| **Term** | **Science Topic** | **Knowledge and understanding** | **Scientific Enquiry Skills** | **What I will know and remember** |
| --- | --- | --- | --- | --- |
| 1 | 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 | 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 | [Lesson 1a](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/properties-changes-and-separating-materials/lessons/properties-of-materials?sid-33b54b=oUyYT8X4No&sm=0&src=4) / [Lesson 1b](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/properties-changes-and-separating-materials/lessons/uses-of-everyday-materials?sid-dbd522=Qns7s78Xdi&sm=0&src=4#lesson-details) - I can compare and group together materials based on their simple properties: rigidity, transparency, electric conductivity and magnetism.    [Lesson 2a](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/properties-changes-and-separating-materials/lessons/thermal-insulators-plan?sid-301909=-GWvcE0WgZ&sm=0&src=4) / [Lesson 2b](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/properties-changes-and-separating-materials/lessons/thermal-insulators-do-and-review?sid-c80701=FL9NiVMT36&sm=0&src=4) - I can carry out a comparative test and explain which cup is most suitable for keeping warm water warm.    [Lesson 3 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/properties-changes-and-separating-materials/lessons/soluble-and-insoluble?sid-79a20d=fiiY7JPb-U&sm=0&src=4#additional-material) I can compare materials based on whether they are soluble or not.    [Lesson 4 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/properties-changes-and-separating-materials/lessons/recovering-insoluble-solids?sid-5a349b=Cdiu_3Gp7Y&sm=0&src=4#additional-material) I can observe how to separate an insoluble solid from a liquid.    [Lesson 5 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/properties-changes-and-separating-materials/lessons/separating-soluble-solids-from-solutions?sid-f686b5=_MjBpykz2m&sm=0&src=4) I can observe how to separate a soluble solid from a solution.    [Lesson 6 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/properties-changes-and-separating-materials/lessons/reversible-changes-of-state?sid-c5b1e5=B-wRs0pZPv&sm=0&src=4#lesson-details) I can observe that changes of state are reversible changes.    [Lesson 7 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/properties-changes-and-separating-materials/lessons/more-reversible-changes?sid-18bb3b=yhftcO5Pfq&sm=0&src=4#lesson-details) I can observe how mixing and dissolving are reversible changes.    [Lesson 8 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/properties-changes-and-separating-materials/lessons/burning-an-irreversible-change?sid-0776e8=7wfCPR2q7Y&sm=0&src=4) I can observe burning as an irreversible change, where a new material is formed. |
| **Vocabulary**  material, physical properties, transparent, electrical conductor, magnetic, suitable, thermal insulator, dissolve, solid, liquid, soluble, insoluble, separate, filter, sieve, solution, evaporate, state, change of state, reversible, mixture, burn, irreversible change | | | | |
| 2 | Forces including simple machines | 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 | 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 | [Lesson 1 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/forces-including-simple-machines/lessons/introduction-to-gravity?sid-11fbff=bhacWP9AVE&sm=0&src=4#additional-material) I can research and observe why unsupported objects fall towards Earth.    [Lesson 2 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/forces-including-simple-machines/lessons/pushes-and-pulls?sid-7a1705=looIIo4c6I&sm=0&src=4) I can fairly test the size of pushes and pulls using a force meter.    Lesson 3 - I can fairly test the effects of friction.  [*Ogden Trust Resource : Phizzi Forces : Enquiry C - Slippy Shoes*](https://drive.google.com/file/d/1wRX-nAoBZ92QV9qb2gFOzUEmnHRsY06U/view?usp=drive_link)    Lesson 4 - I can observe the effects of air resistance.  [*Ogden Trust Resource : Phizzi Earth and Space : Enquiry E - Parachutes*](https://drive.google.com/file/d/1xfAQj_ZmLtaJHCon6uHIhVqlB4AJWq1J/view?usp=drive_link)    [Lesson 5a](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/forces-including-simple-machines/lessons/water-resistance-plan?sid-2626a2=esHtQTMW3N&sm=0&src=4#slide-deck) / [Lesson 5b](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/forces-including-simple-machines/lessons/water-resistance-do-and-review?sid-0d05cb=POCSWPz58V&sm=0&src=4) - I can compare the effects of water resistance.    