Otterbourne CE Primary School -SCIENCE

Curriculum Map, Progression and Golden Threads

Outdoor Learning

Longitudinal Study

(Links to actual topic)

Curriculum Map

	Biology		Physics		Chemistry	
	Autumn Term		Spring Term		Summer Term	
Year R	**Environmental changes and seasons, identifying trees and animals in our school environment**		**How things work, materials and forces**		**Life Cycles Animal and human habitats**	
Assessment	Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.					
Year 1	**Science skills. Trees**		**Materials**	**Classification and Humans**	**Animals and their survival**	**Animals including Humans**
Assessment Knowledge Skills	WS4. I can name and group.		Umbrella experiment. Pupils can record the material and how much water it lets through. Which material is best for my umbrella and why.	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Create a simple food chain, made from observations in the meadow of links between plants and animals. Use ideas about food chain links to answer questions about interdependence.	Be able to discuss that animals, including humans, have offspring which grow into adults.
Year 2	**Exploring Habitats**	**Staying Healthy**	**Materials and Properties**	**Pushes and Pulls**	**Identifying Plants and Growing Healthy Plants**	
Assessment Knowledge Skills	Be able to discuss habitats using secondary sources.	Making a table to record animal parts.	Identify, name and sort materials, classify	Observing similarities and difference to suggest answers to questions about Blow Football WS5	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees.	

Year 3/4 Cycle A	How animals move	Teeth and Eating	Food Chains	Parts of plants	Plants continued	Solid, Liquid , Gases
Assessment Knowledge Skills	Identification keys; making and using them.	Making observations and predictions about model skulls based on knowledge about their diet.	Food chain drawing Make a bar chart to show distribution on predator/prey or creatures in the pond.	Make accurate measurements during their chosen plant practical enquiry	Collect data about seed dispersal and show in a results table	Discuss the water cycle or forms of water and correctly use the terms evaporation, condensation, freezing, melting
Year 3/4 Cycle B	**Rocks**	**Environmental change and Habitats**	**Magnets**	**Using Electricity**	**Light and Shadows**	**Changing Sound**
Assessment Knowledge Skills	Make systematic and careful observations and take accurate measurement s using	Knowledge of environmental change, effect of flooding: asking questions and thinking of ways to answer them.	Describe magnets as having two poles. predict whether two magnets will attract or repel each other, depending on which poles are facing. Make your own compass.	Billy goat gruff investigation. ws 1 – asking questions ws 2 – setting up tests ws 4 –gathering and recording ws 6 –reporting findings.	Recognise that shadows are formed when the light from a light source is blocked by a solid object find patterns in the way that the size of shadows change. ws 5 i can record findings using simple scientific language and a drawing of my light village. ws 8 i can explain differences, similarities or changes related to simple scientific ideas related to light.	Using handmade instrument and sound monitors to measure volume. Ask relevant questions and use different types of enquiries to answer them. maybe using tests to prove sound getting fainter as the distance from the source increases.
Year 5/6 Cycle A	**Variation and Inheritance**	**Evolution and Fossils**	**Classification** **RSPB bird watch**	**Asexual reproduction**	**Light**	**Electricity**
Assessment Knowledge Skills	Using the peppered moth to explain variation causes natural selection conclude as cartoon strip. to include terms adaptation, natural selection, variation, survival	Horse evolution assessment: showing my understanding of the evolution of the horse.	Bar chart using data of last years top 10 birds and compare to this years data use and research bird identification colours	Practical investigation: yeast gas experiment, afl: please assess the following skills were used. ws 1, ws2, ws 3,	Observation and knowledge. Use the hand held microscopes to look at a range of different surfaces in the class room and make predictions about how much light will be reflected off them based on their properties. establish	skill: provide explicit opportunities for assessment for learning (afl) through a series of diagnostic questions; and practical problem solving activities.

	of the fittest.				appropriate language: transparent, translucent, opaque, matt, dull, shiny, rough, smooth.	
Year 5/6 Cycle B	**Life cycles** 	**Earth and Space** 	**How the body works**	**Materials and Matter**	**Air and Water resistance** 	**Simple Machines** 
Assessment Knowledge Skills	Use scientific language and increasingly complex scientific diagrams to record information about life cycles	Pupils should be able to look at scientific evidence that has been used to support or refute ideas or arguments. Explain how the geocentric model of the solar system gave way to the heliocentric model using a comic strip sheet to tell the story.	Explore scientific research about the relationship between diet/exercise/lifestyle/drugs/health and the effects on the way our bodies function.	Understanding materials, their uses and properties by a scenarios of property tests. WS 8 classifying/naming	Planning: SAME CHANGE MEASURE SHEET. Identifying the effects of friction between moving surfaces in water. WS 1 Plan simple practical enquiries, which are comparative and fair. WS 3 Gather, record data. WS 2 Take measurements with accuracy.	Can recognise what variables need to be controlled and if they can control them. Hint To the children: how to decide/measure how much the catapult is pulled back…newton meter; how to measure distance Accurately if it doesn't travel straight?

Golden Thread and Progression

THE INQUISITIVE MIND Enquiry based, discovery learning through practical hands on experiences.	THE SCIENTIFIC METHOD. Working scientifically	THE CYCLES OF LIFE Outdoor learning and Longitudinal Studies	THE IMPACTS OF SCIENCE AND SCIENTISTS Uses and Implications of science in the past, today and the future.
Year R	Observing, identifying	Outdoor Learning and discovering our grounds	
Year 1	Questioning, Observing, Identifying, Testing	Trees – How do trees change during a year?	Understanding current research on the importance of trees to climate change.
Year 2	Questioning, Observing, Testing, Recording	Bees – How many pollinators want to visit our school grounds? Why?	Implications of loss of natural habitats on pollinators.
Year 3/4 Cycle A	Questioning, Observing, Testing Fairly, Recording, Concluding	Ponds- What is the water quality of our pond?	Uses of keys and identification skills to assess water quality.
Year 3/4 Cycle B	Questioning, Observing, Testing Fairly, Recording, Concluding	Classifying and sampling animal species that visit our school grounds.	Understanding survey techniques and contributing to and analysing citizen science data.
Year 5/6 Cycle A	The Scientific Method –accuracy, using test results to make predictions and conclusions	Orchard – Do longer trees have more fruit? What variables affect the amount of fruit on a tree?	Mary Anning, Darwin, David Attenborough, Chris Packham Galileo Galillei – gravity and air resistance
Year 5/6 Cycle B	The Scientific Method –accuracy, using test results to make predictions and conclusions	Birds- mapping habitats and linking the interdependence of animals and plants. Which bird species visits our school grounds?	David Attenborough, Chris Packham Galileo Galillei – astronomy, the telescope

IMPACT	IMPACT	IMPACT	IMPACT
Supporting curiosity. Deepening questioning and problem solving. Critical thinking. Modelling and supporting thinking skills through metacognition.	Progression of skills. Deepening questioning and problem solving. Critical thinking. Understanding the scientific method.	Using our school grounds to investigate changing seasons, flora and fauna unique to our area and native to the UK. Identifying species through the year. Linked to and supported by scientific investigation and identification of flora and fauna in our school grounds.	Mapping scientists through history. (outdoor timeline) Celebrating modern scientists/modern messages.
THE INQUISITIVE MIND 	THE SCIENTIFIC METHOD. 	THE CYCLES OF LIFE 	THE IMPACTS OF SCIENCE AND SCIENTISTS