



Year 3

Physics (Magnets)
 What is a magnet? How does it behave?
 Group magnetic materials, know that some metals are magnetic and others are not.
 Attract / Repel **poles, opposite, north, south**
 How strong is my magnet?
How strong is my magnet? (How many paperclips will it hold?)
 Use magnets for a purpose
 Natural magnets and compasses

STATISTICS: Read, interpret and draw pictograms; Read, interpret and draw bar charts

Biology (Nutrition)
 What animals eat – herbivore / carnivore- classify animals by what they eat (link to teeth)
 Animals have to eat their food.
 Food groups? How much do we eat?; Healthy eating
 Human skeletons (**major bones plus joints, ball and socket, hinge, gliding**) and the function of bones
 Animal skeletons (**vertebrates and invertebrates, dog, horse, snake, fish**)
 Teeth and tooth hygiene; animal teeth **canine, molar, incisor**.
 Explore animal skulls

Physics (Light)

SUN DANGER

Know that darkness is the absence of light.
 How we see things; the eye
 Light sources
 Transparent / Translucent / Opaque Shadows
 Changing the position of a shadow – real life on the playground. Shadows move in the day. Shadows don't have features.
 Reflection: shiny and reflective
Observe the position of a shadow.

Biology (Plants)
 Dissect and explore plant parts; **Stamen/Anther/Stigma – for pollen and reproduction**
Petals – to attract pollinating insects
Sepal (was the bud) – to hold the unopened flower
Ovary – where seeds are formed; root; stem; trunk; leaves; flower
 Observe and explore trees
 Observe the way water is transported in a plant
 Plant life cycles - **germinations**
 Classify Plants

Factors which affect germination

Physics (Sound)
 Sound sources – **vibration**
 Vibrations can travel through different mediums (**air, water (whales), walls**)
 How do we hear? (**slinky**)
 How can we affect the pitch of a sound? – the lonely whale
 How can we affect the volume?
 Observe moving away from sound
 How can we insulate sound?
Factors which affect the volume of a sound. Warp up a rattle)

STATISTICS: Use scaled bar charts and pictograms with scales in 2, 5 and 10.
Solve one- and two-step problems involving bar charts.

Rocks
 Compare and classify rocks
 Rock types – **metamorphic, igneous, sedimentary**
 Explain how fossils are formed

Observe hardness and permeability

Soils – sieving and soil types **silt, loam, peat, sandy, chalk, clay**
Sieve Soils
 Know that soils are made from rock and other organic matter.

Year 4

Chemistry
 Compare and group materials into solids, liquids and gases and their particle formation
 Understand the water cycle
 Observe and measure evaporation – puddle on the playground
 Observe and measure melting (ice and wax)
Factors which affect the speed of melting
 Observe effect of heating materials
 Weather and drying washing

STATISTICS: Explore temperature line graphs
Solve comparison, sum and difference problems from graphs

Physics (Electricity)
 Electrical appliances **mains, battery**
 Circuits and Switches **cell, wire, bulb, buzzer, switch**
 Identify whether a circuit will work.
 Know that a switch breaks or completes a circuit
 Use circuit sketches and then diagrams
Factors which affect the brightness of a bulb
 Sources of power – **fossil fuels, renewable energy, chemical and their cost**, conductors and insulators.
 Reducing electricity use
Make a burglar alarm for your pencil case

Biology (Food Chains)
 Compare and group living things (**mammals, crustaceans, birds, fish, mollusc, echinoderm**). Vertebrate, invertebrate.
 Classification keys (**tellin, whelk, starfish, sunstar, spider crab, lobster, edible crab, Sea mouse, sea urchin**)
 Construct food chains and food webs (**ocean**) **producer, predator, prey**
 Changing ocean environments; Ocean conservation Marine protected areas

Biology (Human)
 Digestive system-name and explain the function of parts (**glands, enzymes, salivar, mouth, teeth, tongue, oesophagus, stomach, liver, gall bladder, pancreas, duodenum, intestines, rectum, anus**)
 How food gets broken down (**food plate recap, nutrition, food energy, practical**).
Observe the energy in food. LAB DEMO
 Moving goodness around the body

STATISTICS: Make comparisons, find the sum and the difference using tables of water temperature

Biology (Habitats)
 How local living things are adapted to their habitats
 Compare our school as a habitat another local habitat
 Observing bugs
 I am able to classify and group and describe living things in habitats (**urban, woodland and river**)
 Local plant classification including **non-flowering plants**
 Local changing habitats (the development of Oakgrove)

Physics (Forces)
 Push, pull, twist and squeeze
 Compare friction on different surfaces
Factors which affect the speed at which a car rolls down a ramp.
 Pulleys and levers and gears
 Know that **gravity** is a pull downwards, balanced by **upthrust** pushing up.
 Know that some forces act on contact, others at a distance.
 Observe forces in real life (Caldecotte)
STATISTICS: Explore line graphs (data loggers) of speed on an increasingly high ramp. Compare with discrete data in a bar chart (distance travelled by different vehicles)
Solve comparison, sum and difference problems from line graphs. Use a graph to draw a conclusion.

