

Ruardean Church of England Primary School

Love of learning – Love of life – Love of one another

Oaks Science Programme of Study – Two Year Programme

Working Scientifically – taught throughout each year

- 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.



Year	Autumn	Spring	Summer
A	Forces Y5 Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.	Forces Y5 (gravity) Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.	Animals including humans Y6 Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.
22/23	Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	Earth and Space Y5 Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.	Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.
24/25	Light Y6 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.	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.	Describe the ways in which nutrients and water are transported within animals, including humans. Animals including humans Y5 Describe the changes as humans develop to old age. Evolution and inheritance Y6 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.

Year	Autumn	Spring	Summer
B	<u>Electricity Y6</u> Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.	<u>Properties and changes of materials Y5</u> 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.	<u>Living things and their habitats Y5</u> Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
21/22			
23/24	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. <u>Sound Y4 – Moved from LKS2</u> 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.	Name some materials that 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.	Describe the life process of reproduction in some plants and animals. <u>Living things and their habitats Y6</u> 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.

The decision has been taken to move Y4 sound into UKS2 as historically this has shown to be too challenging for many Year 3 children.