

Classifying Organisms : Science : Year 6



	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To recap ways of grouping organisms according to their characteristics.	Children will learn about some of the broad groups used to classify animals, then identify, sort or describe organisms within those groups according to some of their characteristics.	- Do children know that organisms can be grouped according to their characteristics? - Can children describe the characteristics of different classifications of animals? - Can children match animals to their group according to their characteristics?	- Slides - Worksheet 1A/1B - Classification Key - Animal Cards A/B - Challenge Cards A/B (FSD? activity only)
Lesson 2	To explore ways of distinguishing between organisms that have similar characteristics.	Children will consider ways in which animals which belong to the same broad group can be distinguished and further classified.	- Can children classify organisms according to broad characteristics? - Can children find ways to distinguish between organisms that are similar? - Can children use appropriate scientific vocabulary to describe organisms and their features?	- Slides - Worksheet 2A/2B - Insect Cards - Bird Cards - Mammal Cards - Flowering Plant Cards A/B (FSD? activity only)
Lesson 3	To be able to classify plants according to their characteristics.	Children will learn some ways in which plants are classified by botanists, then take photos, collect samples, or research, then classify plants.	- Do children know that plants can be sorted into groups according to their characteristics? - Can children explain the difference between vascular and non-vascular plants? - Can children explain the difference between flowering and non-flowering plants?	- Slides - Worksheet 3A/3B/3C/3D - Plant Cards - optional - Digital cameras - optional - Plant books, access to internet, etc.
Lesson 4	To find out about Carl Linnaeus and his classification system.	Children will learn about the development of Linnaeus' classification system, then use it to help them identify, classify, and answer questions about a number of different organisms.	- Do children know who Carl Linnaeus is and how he contributed to science? - Do children know that animals can be assigned to specific groups based on their characteristics? - Can children give reasons for why classification systems are important?	- Slides - Worksheet 4A/4B/4C - Animal Classification System - Examples of Reptiles - Animal Classification System - Examples of Mammals - Animal Families sheets (FSD? activity only) - Question Sheet (FSD? activity only) - Challenge Card (FSD? activity only)
Lesson 5	To explore what micro-organisms are and how they can be grouped.	Children will learn about some ways in which micro-organisms are classified, and what they need to survive. Following this, they may either write in-depth about micro-organisms, or conduct an experiment to determine what food a micro-organism prefers.	- Do children know what micro-organisms are? - Do children know that micro-organisms can be classified into groups? - Do children understand that some micro-organisms can be harmful and others can be helpful?	- Slides - Worksheet 5A/5B/5C/5D - Yeast Experiment Sheet (FSD? activity only) - Equipment and ingredients as listed on the Yeast Experiment sheet (FSD? activity only)
Lesson 6	To be able to identify and classify organisms in the local area.	Children will either look at a local environment, or study one in another country. They will identify and classify organisms in that environment.	- Can children identify a variety of different organisms found in their local environment? - Can children classify a variety of organisms appropriately? - Can children use a variety of sources of information to identify organisms they are unfamiliar with?	- Slides - Worksheet 6A/6B - Classification Cards - Clipboards - Magnifying glasses - Digital Cameras - Books, internet, posters, etc.

