environment and where different types of animals live'.