Lesson 6 ([levers](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/forces-including-simple-machines/lessons/how-levers-can-help-us?sid-5dc2cd=-qUVZSJaHW&sm=0&src=4) / [gears](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/forces-including-simple-machines/lessons/how-gears-can-help-us?sid-21601d=csIZ72uiVx&sm=0&src=4) / [pulleys](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/forces-including-simple-machines/lessons/how-pulleys-can-help-us?sid-41e89c=FaxfpvLElA&sm=0&src=4)) - I can research how levers, gears and pulleys work.    Lesson 7 - I can compare the effectiveness of levers, gears and pulleys.  [*Ogden Trust Resource : Phizzi Forces : Enquiry J - Simple Machines*](https://drive.google.com/file/d/1wRX-nAoBZ92QV9qb2gFOzUEmnHRsY06U/view?usp=drive_link) |
| **Vocabulary**  earth, force, pull, gravity, force meter, push, pull, Newtons (N), surface, friction, air resistance, water resistance, lever, load, effort, pivot, pulley, gear, cogs, axle, clockwise | | | | |
| 3 | Earth, sun and moon | 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 | 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 | [Lesson 1a](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/earth-sun-and-moon/lessons/the-shape-of-earth?sid-38ed46=3_rQYtqt4P&sm=0&src=4) / [Lesson 1b](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/earth-sun-and-moon/lessons/the-shape-of-objects-in-space?sid-c2589a=WU304oRCFi&sm=0&src=4#additional-material) I can research evidence from the past, and describe the shape of the Earth.  [(further resources)](https://www.ogdentrust.com/resources/research-cards-earth-and-space/)    [Lesson 2 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/earth-sun-and-moon/lessons/observing-the-moon?sid-8dbe95=7hNrqN3cB4&sm=0&src=4) I can make and record observations of the Moon over time.  [(further resource)](https://drive.google.com/file/d/1uPDhIESEcRSVJIVN_3Jt7lqllpYaDmeN/view?usp=drive_link)    [Lesson 3 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/earth-sun-and-moon/lessons/why-we-have-day-and-night?sid-392732=orGTZ7Inx7&sm=0&src=4) I can research why we have day and night.  [*Ogden Trust Resource : Phizzi Earth and Space : Teaching Point 2*](https://drive.google.com/file/d/1xfAQj_ZmLtaJHCon6uHIhVqlB4AJWq1J/view?usp=drive_link)    [Lesson 4 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/earth-sun-and-moon/lessons/why-the-sun-appears-to-move-across-the-sky?sid-5a7ffb=l2DWZhG4eT&sm=0&src=4#lesson-details) I can observe why the Sun appears to move across the sky.    [Lesson 5 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/earth-sun-and-moon/lessons/the-movement-of-the-planets-around-the-sun?sid-1eddb6=9pczgtuzYW&sm=0&src=4#slide-deck) I can research the movement of the planets in the solar system in relation to the Sun.    [Lesson 6 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/earth-sun-and-moon/lessons/the-movement-of-the-moon?sid-f88523=3J3p5Hyozy&sm=0&src=4) I can use the idea and observation of the Moon's movement to begin to explain why the Moon appears to change shape.  [Ogden Trust Resource : Phizzi Earth and Space : Teaching Point 3](https://drive.google.com/file/d/1xfAQj_ZmLtaJHCon6uHIhVqlB4AJWq1J/view?usp=drive_link) |
| **Vocabulary**  Earth, evidence, spherical, globe, horizon, sun, moon, crater, telescope, astronomer, rotate, axis, shadow, solar system, planets, orbits, reflect, satellite | | | | |
| 4 | Reproduction and life cycles - animals | 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 | 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 | [Lesson 1 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/reproduction-and-life-cycles-animals/lessons/animal-groups?sid-7d6f28=nHW3awcmZN&sm=0&src=4) I can name and group a wide variety of common animals, including fish, amphibians, reptiles, birds and mammals.    [Lesson 2a](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/reproduction-and-life-cycles-animals/lessons/mammal-life-cycles?sid-d5fcd6=oCkpEfCH4f&sm=0&src=4) / [Lesson 2b-](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/reproduction-and-life-cycles-animals/lessons/bird-life-cycles?sid-f929fa=q2Hc6cD31_&sm=0&src=4) I can research the stages in the life cycle of different mammals and birds.    [Lesson 3](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/reproduction-and-life-cycles-animals/lessons/comparing-the-life-cycles-of-mammals-and-birds?sid-a21395=lgSnOS4ovg&sm=0&src=4) - I can research and compare the differences in the life cycles of mammals and birds.    [Lesson 4a](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/reproduction-and-life-cycles-animals/lessons/amphibian-life-cycles?sid-ed4755=uKCGml7wvH&sm=0&src=4) / [Lesson 4b](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/reproduction-and-life-cycles-animals/lessons/insect-life-cycles?sid-e83d55=_qOuI0DIMG&sm=0&src=4) - I can research the stages in the life cycle of different amphibians and insects.    [Lesson 5 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/reproduction-and-life-cycles-animals/lessons/comparing-the-life-cycles-of-amphibians-and-insects?sid-62c365=6PG8J7QulX&sm=0&src=4) I can research and compare the differences in the life cycles of amphibians and insects.    [Lesson 6 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/reproduction-and-life-cycles-animals/lessons/animal-gestation-periods?sid-626338=ZrQPsOI9X0&sm=0&src=4) I can find patterns and predict animals’ gestation periods. |
| **Vocabulary**  mammal, fish, reptile, amphibian, bird, life cycle, larva, reproduce, metamorphosis, pupa, offspring, gestation period | | | | |
| 5 | Reproduction and life cycles - plants | describe the life process of reproduction in some plants and animals | 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 | [Lesson 1 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/reproduction-and-life-cycles-plants/lessons/asexual-reproduction-in-plants?sid-cb17a0=bxCFRZDc7H&sm=0&src=4) I can research how plants reproduce asexually.    [Lesson 2 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/reproduction-and-life-cycles-plants/lessons/plants-from-cuttings?sid-4fdbb0=2kcqWAvBcm&sm=0&src=4#slide-deck) I can observe how to reproduce plants from cuttings.    [Lesson 3 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/reproduction-and-life-cycles-plants/lessons/parts-of-a-flowering-plant-and-what-they-do?sid-444af1=MYMnsvfOZ8&sm=0&src=4) I can research the life processes of sexual reproduction in flowering plants.    [Lesson 4 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/reproduction-and-life-cycles-plants/lessons/plant-life-cycles?sid-b257a3=1Ff7rR7VN0&sm=0&src=4) I can research and present the life cycles of different plants.    [Lesson 5 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/reproduction-and-life-cycles-plants/lessons/plant-reproduction-from-cuttings?sid-4d43c1=VphczhZksA&sm=0&src=4#slide-deck) I can observe the process of plant reproduction, using my own cuttings. |
| **Vocabulary**  reproduce, offspring, parent plant, clone, asexual, cutting, anther, stigma, ovary, pollination, germination, fertilisation, seed dispersal | | | | |
| **6** | Human development | describe the changes as humans develop to old age | 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 | [Lesson 1 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/human-development/lessons/changes-in-humans-before-and-after-birth?sid-bd5d96=YHoWO0yTpk&sm=0&src=4#slide-deck) I can research the changes in humans as they develop as babies.    [Lesson 2 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/human-development/lessons/changes-in-childhood?sid-91467a=9lI42IEBxA&sm=0&src=4) I can research the changes in humans as they develop through childhood.    [Lesson 3 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/human-development/lessons/changes-during-puberty?sid-76a1ee=uvFfzKbYwT&sm=0&src=4) I can research the changes in humans as they develop through adolescence.    [Lesson 4](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/human-development/lessons/changes-in-adulthood?sid-a0b0f7=U20CDD_L1R&sm=0&src=4) - I can research the changes in humans as they develop through adulthood.    [Lesson 5 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/human-development/lessons/changes-in-old-age?sid-90d267=DeNPApCk0Z&sm=0&src=4#slide-deck) I can research the changes in humans as they develop through old age.    [Lesson 6 -](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/human-development/lessons/finding-out-about-human-height?sid-283ae6=Pv1Q0e4DyK&sm=0&src=4#slide-deck) I can use research and observations to compare human height.    [Lesson 7a](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/human-development/lessons/representing-data-about-human-height?sid-a9d77e=jryDjG1J8d&sm=0&src=4#slide-deck) / [Lesson 7b](https://www.thenational.academy/teachers/programmes/science-primary-ks2/units/human-development/lessons/analysing-data-about-human-height?sid-57dedd=50-kjBmZO4&sm=0&src=4) - I can represent and analyse data using my observations. |
| **Vocabulary**  human, mammal, womb, develop baby, toddler, child, childhood, adolescence, adolescent, puberty, reproduce, adult, adulthood, elder, elderly, growth rate, average | | | | |