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| Year 5 National Curriculum Objectives |
| Autumn Term | Spring Term | Summer Term |
| **Properties and Changes in Materials**▪  compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.▪  know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.▪  use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.▪  give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.▪  demonstrate that dissolving, mixing and changes of state are reversible changes.▪  explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.**Animals, Including Humans**▪ describe the changes as humans develop to old age. | **Earth & Space**▪  describe the movement of the Earth, and other planets, relative to the Sun in the solar system.▪  describe the movement of the Moon relative to the Earth.▪  describe the Sun, Earth and Moon as approximately spherical bodies.▪  use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky. | **Living Things and their Habitats**▪ describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.▪ describe the life process of reproduction in some plants and animals.**Forces**▪  explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.▪  identify the effects of air resistance, water resistance and friction, that act between moving surfaces.▪  recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. |
| Year 5 Key Skills |
| **Properties and Changes in Materials (reversible changes)**Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.Demonstrate that dissolving, mixing and changes of state are reversible changes.Changes can occur when different materials are mixed.Some material changes can be reversed and some cannot.Recognise that dissolving is a reversible change and recognise everyday situations where dissolving occurs.Distinguish between melting and dissolving.Mixtures of solids (of different particle size) can be separated by sieving.Mixtures of solids and liquids can be separated by filtering if the solid is insoluble (un-dissolved).Evaporation helps us separate soluble materials from water.Changes to materials can happen at different rates (factors affecting dissolving, factors affecting evaporation - amount of liquid, temperature, wind speed, etc).Freezing, melting and boiling changes can be reversed (revision from YR4).**Properties and Changes in Materials (irreversible changes)**Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning, and the action of acid on bicarbonate of soda (producing a gas / fizzing).**Properties and Changes in Materials (testing materials properties)**Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic (advantages and disadvantages).Compare a variety of materials and measure their effectiveness (e.g. hardness, strength, flexibility, solubility, transparency, thermal conductivity, electrical conductivity).Heat always moves from hot to cold. Some materials (insulators) are better at slowing down the movement of heat than others.Objects/liquids will warm up or cool down until they reach the temperature of their surroundings.**Animals, Including Humans**Describe the changes as humans develop to old age.Animals are alive; they move, feed, grow, use their senses, reproduce, breathe/respire and excrete. | **Earth & Space**Describe the movement of the Earth, and other planets, relative to the Sun and each other in the solar system.Describe the movement of the Moon relative to the Earth.Describe Sun/Earth/Moon as approximately spherical bodies.Use the idea of the Earth's rotation to explain day and night.The Earth spins once around its own axis in 24 hours, giving day and night.The Earth orbits the Sun in one year.We can see the Moon because the Sun's light reflects off it.The Moon orbits the Earth in approximately 28 days and changes to the appearance of the moon are evidence of this.Use the Earth's movement in space to explain the apparent movement of the sun across the sky.The Sun appears to move across the sky from East to West and this causes shadows to change during the day.Changes to shadow length over a day or changes to sunrise and sunset times over a year are evidence supporting the movement of the Earth. | **Living Things and their Habitats**Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.Describe the life process of reproduction in some plants and animals.Name, locate and describe the functions of the main parts of reproductive system of plants (stigma, stamen, petal, sepal, pollen, ovary).**Forces**Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.Identify the effects of air resistance, water resistance and friction that act between moving surfaces (causing things to slow down).Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.There are different types of forces (push, pull, friction, air resistance, water resistance, magnetic forces, gravity) which have different effects on objects.Gravity can act without direct contact between the Earth and an object.Friction, air resistance and water resistance can be useful or unwanted.The effects of friction, air resistance and water resistance can be reduced or increased for a preferred effect.More than one force can act on an object simultaneously (either reinforcing or opposing each other). |
| Year 5 Working Scientifically |
| **Properties and Changes in Materials****Plan, Test, Record, Report, Research**Carry out tests to answer questions such as ‘Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?’Compare materials in order to make a switch in a circuit.Observing and comparing the changes that take place, for example, when burning different materials or baking bread or cakes. Researching and discussing how chemical changes have an impact on our lives, for example cooking.Discuss [research] the creative use of new materials such as polymers, super-sticky and super-thin materials.**Animals, Including Humans****Research, Record, Evidence**Researching the gestation periods other animals and comparing them with humans.By finding out and recording the length and mass of a baby as it grows. | **Earth & Space****Measure, Record, Report, Evidence, Research**Comparing the time of day at different places on the Earth through internet links and direct communication.Creating simple models of the solar system.Constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day.Finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks. | **Living Things and their Habitats****Record, Plan, Measure, Report**Observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times).Asking pertinent questions.Suggesting reasons for similarities & differences.They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs.Observe changes in an animal over a period of time (for example, by hatching and rearing chicks).Comparing how different animals reproduce and grow.**Forces****Plan, Measure, Record, Test, Report**Exploring falling paper cones or cup-cake cases.Designing and making [exploring] a variety of parachutes.Carrying out fair tests to determine which designs are the most effective. Exploring resistance in water by making and testing boats of different shapes. Design and make artefacts that use simple levers, pulleys, gears and/or springs and explore their effects.  |
| Year 5 Curriculum Enrichment Opportunities |
|  | Planetarium |  |
| Year 5 Vocabulary |
| **Properties and Changes in Materials**SolubilityTransparencyConductivitySolutionFilterSieveEvaporationDissolvingReversibleIrreversible | **Animals, Including Humans**alive wombbabyinfantchildyoung adultadultelder | **Earth & Space**StarSolar systemMoonOrbitSpherical bodiesRotationDay and night |  | **Living Things and their Habitats**life cyclefertilisation stamenovaryasexual reproductionsexual reproduction | **Forces**gravity air resistancewater resistancefrictionpushpull |