

Science – Concept Map 

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|  | Early Years | Year 1&2 | Year 3&4 | Year 5&6 |
| **Plants, Animals and Habitats** | * Recognise similarities and differences between different plant and animals * Observe living things carefully. * List the key parts of a human body. * Describe how to keep healthy and stay clean. | * To describe how plants grow from seeds and bulbs into mature plant. * Describe the basic structure of trees and flowering plants. * To describe how plants need water, light and the right temperature to stay healthy. * To name common plants and trees – including deciduous and evergreen. * Identify and name common animals: amphibians, fish, reptiles birds and mammals. * Sort animals into carnivores, herbivores and omnivores. * Describe how offspring of animals and humans grow into adults. * Label diagrams with key parts of the human body and state which are linked to senses. * State the things animals and humans need to survive and be healthy: food, water, air, exercise, hygiene. * Identify habitats to which different plants and animals are suited and suggest why. * Construct a simple food chain. | * Describe how different plants need different things to survive, including air, light, water, nutrients and room. * Explain the life cycle of a flowering plant using terminology: pollination, seed formation and seed dispersal. * To describe the relationship between the structure of plants and the function each part plays. * Group living things in a variety of ways. * Use a classification keys to group and identify living things. * Construct a simple food chain. * To identify changes in the environment that can cause danger to living things: drought/flood, chemicals, destruction of habitat, building infrastructure. * To identify the simple structure of the human skeletal and muscular system and describe how these work together to aid support, protection and movement. * Label a diagram of the different types of teeth in humans and describe their simple functions. * To list the basic parts and functions of the digestive system. | * Describe the differences between the life cycles of different living things: mammal, amphibian, insect and a bird. * Explain the cycle of reproduction in common plants and animals. * Describe how things are grouped broadly based on observable characteristics – give reasons for classifying plants and animals. * Explain how diet, exercise, drugs and lifestyle can impact on the way the body functions. * To describe the changes in humans from birth to old age. * Identify and name the main parts of the human circulatory system and what the function of each part is. * To recognise that living things have changed over time and that fossils provide evidence of this. * Describe the basic principles of evolution: offspring are of the same kind but are not identical. * Identify how animals and plant are adapted to suit their environment. |
| **Materials and how they change** | * Talk about why things happen: what happens to playdough when it is squeezed? What happens to paint when you add sand etc… * Describe objects and materials using simple language. * Group different objects and materials according to specific properties. | * State the difference between an object and the material it is made from. * Identify and name a variety of everyday materials: wood, plastic, glass, metal, water, rock. * Describe the properties of materials: hard, soft, flexible, rough, smooth etc… * Make suggestions as to why certain objects are made from particular materials. * State how the shape of materials can be changed by squashing, bending twisting and stretching. * Group materials according to properties. | * Compare and sort different materials – including rocks based on their properties. * Describe how rocks, fossils and soils are formed. * Compare and group materials according to whether they are solid, liquid or gas. * Describe how evaporation and condensation form an important part of the water cycle. * To describe how some materials change when they are heated or cooled. | * Compare and group materials based on their properties: * Hardness, solubility, transparency, conductivity, and response to magnets. * Explain that some materials will dissolve, and some will not. * State simple ways in which to separate materials: * Filtration, sieving, evaporation. * Describe reversible and irreversible changes. |
| **Energy, forces, mechanics and waves** | * Talk about and record the weather through the year. * Describe the differences in weather through the year. | * Describe how the seasons in the UK change through the year. * State the weather associated with the seasons. * Talk about how the length of the day changes through the seasons. | * Recognise that light comes from a source and is reflected off surfaces so we can see. * Describe how shadows are formed, and how the size and shape of shadows can change. * Explain how sounds are made when something vibrates, and that the waves travel through the air to the ear. * Explore different materials and use scientific terms to describe the sounds they make and how the sounds are produced. * Identify appliances that work using electricity. * Construct a simple circuit using the correct terminology for basic parts: cells, buzzer, wire, bulb, switches. * Identify circuits that are not complete and explain why the electricity cannot flow. * Group materials into electrical conductors and insulators and link this to electricity safety. * To describe different forces and how these allow things to move and to stop. * Explain how magnets work and recognise materials that attract and repel. | * Describe different forces: * Gravity, air resistance, water resistance and friction. * Explain how levers and pulleys allow a smaller force to have a greater effect. * To describe how different circuits will work and give reasons for differences: * Why 2 bulbs will be dimmer than one, how the volume of a buzzer can be changed depending on voltage. * How a switch works and relate to real – life situations. * Draw simple circuit diagrams using the correct symbols. * Recognise light appears to travels in straight lines and that objects are seen because the light is reflected off the surface. * To describe different parts of the eye and how it works. * Explain why shadows have the same shape as the object that cast them. * Describe the movement of Earth: * Day and night * Seasons   Using correct terminology.   * Describe the Earth as a spherical body within a solar system, within a universe. * Describe the movement and importance of the moon to Earth. |
