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| Year 5 | Science | | |
|  | Autumn topic: Properties of Materials | Spring Topic: Earth and Space | Summer topic: Living Things and their Habitats |
| Upper Key Stage 2 National Curriculum Working Scientifically | During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:   * planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate * recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs * using test results to make predictions to set up further comparative and fair tests * reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations * identifying scientific evidence that has been used to support or refute ideas or arguments | | |
| National curriculum statements | Pupils should be taught to:   * 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 | Pupils should be taught to:   * 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 | Pupils should be taught to:   * 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 |
| Retrieval  (to support new learning) | Magnets in Y3  Electricity in Y4 |  |  |
| Knowledge statements | 1. To know the correct terminology to describe materials.  2. To be able to explain the uses of certain materials based upon their properties.  3. To be able to identify materials which are electrical conductors and insulators.  4. To be able to identify material which are thermal conductors and insulators.  5. To be able to identify materials that are magnetic. | 1. To know that the sun is at the centre of our solar system and that it has 8planets which orbit it.  2. To know that the sun, Earth and moon are spherical bodies and that the Earth is not flat.  3. To know that Earth takes 365.25 days or 1year to orbit the sun.  4. To know that the Earth takes 24hours to spin on its own axis which gives us day and night.  5. To understand that the sun appears to move across the sky and it rises in the east and sets in the west.  6. To know that shadows change in relation to the sun’s position in the sky.  7. To know that the moon is a celestial object which orbits a planet.  8. To know the moon takes 28days to orbit the Earth. | 1. To know each stage of the life cycle of a mammal.  2. To know each stage of the life cycle of an amphibian.  3. To know each stage of the life cycle of a bird.  4. 1. To know each stage of the 2 different life cycles of an insect.  5. To be able to explain how plants reproduce. |
| Vocabulary | hardness, soluble, insoluble, transparent, translucent, opaque, conductivity (electrical and thermal), insulator, magnetic, | Sphere, spherical, orbit, solar system., celestial, | life cycle, mammal, amphibian, insect, bird, plant, stamen, carpel, stigma, petal, anther, filament, ovary, stem, roots, pollination, style, reproduction, environment, David Attenborough, Jane Goddall |
| Cultural capital and local resources | Link to DT – how to move a boat across the water | Link to English - The Darkest Dark by Chris Hadfield  Link to NASA and Apollo 11 and the moon landing.  Link to Tim Peake – British astronaut  Daresbury Laboratories – talk/visit | Work by David Attenborough and Jane Goddall |

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| Year 5 | Science | | |
|  | Autumn topic: Changes of materials | Spring Topic: Forces | Summer topic: Animals including Humans |
| Upper Key Stage 2 National Curriculum Working Scientifically | During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:   * planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate * recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs * using test results to make predictions to set up further comparative and fair tests * reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations * identifying scientific evidence that has been used to support or refute ideas or arguments | | |
| National curriculum statements | Pupils should be taught to:   * 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 * 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 | Pupils should be taught to:   * 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 | Pupils should be taught to:   * describe the changes as humans develop to old age |
| Retrieval  (to support new learning) |  | Y3 – forces and magnets |  |
| Knowledge statements | 1. To be able to explain whether a material is soluble or insoluble.  2. To know that heating a liquid makes material dissolve quicker.  3. To understand which changes are irreversible and reversible.  4. To be able to explain that some changes produce new materials.  5. To know which processes to use to separate mixtures. | 1. To know that gravity is a pulling force. 2. To know that gravity acts on all objects on Earth. 3. To know the effect water resistance has on objects in water. 4. To know the effect air resistance has on objects moving through the air. 5. To understand that when forces are unbalanced, movement occurs. | 1. To recognise the stages of growth and development in humans.  2. To know the main stages of the gestation period of humans and compare the gestation period with other animals.  3. To recognise the stages of development during childhood and understand the needs of children at those stages.  4. To understand the initial changes inside and outside of the body during puberty  5. To know the changes that occur during puberty and how they differ for boys and girls.  6. To understand how the body changes during adulthood and old age.  7. To identify, order and explain the 6 main stages of human life on a timeline. |
| Vocabulary | Solid, liquid, gas, solution, soluble, substance, filtering, sieving, evaporation, condensation, melting, freezing, dissolving, physical and chemical change, reversible and irreversible change | Force, gravity, Isaac Newton, forcemeter, newtonmeter, newtons, mass, weight, resistance – air, water, friction, pull, surface, mechanism, lever, pulley, gear | Lifecycle, timeline, development, foetus, baby, infant, child, toddler, teenager, adolescent, adult, old age, puberty, aging, growth, death, reproduction, gestation |
| Cultural capital and local resources |  | Link to DT – how to move a boat across the water  Link water resistance to swimming lesson | Link to Ten:Ten Puberty lessons  School nurse to visit and discuss puberty |