

 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.
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| **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.
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| **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.
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| **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.
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| **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.
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| **Vocabulary** |  |  |  |  |
| **Plants, Animals and Habitats** | LivingExtinctdeadPlantsAnimalsKneesShouldersElbowsAnkleLeaves StemFlowerFarmForestSeasideChanges | BackboneCold - bloodedEnvironmentgillswarm – bloodedTemperaturePet WildCellsReproduceCharacteristicsHabitat OffspringGrowingPupaBabyToddlerChildTeenagerAdultBranchesBulbCommonDeciduousEvergreenFlowerFloweringFruitRoots  | PetalSeedCarpelStamenPollenDispersalNectarFertilisationBiomesClassification keyCriteriaHabitat Invertebrate Vertebrate OrganismReptileMammalAmphibian MigrationHibernation MusclesTissueContract/relaxNutritionTeeth names: incisors, molars, caninesLiverIntestinesPancreasProducer/consumerPredator/prey | ArteryVeinsCapillariesHeartCirculatory systemOxygenHygieneAddictiveOrgansPubertyReproductionAdaptionAncestorEvolutionCharacteristicsExtinctGenerationNatural SelectionSpeciesMutationInheritAmphibianSexual/asexualTaxonomyMicrobesMicro organismBacteriaVirus |
| **Materials and how they change** | TransparentBendyStretchyRoughSmoothSoft Fluffy  | Absorbentbendydullelasticfabricsglassman – mademetalnaturalopaqueplasticrockroughshinysmoothsoftstiffstretchytransparenttransluscentWaterproofWood SquashingTwisting | PrecipitationInfiltrationTranspiration EvaporationCondensationParticleVapourSolid/liquid/gasChangeStateSedimentary/metamorphic/igneousCrystalsFossilDecaySolidifyTectonic plates | BrittleTransparent OpaqueSolution/solute/solubleMeltingDissolvingFiltrationEvaporationCondensationReversible/irreversible |
| **Energy, forces, mechanics and waves** | RainWindySunnyCloudyFrostySnowyIcy WarmHot ColdTemperaturePushPullmagnetic | SpringSummerAutumnWinterRain GaugeThermometerWeather VaneDataCloudsSeasons Flood HurricaneShadowClimate | OpaqueTransparent WarningSourceElectricReflectionWavesAmplitudeDecibelElectricityEnergyFrequencyMediumPitchPowerSound wavesSourceTransmitTravelVibrationsVolumeVoltsGeneratorFossil fuelComponentCircuitCurrentConnected.ApplianceCompleteConductorInsulatorAttractRepel | VoltageGeneratorCellCurrentAbsorptionRefractionGravityAir resistanceBuoyancyDragGripThrust StreamlinedPivotLeverPulleyLoadMechanismAxisGravityRotationCometSolar systemGalaxyOrbitPhasesWaning/waxing |
| **Working Scientifically** | QuestionObserveTestRecordFindings | QuestionsPredict TestObserveRecordData | Relevant questionsEnquiryEquipmentAccurateResultsFair testvariableDiagramTableChartConclusionEvaluateevidence | ControlRepeat/reliabilityScattergraphCausal relationshipSupport/ refute |