



Valley End Science Curriculum Overview

Intent

At Valley End C of E Infant School, Science is about developing children's ideas and ways of working that enable them to make sense of the world in which they live. Science has changed the way we live our lives and is central to many aspects of day to day life. We take an investigative approach to the teaching of science, encouraging children to ask questions, devise investigations and solve problems. We want all pupils to develop a sense of excitement and curiosity about the world. It is our intent that all children should be taught essential aspects of the knowledge, methods, processes and use of science. They will be equipped with scientific knowledge required to understand the uses and implications of science today and for the future. We aim to encourage children to understand how science can be used to explain what is occurring, predict how things will behave and analyse causes. The PKC Science curriculum, which Valley End follows aims to equip children with the foundations for understanding the world through a scientific lens. Pupils will be taught units of work that cover and go beyond the requirements of the National Curriculum in the specific disciplines of biology, chemistry and physics. It is our intent that children will build a body of key foundational science knowledge as they work through the curriculum, asking questions and developing a sense of curiosity about the world around us.

Implementation

Pupils will be encouraged to use the knowledge they learn in Science and apply it to investigations that test a theory or set out to answer a question. Importantly, substantive scientific knowledge is taught first, before pupils are asked to undertake enquiry. This helps them to fully understand the elements of the enquiry first, and to make informed observations about the processes they see. Gathering information, recording data, graphing data and interpreting findings are all essential skills that pupils will apply to new contexts as they work through the curriculum. Enquiries include observing over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and researching using secondary sources. Scientific enquiries provide children with a wealth of opportunities, but first and foremost they will help to deepen understanding of the nature, processes and methods of science as a discipline and how it differs from other subjects they are studying. Pupils will gain an understanding of the purpose and uses of science both today and in the future. Children will be encouraged to foster concern about and actively care for our environment, we will build on children's prior scientific knowledge and encourage a deeper understanding and we will work with different outside companies on STEM projects to bring elements of the science curriculum to life.

Impact

Our science curriculum builds knowledge incrementally. Pupils have multiple opportunities to secure and build on their knowledge and understanding as subject content is revisited at points throughout the curriculum. This helps children to master the knowledge and concepts whilst building up an extended specialist vocabulary. This incremental approach helps teachers to identify knowledge gaps and look back at previous content if they need to close gaps in knowledge or understanding. Our curriculum enables children to understand the important role that science plays in the sustainability of life on earth. We want children following this curriculum to be equipped to go forth into the next stage of their education with curiosity, passion and a desire for discovery.



Curriculum Map

	Autumn A	Autumn B	Spring A	Spring B	Summer A	Summer B
Reception	All about me. Understanding of the World the World Detailed plan available The Natural World (Science) The human body: Facial features, body parts, the senses Seasons of the year; Autumn. Deciduous and evergreen trees. Observing leaves using magnifying glasses, leaves changing colour.	Transport Forces: push, pull, twist Air transport Water transport Seasons of the year: Winter. Animal hibernation, why do some animals hibernate? How do other animals survive winter? Transport in the winter; snow ploughs, gritting roads, snow tyres. Changing state of matter; frost and ice-looking closely at ice, what happens when it warms? Why can we see our breath when it is cold?	Space Our planet Earth, land and sea, plants and animals, weather, gravity. The moon, the sun, the planets in our solar system, space travel, astronauts.	Growing and changing. How people change as they grow, how animals change as they grow. Life cycles of a butterfly and/or frog. Identify and draw the following animals and their babies including but not limited to: Sheep and Lamb Cows and Calf, Horse and foal, Butterfly and Caterpillar, Frog and tadpole, Dog and puppy, Cat and kitten. Plants: how they grow from seeds and bulbs. What plants need to grow. Identify parts of plants including roots, stem and leaves. Identify trees and plants growing locally on the school grounds or in local parks. Draw pictures of local plants.	Seasons of the Year: Summer. Signs of summer; flowers, warmer days, light evenings, butterflies, bees, birds. Design a garden for the Queen; what could we grow? What would we include? Sketch some ideas and write about the design.	Seasons of the Year: Summer. How we stay safe in the sun; sunscreen, hats, sunglasses. Safety around water. Changing state of matter; Why do our ice lollies melt?
Year One	The Human Body Introduction to Our Body and Our Senses Eyes and Sight Ears and Hearing Touch, taste and smell Understanding Sensory Impairment	Animals and their Needs Amazing Animals (Introduction to Animals) Grouping animals: Fish, amphibians, reptiles, birds and mammals Grouping animals: carnivores, herbivores and omnivores Animals as pets Describing animals Start to look at the Weather	Taking Care of the Earth Taking Care of the Earth Earth's Natural Resources Logging Pollution Recycling	Seasons and Weather The four seasons Tools to record the weather Using a graph to show information about the weather Clouds and what they tell us: cirrus, cumulus and stratus Weather forecasting	Plants What plants need Parts of plants Seeds Deciduous and evergreen plants Plants we eat	Materials and Magnets Everyday Materials Properties of Materials Uses of Materials Magnets Investigation
Year Two	The Human Body Animals, including humans, survival and offspring The Skeletal System The Muscular System and Exercise The Digestive system and Healthy Eating The Circulatory system Germs, diseases and preventing illness	Living Things in their Environments Dead or Alive What is a habitat? Rainforest and Desert habitats Meadow habitats Underground habitats	Materials and Matter Materials and their uses Changing Solid Objects Liquids and their properties	Astronomy Introduction to Astronomy Model the Solar System Orbit and Rotation The Moon and its Phases Constellations	Plants Plants around us Seeds and bulbs Comparative test 1 Comparative Test 2 Food and Farming	Investigation Week