| **Working Scientifically** | * Ask questions and suggest how to answer them * Observe carefully. * Record findings as pictures and words. | * To ask simple questions and suggest how they could be answered. * Perform a simple test with simple equipment. * To observe carefully and use these observations to answer questions. * Gather and record data on simple tables and charts. | * To ask relevant questions and set up simple scientific enquiries. * To make simple predictions. * To collect and use the correct equipment in order to complete a test. * To make careful observations when conducting a test -ensuring accuracy of results. Use data loggers, thermometers. * To set up a fair test – stating the variable. * Present data in a variety of ways including charts, tables diagrams, keys and charts. * Use results to draw conclusions and to evaluate the effectiveness of the enquiry. * Use evidence to support findings. | * Plan different types of enquiries, exploring what may work well and why. * To plan tests involving the control of variables – stating why this is important in conducting a fair test. * Take accurate measurements and observations, repeating readings in order to achieve accuracy. * Use more complex diagrams, graphs and charts to present findings: * Scatter graphs, tables, keys, bar and line graphs, diagrams with labels. * Look for causal relationships between the data and how this supports or refutes the ideas originally thought. |
| **Communicating Scientifically** | * To talk to others using pictures and mark making. * To explain why things happen and predict simple outcomes. | * To present findings using charts, text and diagrams. * Use scientific language to present findings. | * Present information clearly to others using the correct scientific language and terminology. * Use charts, diagrams, graphs and tables to communicate information clearly. * Use written explanations to present findings and conclusions. | * Report and present findings to others: * Use written explanations * Draw and present diagrams and explain their meaning * Present graphs and describe the results clearly * Discuss the degree of trust in results. * Describe the causal relationships in the findings. * Shoe evidence of prior work to support or refute ideas. |
| **Vocabulary** |  |  |  |  |
| **Plants, Animals and Habitats** | Living  Extinct  dead  Plants  Animals  Knees  Shoulders  Elbows  Ankle  Leaves  Stem  Flower  Farm  Forest  Seaside  Changes | Backbone  Cold - blooded  Environment  gills  warm – blooded  Temperature  Pet  Wild  Cells  Reproduce  Characteristics  Habitat  Offspring  Growing  Pupa  Baby  Toddler  Child  Teenager  Adult  Branches  Bulb  Common  Deciduous  Evergreen  Flower  Flowering  Fruit  Roots | Petal  Seed  Carpel  Stamen  Pollen  Dispersal  Nectar  Fertilisation  Biomes  Classification key  Criteria  Habitat  Invertebrate  Vertebrate  Organism  Reptile  Mammal  Amphibian  Migration  Hibernation  Muscles  Tissue  Contract/relax  Nutrition  Teeth names: incisors, molars, canines  Liver  Intestines  Pancreas  Producer/consumer  Predator/prey | Artery  Veins  Capillaries  Heart  Circulatory system  Oxygen  Hygiene  Addictive  Organs  Puberty  Reproduction  Adaption  Ancestor  Evolution  Characteristics  Extinct  Generation  Natural Selection  Species  Mutation  Inherit  Amphibian  Sexual/asexual  Taxonomy  Microbes  Micro organism  Bacteria  Virus |
| **Materials and how they change** | Transparent  Bendy  Stretchy  Rough  Smooth  Soft  Fluffy | Absorbent  bendy  dull  elastic  fabrics  glass  man – made  metal  natural  opaque  plastic  rock  rough  shiny  smooth  soft  stiff  stretchy  transparent  transluscent  Waterproof  Wood  Squashing  Twisting | Precipitation  Infiltration  Transpiration  Evaporation  Condensation  Particle  Vapour  Solid/liquid/gas  Change  State  Sedimentary/metamorphic/igneous  Crystals  Fossil  Decay  Solidify  Tectonic plates | Brittle  Transparent  Opaque  Solution/solute/soluble  Melting  Dissolving  Filtration  Evaporation  Condensation  Reversible/irreversible |
| **Energy, forces, mechanics and waves** | Rain  Windy  Sunny  Cloudy  Frosty  Snowy  Icy  Warm  Hot  Cold  Temperature  Push  Pull  magnetic | Spring  Summer  Autumn  Winter  Rain Gauge  Thermometer  Weather Vane  Data  Clouds  Seasons  Flood  Hurricane  Shadow  Climate | Opaque  Transparent  Warning  Source  Electric  Reflection  Waves  Amplitude  Decibel  Electricity  Energy  Frequency  Medium  Pitch  Power  Sound waves  Source  Transmit  Travel  Vibrations  Volume  Volts  Generator  Fossil fuel  Component  Circuit  Current  Connected.  Appliance  Complete  Conductor  Insulator  Attract  Repel | Voltage  Generator  Cell  Current  Absorption  Refraction  Gravity  Air resistance  Buoyancy  Drag  Grip  Thrust  Streamlined  Pivot  Lever  Pulley  Load  Mechanism  Axis  Gravity  Rotation  Comet  Solar system  Galaxy  Orbit  Phases  Waning/waxing |
| **Working Scientifically** | Question  Observe  Test  Record  Findings | Questions  Predict  Test  Observe  Record  Data | Relevant questions  Enquiry  Equipment  Accurate  Results  Fair test  variable  Diagram  Table  Chart  Conclusion  Evaluate  evidence | Control  Repeat/reliability  Scattergraph  Causal relationship  Support/ refute |