SCIENCE MEDIUM TERM OVERVIEW

SCIENCE

INTENT – Luddenden CE school is committed to providing an environment which nurtures innovation, curiosity, excellence and a love of learning. Our Science curriculum aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

We recognise the importance of science in every aspect of daily life. We therefore make links to real life situations, celebrate diverse and influential scientists, and provide exciting opportunities for children to investigate and learn from first-hand experiences. Our core values in science are endurance, respect, and courage.

IMPLEMENTATION - Scientific knowledge, understanding and enquiry skills are embedded in each topic the children study. These topics are revisited and developed throughout their time at school. We ensure all children develop an understanding of the world around them, whilst acquiring specific skills and knowledge, to help them think scientifically. We use **Developing Experts** to enhance the planning and delivery of the Science curriculum.

IMPACT – Children demonstrate sound scientific knowledge, skills and understanding of the concepts studied. They are inquisitive and articulate, and can apply their scientific knowledge to describe and understand the world and processes around them. Pupils use their investigative skills to ask and answer scientific questions and consolidate/expand their learning.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Ongoing provision throughout the year	**EY. Food (Focus Spring 1)–** 1. Learn about your diet and how to stay healthy, 2. Explore different types of vegetables, 3. Discover different types of fruit. **Forces** – 1. Understand what happens when you push or pull something, 2. Explore objects that sink and float **EY. Insects and Invertebrates (Focus Spring 2) –** 1. Learn about insects and invertebrates, 2. Discover where insects and invertebrates live? 3. Explore more about insects and invertebrates **EY. Space (Focus Autumn)** – 1. Explore outer space, 2. Discover why rockets are important **EY. Health and Safety (Focus Summer 1)** – 1. Learn how to stay safe when using electricity, 2. Explore different homes and the things we need in our home, 3. Know about the people you can trust, 4. Discover First Aid and what to do in an emergency					
Reception/Year 1	**EY. The Senses** 1. Learn about the senses, sight and touch 2. Explore ways to make sound 3. Discover the senses of hearing and sight 4. Explore the senses of smell and touch 5. Learn about your sense of taste **EY. Our Body** 1. Learn about your body parts: the arms, legs, and chest 2. Learn about your body parts: the hands and feet 3. Learn about your body parts: the eyes and nose 4. Learn about your body parts: the ears, mouth and hair 5. Discover how our bodies change 6. Explore our similarities and differences and how we are all unique **1. Animals, including humans -All about me** 1. Discover the basic parts of the human body 2. Learn about eyes and sight 3. Learn about ears and hearing 4. Explore the tongue and taste 5. Explore the sense of touch 6. Discover how your nose smells	**EY. Weather and Seasons** 1. Learn about rain, ice, and water 2. Describe why the air moves 3. Explore snow and melting 4. Discover how rainbows are formed 5. Learn about the seasonal changes that happen in Spring and Summer 6. Learn about the seasonal changes that happen in Autumn and Winter **1. Seasonal Changes** 1. Understand there are four seasons 2. Understand the changes that take place in autumn 3. Understand the changes that take place in winter 4. Understand the changes that take place in spring 5. Understand the changes that take place in summer 6. Investigate how you can measure rainfall	**EY. Materials** 1. Learn about living and non-living things 2. Discover that some things can change shape 3. Explore the process of melting 4. Learn about different materials 5. Discover how to make the perfect sandcastle **Y1. Everyday materials – Exploring everyday materials** 1. Identify and name a variety of everyday materials 2. Distinguish between an object and the material it is made from 3. Describe the properties of everyday materials 4. Identify objects that are natural and those that are manmade 5. Predict and identify if an object will float or sink 6. Explore which materials are best for different objects	**EY. Machines** 1. Explore different types of machines and mechanisms 2. Learn how machines make jobs easier 3. Discover different types of transport **1. Everyday materials (Three Little Pigs)** 1. Build a structure strong enough to withstand wind 2. Build a waterproof structure 3. Understand the properties of glass and its uses 4. Understand that materials are used to create a variety of furniture 5. Explore a variety of fabrics and understand their different properties 6. Explain the uses of materials and why they are suitable	**EY. Plants** 1. Discover that plants are living things 2. Learn about plants and where they come from 3. Explore how to look after plants **1. Plants** 1. Understand that seeds grow into plants 2. Identify the basic parts of a plant and tree 3. Understand that different plants can grow in the same environment 4. Know the difference between deciduous and evergreen trees 5. Know that fruit trees and vegetables are varieties of plants 6. Record the growth of a plant	**EY. Animals** 1. Learn that animals are living things 2. Discover where animals live and what they need to survive 3. Explore where birds live and what they need to survive 4. Learn about farm animals 5. Learn about dinosaurs that lived on Earth **EY. Food** 1. Learn about chicken and eggs 2. Discover that cows produce milk **1. All about animals** 1. Discover animal families 2. Learn about the differences between mammals and birds 3. Learn about the differences between amphibians, reptiles and fish 4. Discover the types of food living things eat 5. Explore the difference between wild animals and pets 6. Explain the characteristics of an animal

