Subject: Science Year: 4

What are the aims and intentions:

The national curriculum for science 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.

Scientific skills:

- 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.

Links to prior learning:

Year 1, 2 & 3 topic development:

- Animals including humans.
- Living things and their habitat

Term:	Topic:	Knowledge	Skills:	Key Questions
Autumn 1	Dragons and Castles: Animals including 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.	To distinguish between scientific and non-scientific evidence and the best enquiry to answer a question To make predictions and suggest equipment needed To make systematic observation, record fundings and use results to make predictions for new ideas	• Can you identify the different types of teeth and their function? • Can you compare the functions of human and animals teeth? • Can you explain the important of good oral hygiene? • Can you construct and interpret a variety of food chains?

			To identify the types and functions of teeth To construct and interpret food chains	•Can you identify which animals are producers, predators and prey?
Key Vocabulary Vocabulary: Teeth, incisors, cutting, slicing, canines, ripping, tearing, molars, chewing, grinding, floss, brush, food chain, sun, producers, prey, predators, carnivore, herbivore, omnivore				
Cultural Capital: Durham learning curriculum boxes: Animals including humans, mini beasts, nocturnal animal, human body. September- British clean beach day October- World animal day, World habitat day				
Autumn 2	All Around the World- Electricity	• identify common appliances that run on electricity • construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • identify whether or not a lamp will light in a simple series circuit, based on whether or not 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 or not a lamp lights in a simple series circuit • recognise some common conductors and insulators, and associate metals with being good conductors	To sort appliances To make predictions based on reasoning To collect and record data To explain conclusions drawn from investigations	•Can you explain the ways electricity is generated? •Can you identify electrical appliances and types of electricity they use? •Can you identify, complete and incomplete circuits? •Can you identify and sort materials into electrical conductors or insulators? •Can you explain how a switch works and why they are needed?
Key Vocabulary: Appliances, electricity, electrical circuits, cell, wire, bulb, buzzer, danger, electrical safety, sign, insulators, conductors, switch, open, closed				
Cultural Capital: Durham learning curriculum box: Electricity November- Climate change conference January- Energy saving week				

Spring 1	Surviving the Prehistoric Age- Animals including Humans.	• describe the simple functions of the basic parts of the digestive system in humans	To group and classify with reason To make systematic observation, record fundings and use results to make predictions for new ideas To construct the digestive system and explain its functions.	• Can you identify and name parts of the human digestive system? •Can you explain the function of the digestive system?
Key Vocabulary Vocabulary: Human digestive system, digestion, mouth, tongue, mixes, moistens, saliva, oesophagus, transports, stomach, acid, enzymes, small intestines, colon, absorbs, compacts				
Cultural Capital: Durham learning curriculum boxes: Animals including humans, mini beasts, nocturnal animal, human body. January- bird watching week February- Penguin awareness day				
Spring 2	Up, Up and away: State of matter	• compare and group materials together, according to whether 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	To describe properties of solid liquids and gases To make and explain predictions To make observation and conclude findings To make and record accurate observations To be able to ask and answer questions based on learning using scientific language	• Can you sort and describe materials by their properties? •Can you explain the properties of gases? •Can you explain how water changes state? • Can you explain how water evaporates? • Can you identify and describe the different stages of the water cycle?
Key Vocabulary: Solid, solidify, iron, ice, melt, freeze, liquid, evaporate, condense, gas, container, changing state, heated, heat, cooled, cool, degrees Celsius, thermometer, water cycle, evaporation, condensation, temperature, melting, warm, cool, water, water vapour				
Cultural Capital: March- science week, pancake day				
Summer 1	I came, I saw I conquered- Living things	• recognise that living things can be grouped in a variety of ways	To sort living things using a venn and carroll diagram.	•Can you group living things in a range of ways?

	and there habitats	• explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment • recognise that environments can change and that this can sometimes pose dangers to living things.	To use a key to identify animals by their characteristics To carry out an investigation To make record observations To explain in details how changes to the environment effect animals.	•Can you identify vertebrates by their similarities and differences? •Can you use evidence to identify invertebrates? •Can you recognise positive and negative changes to the local environment? •Can you describe environmental dangers to endangered species?
Key Vocabulary: Environment, flowering, non-flowering, plants, animals, vertebrate, danger, fish, amphibians, reptiles, birds, mammals, invertebrate, snails, slugs, worms, spiders, insects, grasses, mosses, ferns, human impact, positive, negative, nature reserve, ecologically planned parks, garden ponds, population, development, litter, deforestation				
Cultural Capital: Walk around the school grounds or local area to explore habitats in our community Durham learning curriculum boxes: Living things and their habitats April- Earth day May- World bee day, world turtle day				
Summer 2	Roaming around Italy- Sound	• 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. • Explore Observe Describe Classify (sources) Measure Notice (patterns) Ask (questions to be investigated) recognise that	To describe patterns between pitch and the object To set up a reliable and accurate investigation To make predictions with reasoning To record data To conclude from evidence found using scientific language	• Can you describe and explain sound sources? •Can you explain how different sound travels? •Can you explain ways to absorb sound? •Can you make musical instrument play different sounds? •Can you explain the pitch of a sound?

		sounds get fainter as the distance from the sound source increases		
Key Vocabulary: Vibrate, vibration, vibrating, air, medium, ear, hear, sound, volume, pitch, faint, fainter, loud, louder, string, percussion, woodwind, brass, insulate				
Cultural Capital: Durham learning curriculum boxes: Sound				