

ACKWORTH HOWARD PROGRESSION OF KEY CONCEPTS

Science



| Concept | Key Stage | What understanding and using that concept looks like... |
|---|-----------|--|
| Life <i>The condition that distinguishes animals and plants from inorganic matter</i> | EYFS | Identify and name common animals and plants: talk about change.. . |
| | Year 1 | Recognise and describe the differences and similarities in plants and animals (i.e. carnivores/herbivores/omnivores, fish, reptiles, mammals, amphibians, birds, deciduous and evergreen) |
| | Year 2 | Identify what living things needs to survive and flourish (i.e. food, water, exercise etc.) Recognise and describe how living things differ to non-living things, and how they change as they grow (including plants and animals). Construct and interpret food chains, identifying predators, producers and prey |
| | Year 3 | Identify and describe the role of skeletons and the circulatory system in animals Describe the life cycle and process of reproduction in plants Explain the specific nutritional needs of plants, animals and humans Explain how different plants' needs vary |
| | Year 4 | Sequence the simple functions of the digestive system, including the role of teeth Distinguish the functions of the heart, vessels, and blood Use classification keys to group living things Explain the impact of the environment on specific habitats. |
| | Year 5 | Describe the interdependence of organisms, including food webs and insect-pollinated crops. Describe reproduction in humans, including the development of male and female reproductive organs and systems Discern the differences in the life cycles of a mammal, amphibian, reptile, bird and fish. Discern the processes of reproduction in plants and animals |
| | Year 6 | Explain the mechanism of breathing and how this links to the circulatory system Describe the effects of diet, exercise, drugs and lifestyle on the way bodies function and the consequences of imbalance in the diet (i.e. drug abuse, eating disorders, the impact of maternal lifecycle on a foetus) Reason about the classification of living things according to common observable characteristics Explain the concept of 'natural selection' and adaptation Explain how fossils provide information about the changes to living things over time |



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| Energy <i>Power derived from the use of physical or chemical resources</i> | EYFS | Explore the effect of simple forces (i.e. pushes and pulls, magnets) through continuous provision |
| | Year 1 | Identify and describe simple forces, including pushes and pulls. Recognise that dark is the absence of light Observe the features associated with season change |
| | Year 2 | Describe the effect of applying a greater or lesser force to object (i.e. pushing/pulling harder) Recognise that light is reflected from surfaces Describe the features associated with season change |
| | Year 3 | Compare and contrast the movement of objects across surfaces and explain this using knowledge of friction. Explain how magnets attract and repel one another using knowledge of poles; use this to make predictions Identify the effect of the force of gravity Recognise that light travels in straight lines and explain the effect of the position of an object in relation to a light source on its shadow. Explain that objects are seen because they give out or reflect light into the eye. |
| | Year 4 | Describe the role of components in a circuit through construction and make predictions about components. Recognise the impact of common conductors and insulators Recognise that sounds are made from vibrations and that these travel through different mediums to the ear: explore the impact of distance on volume Compare and contrast the pitch of sounds made by different materials |
| | Year 5 | Explain the effect of the force of gravity, including its impact on the moon, planets and solar system Relate knowledge of air and water resistance to make predictions about the speed of movement Compare and contrast how pulleys, levers and gears enable a smaller force to have a greater effect Explain the effect of the earth's rotation, tilt and movement around the sun (i.e. day and night/movement of sun across sky/seasons) |
| | Year 6 | Compare and explain the effects of changes to voltage and position of components in an electrical circuit: Represent circuits using recognised symbols Describe the concept of absorption linked to the transmission of light through material Explain imaging in mirrors using a ray model |



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| Matter <i>Physical substance which occupies space and possesses rest mass</i> | EYFS | Experience, explore and describe a range of common materials. |
| | Year 1 | Describe, compare and group a variety of materials and their uses on the basis of their simple physical properties |
| | Year 2 | Compare the suitability of materials for particular purposes Explore the how the shapes of materials can be changed by the application of force |
| | Year 3 | Compare and group rocks on the basis of their simple physical properties Recognise that soils are made from rocks and organic matter Describe in simple terms how fossils are formed |
| | Year 4 | Compare and group materials together according to whether they are solids liquids or gas. Describe the impact of temperature on a range of materials. Explore and describe the concepts of evaporation and condensation linked to the water cycle. |
| | Year 5 | Demonstrate that dissolving, mixing and changes of state are reversible changes Use knowledge of solids, liquids and gases to separate materials Explore and identify reversible and irreversible changes on the basis of temperature Justify the grouping of everyday materials based on evidence from comparative and fair tests. |
| | Year 6 | Explain changes of state in terms of particle model Use and explain simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography |



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| Being scientific <i>Investigating in a systematic and methodical way</i> | EYFS | Explore, describe and question the world around them.. |
| | KS1 | Ask simple questions and recognise that these can be answered in different ways Observe closely using simple equipment Carry out simple tests Identify and classify Gather and record data to help answer simple questions Use observations and ideas to suggest answers to questions |
| | LKS2 | Ask relevant questions and use different types of scientific enquiry to answer them Carry out simple practical enquiries, comparative and fair tests. Observe systematically and carefully; where appropriate take measurements using standard units Identify differences, similarities or changes related to simple scientific ideas or processes Gather, record, classify and present data to answer questions. Report on findings of investigations Use scientific evidence to answer questions, draw simple conclusions, make predictions, suggests improvements and raise further questions |
| | UKS2 | Plan different types of scientific enquiries to answer questions, including recognising and controlling variables. Use test results to make predictions and to set up further comparative and fair tests. Take measurements using a range of scientific equipment; record data and results accurately. Report and present findings from enquiries Use scientific evidence to support or refute ideas or arguments. |



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