Healthy Bodies : Science : Year 6



	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To find out how scientific ideas about food and diet were tested in the past and how this has contributed to our knowledge of a balanced diet.	Children will learn about historical health problems caused by poor diet, and how the work of scientists such as James Lind helped develop a better understanding of how diet affects health. They will then consider and describe how medical tests and trials might be conducted, or improved.	- Can children describe some examples of how doctors in the past tested ideas about food and diet? - Do children know how these tests in the past have affected our ideas about healthy eating today? - Do children know that in order to be healthy we need a balanced diet which includes different food groups?	- Slides - Worksheet 1A/1B/1C/1D - Information Sheet - Question Cards (FSD? activity only)
Lesson 2	To investigate some different food groups and find out why a variety of foods is important for a healthy diet.	Children will learn about food groups: what they provide our bodies with, and what quantities of each we need in a balanced diet. They will then either design balanced meals or study food labelling.	- Can children name some of the different food groups? - Do children know which types of foods are included in different food groups? - Do children know why each different food group is important for a healthy lifestyle?	- Slides - Worksheet 2A/2B/2C/2D/2E - Information Sheet - Food Label Cards (FSD? activity only)
Lesson 3	To find out how nutrients and water are transported in the human body.	Children will learn about the functions of the heart, lungs and circulatory system, then either draw and label diagrams, or perform a heart dissection to study its internal structure.	- Do children know that the circulatory system transports blood and nutrients to the different parts of the body? - Can children describe how the circulatory system works? - Can children record their own resting pulse rate accurately?	- Slides - Worksheet 3A/3B - Label Cards - Heart Dissection Sheet (FSD? activity only) - Equipment for dissection as listed on sheet (FSD? activity only)
Lesson 4	To investigate what happens to the heart when we exercise and why.	Children will learn about what happens to the heart when we exercise, then conduct practical investigations where heart rate is measured.	- Can children describe the functions of the heart? - Can children investigate how the heart is affected through exercise and draw conclusions? - Do children know that hearts need to have exercise to stay healthy?	- Slides - Worksheet 4A/4B/4C/4D - Clocks and/or stopwatches
Lesson 5	To investigate how muscles move the skeleton and how muscle activity requires increased blood flow.	Children will learn about how muscles work, and how they work in groups to move the skeleton. They will then explore in greater depth how blood flow increases to different muscle groups during different types of exercise.	- Do children know that muscles work in pairs to move different parts of the skeleton? - Do children know that when muscles exercise they need an increased flow of blood because the muscles are working harder? - Can children explain why their pulse rate increases when they exercise?	- Slides - Worksheet 5A/5B/5C - Human Muscles Diagram
Lesson 6	To investigate the effects of tobacco, alcohol and other drugs.	Children will learn about what drugs are, how some are helpful and some are harmful. They will also consider ways in which drugs have side effects. Following this, children may explain differences between drugs, or their effects, in their own words.	- Do children know that drugs affect the way the mind or body works? - Do children know that some drugs are beneficial even though they may have unpleasant side-effects? - Are children aware of some of the negative effects of tobacco and alcohol on the body?	- Slides - Worksheet 6A/6B/6C - Information sources - Challenge Cards (FSD? activity only)
Lesson 7	To evaluate what we can do to keep our bodies healthy.	In the light of prior learning about the functions of the human body, children will gather their ideas about staying healthy, and present them in a variety of ways. They will also do an end of unit quiz.	- Can children describe the impact that diet has on the body? - Can children describe why exercise is important for a healthy lifestyle? - Can children describe the harmful effects some drugs can have on the body?	- Slides - Worksheet 7A/7B - Profile Cards - Challenge Card (FSD? activity only) - Video cameras (FSD? activity only) - End of Unit Quiz

