

Life Cycles : Science : Year 5



	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To describe the process of sexual reproduction in flowering plants.	Children will recap the names of parts of a flower and learn about how flowering plants reproduce sexually. They will then either label diagrams of flowering plants or dissect flowers.	- Can children name and describe the functions of the main parts of flowers? - Can children describe the life process of sexual reproduction in flowering plants? - Can children identify and label the parts of flowers?	- Slides - Worksheets 1A/1B/1C - Dissecting Flowers (FSD? activity only) - Double-sided sticky tape, tweezers, flowers (FSD? activity only)
Lesson 2	To describe the process of asexual reproduction in plants.	Children will learn about some ways in which non-flowering plants reproduce asexually, then either describe one of these processes in their own words or grow plants from cuttings.	- Do children understand what asexual reproduction is? - Can children explain some ways in which plants reproduce asexually? - Can children describe the life cycles of some asexually reproducing plants?	- Slides - Worksheets 2A/2B/2C - Growing Cuttings (FSD? activity only) - Plant Picture Cards - Word Bank
Lesson 3	To describe the process of sexual reproduction in animals.	Children will learn about sexual reproduction in animals, including some ways in which some reptiles and fish reproduce. They will then either sort and classify animals, or compare their life expectancies and gestation periods.	- Can children define some of the ways in which sexual reproduction in animals occurs? - Can children compare species that reproduce in different ways and consider reasons why? - Can children record data using scientific graphs and/or diagrams?	- Slides - Worksheets 3A/3B/3C - Animal Fact Cards - Animal Offspring (FSD? activity only)
Lesson 4	To observe and compare the life cycles of animals in our local environment with other animals around the world.	Children will study and compare the life cycles of animals living in a variety of environments. They will then either research animals living in different environments, or compare the life cycles of two animals living in different environments.	- Can children describe the conditions in a local environment as well as other environments around the world? - Can children establish causal links between the life cycle of animals and their environment? - Can children compare the life cycles of animals living in different environments?	- Slides - Challenge Card - Books, atlases, CD ROMs, internet etc. - Comparing Life Cycles (FSD? activity only)
Lesson 5	To compare how different animals reproduce and grow.	Children will learn more about the life cycles of animals, focussing on gestation periods and growth. They will then explain the life cycles of animals in their own words, using technical vocabulary.	- Using scientific vocabulary, can children explain some of the ways in which different animals reproduce? - Can children compare the life cycles and methods of reproduction of different animals? - Are children able to give reasons for the differences between life cycles of different animals?	- Slides - Picture Book 5A/5B/5C - Animal Fact Cards - Write A Class Book! (FSD? activity only)
Lesson 6	To find out about the work of naturalists.	Children will learn about the work of naturalists and animal behaviourists, then research and write in-depth about a well-known naturalist.	- Do children understand what naturalists do? - Can they explain why the work of naturalists is important? - Can children give reasons why secondary sources of scientific evidence cannot always be trusted?	- Slides - Worksheets 6A/6B/6C - Famous Naturalists (FSD? activity only)