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Year 2/3 Cycle A	**3. Light** 1. Identify the difference between light sources and non light sources 2. Explore the light that comes from the sun and how to stay safe 3. Explore materials which are reflective 4. Discover how shadows are formed 5. Investigate how shadows change throughout the day 6. Investigate how you can change the size of a shadow	**2. Uses of everyday materials** 1. Identify different materials and their uses 2. Understand how to select the right materials to build a bridge 3. Explore and test the stretchiness of materials 4. Understand that materials can change their shape by twisting, bending, squashing or stretching 5. Find out about Charles Macintosh and explore how materials are suitable for different purposes 6. Discover which materials change shape when making a road with John McAdam	**3. Rocks** 1. Explore the formation and properties of igneous rocks 2. Explore the formation and properties of sedimentary and metamorphic rocks 3. Weathering and the suitability of rocks for different purposes 4. Explore how water contributes to the weathering of rocks 5. Understand how fossils are formed 6. Explore different types of soil	**2. Plants** 1. Know the difference between seeds and bulbs 2. Design an experiment to find out what plants need to grow 3. Describe what plants need to grow and stay healthy 4. Describe the life cycle of a plant 5. Observe and record the growth of plants over time 6. Understand that plants adapt to suit their environment	**2. Animals including humans 1 – Growth** 1. Describe the needs of animals for survival 2. Describe the needs of humans, for survival 3. Explore the importance of eating the right food 4. Describe what a healthy, balanced diet looks like 5. Investigate the impact of exercise on our bodies 6. Investigate the importance of hygiene	**3. Scientific Enquiry** 1. How can a solar oven be made more effective: posing questions and writing predictions 2. How can a solar oven be made more effective: recording and presenting results 3. Cleaning coins: writing a method and carrying out a practical test 4. Cleaning coins: writing a conclusion 5. Making a cake: fair testing, controls and variables 6. Making a cake: scientific enquiry
Year 2/3 Cycle B	**3. Forces and magnets** 1. Explore contact and non-contact forces 2. Compare how things move on different surfaces 3. Explore different types of magnets 4. Explore the properties of magnets and everyday objects that are magnetic 5. Understand that magnetic forces can act at a distance 6. Explore the everyday uses of magnets	**2. Living things and their habitats – around the world** 1. Learn about habitats 2. Appreciate that environments are constantly changing 3. Explore the rainforest and its problems 4. Describe life in the ocean 5. Discover the Arctic and Antarctic habitat 6. Create a model of a habitat	**2. Animals, including humans 2 – Life cycles** 1. Order the stages of the human life cycle 2. Describe the stages of a human life cycle 3. Identify the offspring and parent of an animal 4. Explore the life cycle of a chicken 5. Describe the life cycle of a butterfly 6. Explore the life cycle of a frog	**3. Plants** 1. Compare the effect of different factors on plant growth 2. Identify and describe the functions of different parts of a flowering plant and how they are used in photosynthesis 3. Investigate the way in which water is transported within plants 4. Explore the part that flowers play in the life cycle of flowering plants 5. Understand the pollination process and the ways in which seeds are dispersed 6. Compare the effect of different factors on plant growth	**2. Living things and their habitats – microhabitats** 1. Explore and compare the differences between things that are living, dead, and things that have never been alive 2. Identify and name a variety of plants and animals in a microhabitat 3. Design a suitable microhabitat where living things could survive 4. Find out what animals eat to survive in their habitats 5. Understand a food chain 6. Understand the journey food makes from the farm to the supermarket	**3. Animals, including humans – skeletons** 1. Explore the 5 key food groups 2. Learn about the nutrition in the food we eat 3. Learn about the different types of skeletons 4. Learn about the human skeleton 5. Learn about animals and their skeletons 6. Explore the role of muscles
Year 4/5 Cycle A	**5. Earth and space** 1. Explore the solar system and its planets 2. Understand the heliocentric model of the solar system 3. Explain the Earth's movement in space 4. Explain the Earth's rotation and night and day 5. Explain the movement of the Moon 6. Design a planet using knowledge gained	**4. Electricity** 1. Explore electrical appliances and electrical safety 2. Learn about electrical components in a series circuit 3. Investigate electrical circuits 4. Explore conductors and insulators 5. Learn about electrical switches 6. Apply knowledge of conductors and insulators	**4. Living things and their habitats – classification** 1. Explore different habitats 2. Research a habitat 3. Explore how animals can be classified 4. Create a classification key 5. Adaptations and classification within species 6. Explore and classify pond plants	**5. Forces** 1. Explore gravity and the life and work of Isaac Newton 2. Examine the connection between air resistance and parachutes 3. Explore factors which affect an object's ability to resist water 4. Investigate the effects of friction on different surfaces 5. Investigate mechanisms - levers and pulleys 6. Investigate mechanisms - gears	**4. States of matter** 1. Compare and group the 3 states of matter 2. Explore how particles behave in solids, liquids and gases 3. Investigate melting points 4. Explore freezing and boiling points 5. Explore evaporation and condensation 6. Understand the water cycle	**4. Animals including humans – teeth, digestion, food chains** 1. Identify the organs in the digestive system 2. Describe the functions of the main organs in the digestive system 3. Identify the types of human teeth and their functions 4. Investigate the effects of different liquids on the teeth 5. Understand food chains 6. Explore food webs

