

Properties and Changes of Materials –

Lesson	Learning objectives
1	Review of material properties ▪ Extend their knowledge of properties to include more abstract properties such as hardness, thermal and electrical conductivity, magnetic attraction ▪ Know that metals have similar, specific properties ▪ Match material properties to their use
2	Dissolving ▪ Know that some materials dissolve in water and others do not and give examples of both ▪ Know that a substance is still present in the solution when it has dissolved ▪ Describe ways in which dissolved substances can be recovered from solution
3	More about dissolving ▪ Understand that melting and dissolving are different processes ▪ Separate solute from a solution by crystallisation
4	The Big Stink ▪ Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering and sieving ▪ Plan an investigation to determine ways in which solids can be removed from liquids ▪ Report the findings from their investigation into treating sewage including conclusions and explanations of their findings
5	Chemical change – burning ▪ Know that burning results in the formation of new materials including gases that we cannot see ▪ Know that chemical changes are usually not reversible ▪ Identify hazards associated with burning materials
6	Chemical change ▪ Recognise that chemical reactions form new substances and that this kind of change is not usually reversible ▪ Identify some changes as irreversible and explain reasons for doing so ▪ Identify substances through their chemical and physical changes
7	Lives of materials scientists ▪ Know how post-its and/or wrinkle-free cotton were developed

Forces –

Lesson	Learning objectives
1	Gravity ▪ Know that the Earth and objects are pulled towards each other; this gravitational attraction causes objects to have weight ▪ Be able to use a force meter carefully, interpreting the scale correctly ▪ Know that weight is a force and is measured in Newtons and that mass is the amount of matter and is measured in kilograms
2	Air resistance ▪ Know that air resistance slows moving objects ▪ Know that when an object falls, air resistance acts in the opposite direction to the weight
3	Floating and sinking ▪ Know that when an object is submerged in water, the water provides an upward force (upthrust) on it ▪ Know that things will float if the upthrust is greater than the weight ▪ Know that water resistance acts to slow down objects that are moving through the water ▪ Compare air and water resistance
4	Friction ▪ Know that the force between two moving surfaces in contact is called friction ▪ Know that friction can be useful or a problem and provide examples of both
5	Simple machines ▪ Investigate a range of simple machines: pulleys, gears, ramps, wheel and axle and levers ▪ Describe how simple machines such as gears, levers and pulleys are used to transfer forces or to change speed or direction
6	Building machines ▪ Build a catapult and describe how it works, identifying any simple machines in its construction ▪ Evaluate the catapult they have built

Earth and Space –

Lesson	Learning objectives
1	The Earth, the Sun and the Moon ▪ Describe the relative motion of the Earth, the Moon and the Sun ▪ State the difference between a sun, a planet and a moon ▪ Know that the Sun, planets and moons in the solar system are approximately spherical in shape ▪ Explain how ideas about the solar system have changes through the centuries
2	The Solar System ▪ Identify the eight planets within the solar system and their positions relative to the Sun ▪ Compare planets in terms of atmosphere, time to orbit the Earth, period of rotation, number of moons etc.
3	Night and day ▪ Explain night and day in terms of the rotation of the Earth ▪ Investigate differences in the time of day and the length of day in different parts of the World
4	Phases of the Moon ▪ Describe and explain in simple terms how the appearance of the Moon in the sky changes over the course of 28 days ▪ Investigate factors that affect the formation of craters, taking measurements with increasing accuracy and precision, taking repeat readings when appropriate

Living Things and their Habitats/Animals including Humans –

Lesson	Learning objectives
1 &2	Observing life cycles ▪ Make observations of plant and animal life cycles
3	Reproduction in plants ▪ Recognise that flowering plants produce seeds from their flowers which grow into new plants ▪ Describe the life cycle of flowering plants including pollination, fertilisation, seed production, seed dispersal and germination ▪ Describe the structure of a flower, naming the main parts of the flower
4	Sexual and asexual reproduction in plants ▪ Describe different ways of growing new plants other than using seeds ▪ Know the difference between asexual and sexual reproduction in plants ▪ Compare the production of new plants through the planting of seeds and the taking of cuttings
5	Animal life cycles- birds and mammals ▪ Know that all animals have a life cycle that includes being born, developing into an adult, reproducing, and eventually dying ▪ Know that life cycles vary from one class to another ▪ Research the life cycle of an unfamiliar bird and an unfamiliar mammal
6	Animal life cycles - insects and amphibians ▪ Describe the changes that occur during the growth and development of insects and amphibians ▪ Compare the life cycles of an insect and an amphibian in simple terms ▪ Know that insects and amphibians undergo metamorphosis
7 – animals including humans	Changes through life ▪ Describe the basic changes as humans develop from birth to old age ▪ Compare the human life cycle to the life cycle of other animals