Year 5

Chemistry
 Lab safety
 Compare and group materials by properties- **solubility, hardness, transparency, conductivity**
 Describe properties of solids, liquids and gases including that air has mass.
 Boiling water **LAB GROUPS**
 Thermal insulation and conduction
Factors which affect insulating heat / water cooling (making a coat for your mug of tea)
 Materials for different purposes

STATISTICS: Read, draw and interpret line graphs

Physics

SUN DANGER

The movement of the Earth; day and night
 The sun and it's apparent movement in the day.
 Planets, where they are and their movement in orbit
 The orbit of the moon; Phases of the moon
 How can we prove the Earth is a sphere (and sun/moon) - development of thinking
 I understand how a sundial works
 Know geo-centric and helio-centric views and development of thinking. Ptolemy, Alhazon, Copernicus
 Know sun link to Stonehenge and Midsummer Boulevard
 Know the meaning of solstice and equinox

Chemistry
 Boiling water practice **LAB GROUPS**
 Reversible and irreversible changes
 Separating by **sieving and filtering**
 Separating by evaporation
Factors which affect evaporation
 Know that some changes result in formation of new material eg **burning, rusting, acid + bicarbonate of soda**
 Spencer Silver

Physics (Forces)
 Strength of friction
 Forces and motion- know that weight is pull down by gravity in **Newtons**, Mass in **kg Newton meters**
 Air resistance – know that to move through the air, the air has to move out of the way. Compare to water resistance.
Factors which affect the strength of air resistance (parachutes)
 Gravitational pull – know that unsupported objects fall.
STATISTICS: Construct line graphs and bar graphs to show discrete and continuous data (parachute material and size of parachute)

Biology (Life Cycles)
 Describe the differences in the life cycles of a mammal (**chimpanzee**), an amphibian (**frog**), an insect (**butterfly**), a bird and a human
 Describe the life process of reproduction in some plants and animals (**cucumbers**) **Factors which affect germination**
 Describe the changes as humans develop to old age.
 David Attenborough and Jane Goodall
 Explain how fossils give information about evolution (Anning)
 Recognise the offspring of given species – breeds of dog eg. **Labradoodle**
 Recognise that offspring vary and are not identical to their parents
 Explain how a habitat change might lead to an animal adaptation and then to evolution- **arctic fox / giraffe**
 Charles Darwin, Alfred Wallace

Biology (Microorganisms)
 Microorganisms (**decomposer insects, fungi, mould**)
 Identify and classify common microorganisms (Not in NC) (**viruses, bacteria, mould**)
 Grow mould; Grow yeast
Factors which affect the speed of microorganism growth (mould and yeast)
 Bugs and antibiotics – Jenner; Hygiene
 Identify how microorganisms can be responsible for the spread of disease and recognise how to avoid this (Not in NC) (**colds, covid, viruses**)
STATISTICS: Interpret graphs with large orders of magnitude; solve comparison, sum and difference problems from given graphs.

Year 6

Physics (Light)
 Know that light travels in straight lines.
 How we see – know that light travels from source to eye or source to object to eye.
 Moving light – angles of reflection and prisms
 Measuring light / changing shadows – use straight lines to explain why shadows have the same shape as the object which cast them.
Factors which affect the size and shape of a shadow
 Function of parts of the eye and the brain
 The electromagnetic spectrum - Hertz

Climate Change – Chemistry
 Dissolving – **solute, solution, substance, suspension**
Factors which affect the rate of dissolving LAB GROUPS
 Melting
 Evaporation
Separate a mixture of flour and sugar by filtering and then evaporating

STATISTICS: Calculate the mean

Physics (Electricity)
 Making and breaking circuits
 Resistance – increase and decrease the speed of a motor. Associate this speed with voltage of cells.
 Series and parallel circuits
 Current
Factors which affect the speed of a motor
 Recognise uses for electrical motors: Hairdryers and vacuum cleaners (make vacuum cleaners)

Biology (Human)
 Name organs and their functions in **muscular, skeletal, reproductive, respiratory systems**
 Identify and name parts of the circulatory system including blood. Understand how water and nutrients are carried around the body.
 Exercise and pulse rate and the heart
Factors which affect pulse rate
 Characteristics of living things
 Digestion recap
 Keeping healthy – drugs, diet, exercise and lifestyle.

Heart dissection

Chemistry
 Getting food groups out of foods **LAB GROUPS**