Changes and Reproduction : Science : Year 5



	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To recognise the stages of growth and development in humans.	Children will learn about, then order, the main stages in the life cycle of humans. They will then consider and describe factors which may affect the rate of growth in humans.	- Can children name the main stages in the life cycle of humans? - Can children correctly order the main stages? - Can children broadly define the age ranges for each of the main stages? - Can children explain some of the physical changes that occur at different stages in the life cycle of humans?	- Slides - Worksheets 1A/1B/1C - Newborn Baby worksheet (FSD? activity only) - Books, websites etc. about babies (FSD? activity only)
Lesson 2	To know the stages in the gestation period of humans and compare them to other animals.	Children will learn about sexual reproduction, fertilisation and pregnancy for humans. They may then compare the gestation periods of humans with other animals.	- Can children describe the main stages of gestation in humans? - Can children explain how embryos and fetuses grow and develop in the womb? - Can children define and use key vocabulary to describe gestation in humans?	- Slides - Worksheets 2A/2B/2C - Gestation Periods cards (FSD? activity only) - Sticky notes and digital cameras (FSD? activity only)
Lesson 3	To recognise the stages of development during childhood and understand the needs of children at those stages.	Children will learn about changes during infancy and childhood, then consider the needs of children, and how these change over time as they develop.	- Can children describe the needs of a newborn baby? - Can they compare the needs of a human baby to those of other mammals? - Can they describe the stages of development that occur during childhood? - Can they describe how the needs of humans change at different points in their life cycle?	- Slides - Worksheets 3A/3B/3C - Childhood Fact Sheet (FSD? activity only) - Typical Day Agenda worksheet (FSD? activity only)
Lesson 4	To understand the initial changes inside and outside of the body during puberty.	Children will learn about the roles of some hormones in the body, and how they affect changes in boys and girls at the start of puberty. They will also identify and describe or label changes that occur inside and outside the body.	- Can children explain the initial changes that occur inside and outside the body at the start of puberty? - Can children correctly identify the parts of the body that change during puberty? - Can children explain in simple terms the role played by hormones in the growth of humans and other animals?	- Slides - Worksheets 4A/4B/4C - Puberty: Initial Changes - Comic Strip (FSD? activity only)
Lesson 5	To know the changes that occur during puberty and how they differ for boys and girls.	Children will learn about later changes during puberty and adolescence, including sperm production and menstruation. They will then consider and describe ways in which children can stay fit and healthy during puberty.	- Can children remember some of the initial changes during puberty? - Can children explain some of the ways in which boys' and girls' bodies start to differ during puberty? - Can children suggest some ways in which teenagers can look after themselves and stay fit and healthy during puberty?	- Slides - Worksheets 5A/5B/5C - Keeping Fit - Puberty Problems (FSD? activity only)
Lesson 6	To understand how the body changes during adulthood and old age.	Children will learn about some changes in the body that occur during adulthood and old age. They may then either describe ways in which they may change as they get older, or discuss some problems associated with stereotypical views regarding the elderly.	- Can children explain some ways in which the body changes during old age? - Can children describe some ways in which older people can stay fit and healthy?	- Slides - Worksheets 6A/6B/6C - Photographs of children in your class (optional) - Old-age Stereotypes (FSD? activity only)

Properties and Changes of Materials : Science : Year 5



	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.	Children will predict, investigate, observe and explain what happens when a variety of materials are mixed with water. They will also consider how the original materials might be recovered from a solution.	- Do children know that mixing materials can cause them to change? - Do children understand the terms 'dissolve', 'react', 'solution', 'soluble'? - Do children know that dissolving is a reversible change?	- Slides - Worksheets 1A/1B/1C - Containers for mixing - Water, salt, sugar, poster paint, sand, plaster of Paris, baking powder, iron filings etc.
Lesson 2	That some changes of state and dissolving and mixing processes can be reversed through filtering, sieving and evaporating.	Children will explore ways in which the original materials in some mixtures and solutions may be recovered.	- Do children know what the terms soluble and insoluble mean? - Do children know that evaporation can be used to separate soluble materials from water? - Do children know that filtering can be used to separate insoluble materials from water? - Do children know that some changes of state are reversible?	- Slides - Worksheets 2A/2B/2C/2D - Challenge Cards (FSD? activity only) - Sand, marbles, paperclips, rice, gravel, ground coffee, sugar, water, filter paper, different sizes of sieve (FSD? activity only)
Lesson 3	Explain that some changes form new materials, and that these changes are not usually reversible.	Children will identify solutions which are the product of irreversible reactions between the substances that were dissolved. They will then carry out practical investigations involving irreversible reactions.	- Do children know that when some materials are mixed together they cannot be separated again? - Do children know that when an irreversible change takes place a new substance is produced? - Do children know how to tell if the new substance produced is a gas?	- Slides - Worksheets 3A/3B/3C - Vinegar, bicarbonate of soda, lemon juice, plaster of Paris, effervescent tablets, washing powder, water - Diet Coke, Mentos (FSD? activity only)
Lesson 4	Explain that some changes, caused by heating or cooling form new materials, and that these changes are often not reversible.	Children will learn about reversible and irreversible changes caused by heating or cooling materials. They will then either predict and sort materials according to what may happen when they are heated or cooled, or explore irreversible reactions by cooking.	- Do children know that heating and cooling materials can cause them to change? - Can children recognise reversible and irreversible changes caused by heating and cooling? - Can children explain how to reverse a change caused by heating or cooling?	- Slides - Worksheets 4A/4B/4C - Recipe Sheet (FSD? activity only) - Ingredients and equipments as listed on Recipe Sheet (FSD? activity only)
Lesson 5	Explain that changes caused by burning form new materials, and that these changes are not reversible.	Children will consider what happens when materials are burned, including what new materials are produced. They may then either write about a range of flammable materials, or carry out a burning investigation.	- Do children know that new materials are formed when materials are burned? - Can children describe what is seen when certain materials are burned? - Can children identify and assess hazards associated with burning materials?	- Slides - Worksheets 5A/5B - Baking trays, sand, candles, tweezers, safety matches (FSD? activity only) - Materials to burn, e.g. paper, fabric, plastic, etc. (FSD? activity only)
Lesson 6	To compare and group together everyday materials on the basis of their properties.	Children will identify several different properties of a range of materials (conductive, magnetic, soluble, flexible, transparent etc.), then either sort given sets of materials, or investigate the properties of some materials.	- Can children describe everyday materials according to their properties? - Can children compare and group everyday materials according to their properties? - Can children explain why some everyday materials are useful due to their properties?	- Slides - Worksheets 6A/6B/6C - Materials Cards - Activity Cards (FSD? activity only) - Batteries, bulbs and wires; magnets; torches; weights; water and a variety of materials to be tested according to their properties (FSD? activity only)
Lesson 7	To give reasons based on evidence from comparative and fair tests, for the particular uses of everyday materials.	Children will consider ways in which certain properties of materials make them useful. They will then sort, test and select materials for different uses, depending on their properties.	- Can children interpret the results of tests and use them to answer questions? - Can children plan a fair test to answer a question? - Can children give reasons for the uses of different materials in everyday objects?	- Slides - Worksheets 7A/7B/7C - Testing Materials activity sheet (FSD? activity only) - Fair Test Planner (FSD? activity only) - A variety of different materials e.g. polystyrene, different woods, plastics, metals etc. (FSD? only)