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Year 4/5 Cycle B	**4. Sound** 1. Identify how sounds are made 2. Explore how vibrations from sounds travel through a medium to the ear 3. Explore sound insulation 4. Explore volume 5. Explore pitch 6. Explore sounds from near and from far	**4. Living things and their habitats - Conservation** 1. Describe ecosystems and how they are affected by changes in the seasons 2. Understand human impact on the environment through deforestation 3. Explore air pollution 4. Understand water pollution 5. Explore methods that can be used to conserve water 6. Understand that humans can have a positive impact on nature	**5. Living things and their habitats – animal life cycles** 1. Understand the life process of a plant 2. Understand the life cycles of mammals 3. Compare the life cycles of insects and amphibians 4. Understand the life cycle of birds and reptiles 5. Know about the life and work of Jane Goodall and David Attenborough 6. Research and present the life cycle of a creature	**5. Changes of material** 1. Use evaporation to recover the solute from a solution 2. Recognise and describe reversible changes 3. Observe chemical reactions and describe how we know new materials are made 4. Investigate rusting reactions 5. Investigate burning reactions 6. Investigate chemical reactions - acids and bicarbonate of soda	**5. Animals, including humans – human life cycles** 1. Identify the key stages of a mammal's life cycle 2. Explore the gestation periods of mammals 3. Learn about foetal development 4. Investigate the hand span of different aged children 5. Learn about the changes experienced during puberty 6. Describe the changes humans may experience during adulthood and old age	**5. Properties of materials** 1. Exploring properties of materials 2. Explore thermal conductors and thermal insulators 3. Explore the hardness of materials 4. Discover materials that become soluble in water 5. Investigate the solubility of materials 6. Explore how mixtures could be separated by filtering, sieving, evaporating or magnets
Year 6	**6. Living things and their habitats** 1. Classify living organisms 2. Understand the kingdoms of life 3. Classify living things using the Linnaean system 4. Identify the characteristics of different types of microorganisms 5. Investigate asexual reproduction through spore dispersal 6. Classify and describe a living organism	**6. Electricity** 1. Describe the parts of an electrical circuit 2. Explore voltage and its effect on an electrical circuit 3. Apply knowledge to identify and correct problems in a circuit 4. Investigate what affects the output of a circuit 5. Build a set of traffic lights 6. Apply knowledge of circuits to a real-life problem	**6. Animals Including Humans – the circulatory system** 1. Understand the function of the heart and its role in the circulatory system 2. Identify and compare blood vessels 3. Explore blood 4. Learn how the body transports water and nutrients 5. Investigate what affects your heart rate 6. Learn about the impact of drugs and alcohol on the body	**6. Evolution and Inheritance** 1. Understand how offspring vary and are not identical to their parents 2. Learn about animal adaptations 3. Learn about plant adaptations 4. Explore what we can learn from fossils 5. Explore the theory of evolution 6. Explore human evolution	**6. Light** 1. Explore how light travels 2. Explore reflection 3. Explore reflection and explain how it can be used to help us see 4. Investigate how shadows can change 5. Investigate how we can show why shadows have the same shape as the object that casts them 6. Investigate how we see objects	**6. Looking after the environment** 1. Learn about climate change 2. Explore ways to reduce how much rubbish is sent to landfill 3. Explore ways to reduce energy consumption 4. Explore what happens when fuels are burnt 5. Explore the outcomes of COP26 6. Compare data associated with the weather