Earth and Space : Science : Year 5



	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To describe the Sun, Earth and Moon as approximately spherical bodies.	Children will consider the evidence which proves that the Earth, Sun and Moon are spherical, then organise information or answer questions to show what they have learned and understood.	- Do children recognise that the Earth, Sun and Moon are spherical? - Can children give examples of evidence to prove that the Earth, Sun and Moon are spherical? - Can children describe why people have not always believed that the Earth was spherical?	- Slides - Worksheet 1A/1B/1C - Picture Cards - Books, CD ROMs, internet etc. (FSD? activity only)
Lesson 2	To find out about the size of the Earth, Sun and Moon and how far away from each other they are.	Children will learn about the sizes of the Earth, Sun and Moon, then use everyday objects to compare their relative sizes and estimate the distances between them.	- Can children choose three spheres to represent the relative sizes of the Sun, Earth and Moon? - Do children know the actual sizes of the Sun, Earth and Moon? - Do children know approximately how far away from each other the Earth, Sun and Moon are?	- Slides - Worksheet 2A/2B/2C - Books/Internet - A3 paper (FSD? activity only) - Rulers and compasses (FSD? activity only) - Challenge Cards (FSD? activity only)
Lesson 3	To use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.	Children will consider analogies which help explain why we perceive the Sun to be moving across the sky, but it is the Earth rotating which creates the effect. They will then draw diagrams or make models to show what they have learned.	- Do children know that shadows change position during the day and why? - Do children know that the Earth spins on its axis once every 24 hours, making the Sun appear as though it is travelling across the sky? - Can children explain why night and day do not happen at the same time in different parts of the world?	- Slides - Worksheet 3A/3B/3C - Time Zone Sheet - Balls, globes, torches, etc. (FSD? activity only)
Lesson 4	To use data to draw conclusions about the Sun at different times of the year.	Children will study data showing sunrise and sunset times. They will then plot and interpret data using graphs.	- Can children put data into a graph accurately? - Can children use graphs to answer questions and draw conclusions? - Can children explain why the length of daylight changes throughout the year?	- Slides - Worksheet 4A/4B/4C/4D - Graph paper
Lesson 5	To describe the movement of the Earth, and other planets, relative to the Sun in the Solar System.	Children will share their ideas about what a year is, then learn how a year on Earth and on other planets is defined. They will then draw diagrams, write definitions or draw posters to show what they have learned.	- Do children know that a year is defined as the length of time it takes for a planet to orbit the Sun? - Do children know that an Earth year is 365.25 days? - Can children explain why we have different seasons throughout the year?	- Slides - Calculators - Worksheet 5A/5B/5C - Information Cards
Lesson 6	To describe the movement of the Moon relative to the Earth.	Children will learn about the phases of the Moon and what a lunar month is. They will draw diagrams, or conduct research to show what they have learned and discover more. There is an end of unit quiz.	- Do children know that the Moon is a natural satellite of the earth? - Do children know that the Moon reflects the Sun's rays? - Can children explain why the Moon appears to change shape during the lunar cycle?	- Slides - Worksheet 6A/6B/6C - Books, internet, CD ROMs, etc. (FSD? activity only) - Challenge Cards (FSD? activity only)

Forces in Action : Science : Year 5



	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.	Children will consider what weight is, and how the impact caused by falling objects can vary, depending on their size, shape, mass, and the height they fall from.	- Can children explain why objects fall towards the centre of the Earth? - Do children understand the causal link between the mass of an object and the amount of force with which gravity acts on it?	- Slides - Worksheets 1A/1B/1C - Large trays, flour, cocoa/chocolate powder, marbles, ball bearings, golf balls etc. - Challenge Cards (FSD? activity only) - Books, internet etc. (FSD? activity only)
Lesson 2	To identify the effects of friction acting between moving surfaces.	Children will learn about what friction is and some ways in which it can be measured. They will also identify instances of high and low friction and conduct friction investigations.	- Can children define friction? - Do children know that friction can be useful and give some examples? - Can children carry out an investigation, making sure that it is a fair test?	- Slides - Worksheets 2A/2B/2C/2D - Forcemeters - Variety of surfaces to test - Rubbers (FSD? activity only) - Challenge Sheet (FSD? activity only)
Lesson 3	To identify and explain the effects of air resistance.	Children will learn about ways in which air resistance affects moving objects, then plan and conduct investigations where they will determine how air resistance affects falling objects.	- Do children know that air resistance is a force that slows objects moving through the air? - Can children plan, carry out and assess experiments to investigate air resistance? - Can children draw conclusions from their investigations?	- Slides - Worksheets 3A/3B/3C/3D - Plastic Bag Parachute sheet - Plastic bags, string/wool, paper clips, rubber bands - Spinner Template (FSD? activity only)
Lesson 4	To identify and explain the effects of water resistance.	Children will learn about water resistance and how it affects objects moving through water. They will then conduct water resistance investigations.	- Do children know that water resistance slows an object moving through water? - Can children plan and carry out an experiment, making sure it is a fair test? - Can children identify trends in results and draw conclusions?	- Slides - Worksheets 4A/4B/4C/4D - Measuring cylinders or equivalent - Water - Plasticine - Stopwatches - Results Sheet (FSD? activity only)
Lesson 5	To recognise that levers and pulleys allow a smaller force to have a greater effect.	Children will learn how simple machines can make it easier to move objects. They will then make and test models which have pulleys or levers.	- Do children recognise that that levers and pulleys allow a small force to have a greater effect? - Can children make and improve models that use pulleys or levers? - Can children explore the effects of changing parts of their model?	- Slides - Worksheets 5A/5B/5C - Lollipop sticks, rubber bands (FSD? activity only) - Lolly Stick Catapult sheet (FSD? activity only) - Marshmallows or play dough (FSD? activity only) - Milk/water bottles with handles - String, cord or thin rope - Broomsticks or thick dowel rods
Lesson 6	To recognise that gears allow a smaller force to have a greater effect.	Children will learn about how gears work together in transmissions and look at a variety of transmission. They will then make models to explore in greater depth how gears work.	- Do children recognise that the speed or amount of force transmitted is affected by changing the size of the gears in a transmission? - Can children make transmissions where two or more gears work together?	- Slides - Worksheets 6A/6B/6C - Cut-out Gears - Types of Transmission sheet (FSD? activity only)