Evolution and Inheritance : Science : Year 6



Learning Objective	Overview	Assessment Questions	Resources
Lesson 1 To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.	Children will learn about traits that are passed from one generation by the next, and consider ways in which some inherited characteristics may vary. They may then identify ways in which families or groups of people have some similar or shared characteristics.	- Do children recognise that animals produce offspring that are like themselves? - Can children explain why variation in offspring occurs?	- Slides - Worksheets 1A/1B/1C - Family Traits - Inherited Characteristics (FSD? activity only)
Lesson 2 To identify how animals and plants are adapted to suit their environment in different ways.	Children will learn about how random mutations may or may not be passed from one generation to the next, and how this process results in variation. They will then consider whether certain variations are advantageous, giving reasons why.	- Can children describe the conditions of an environment? - Can children identify characteristics which help an organism to be well suited to its environment? - Do children understand why different organisms in the same environment may have different characteristics?	- Slides - Worksheets 2A/2B/2C - Environment Posters - Advantageous Adaptations sheet (FSD? activity only)
Lesson 3 To understand that adaptation of plants and animals to suit their environment may lead to evolution.	Children will learn about how, if traits are advantageous to a species, they may be passed on and that evolution can occur. They may then undertake some of a range of activities where they will identify advantageous traits of species, learn more about evolutionary scientists, or sequence description of evolutionary processes.	- Do children know that not all inherited characteristics are advantageous? - Can children explain why advantageous characteristics are more likely to be passed from generation to generation? - Do children understand that whole species can evolve in this way?	- Slides - Task Charts 3A/3B/3C - Task Instructions - Task Resources A-F
Lesson 4 Evolution and Inheritance: Darwin	Children will learn about the contributions of ancient Greek scientists to our understanding of evolution. They will also study in greater depth the work of Carl Linnaeus and, particularly, that of Charles Darwin.	- Do children know that our understanding of process of evolution has developed over time? - Can children share what they have learned about the process of evolution? - Can children share what they have learned about the life and work of Charles Darwin?	- Slides - Worksheets 4A/4B/4C - Evolution Questions (FSD? activity only)
Lesson 5 To recognise that living things have changed over time and that a number of factors can affect a species' evolution.	Children will learn about mutations, and how external factors can affect the evolution of a species. They will then either summarise their learning about how the fossil record provides evidence of this, or summarise given technical vocabulary in their own words, drawing on prior knowledge and learning.	- Do children understand that a species can change over time due to mutations? - Do children understand that a species can change over time due to external factors such as competition from other species, disease or climate change?	- Slides - Worksheets 5A/5B/5C - The Fossil Record - Audio recorders (optional) - Evolution and Inheritance Game (FSD? activity only) - Die/Spinner, timer (FSD? activity only)
Lesson 6 To understand how humans have evolved over time, and how human behaviour can affect change in species over time.	Children will learn about human adaptations which allow us to thrive, then consider some impacts of human behaviour on other species. They will then either discuss these impacts in greater depths, or discuss some beliefs and misconceptions about evolution.	- Do children know that primate species (including humans) have changed over time? - Can children explain some ways in which human behaviour has changed the characteristics of other species? - Can children identify positive and negative consequences of this human behaviour?	- Slides - Worksheets 6A/6B/6C - Evolution Discussion Cards

Seeing Light : Science : Year 6



	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To review understanding of light and shadow and to explore how light travels.	Children will describe natural and man-made light sources, distinguish between these and things which reflect light, and learn — then describe in their own words — how light travels in a straight line and creates shadows.	- Do children know that light travels from a source? - Do children know that light travels in a straight line? - Do children know how shadows are formed?	- Slides - Worksheet 1A/1B/1C - Torches (FSD? activity only) - Variety of opaque, transparent and translucent objects (FSD? activity only)
Lesson 2	To investigate how we see things through light entering the eyes.	Children will learn that we need light to see, and how eyes work. They may then either draw diagrams to show how we see using light, or conduct research to learn more about how we see.	- Do children know that we see things because light from a source enters our eyes? - Do children know that light does not come from our eyes? - Can children recognise the main parts of the eye and how they work?	- Slides - Worksheet 2A/2B/2C - Books, access to internet, etc. - Challenge Cards (FSD? activity only)
Lesson 3	To explore how light can be reflected and change direction.	Children will learn how light can change direction when it is reflected, then conduct practical reflection investigations.	- Do children know that mirrors reflect light? - Do children know that mirrors change the direction of a light beam? - Do children know that light reflected from a mirror enters our eyes and we see the object?	- Slides - Worksheet 3A/3B - Mirrors - White paper - Torches - Equipment for making periscopes as listed in FSD? activity
Lesson 4	To investigate reflections from a variety of surfaces.	Children will hypothesise what characteristics reflective surfaces will have, then conduct reflection investigations where their ideas will be explored.	- Can children make observations about how well different surfaces reflect light? - Do children know that shiny, smooth surfaces reflect light better than dull surfaces? - Do children know that all the objects we see reflect light?	- Slides - Worksheet 4A/4B/4C - Torches - Surface Cards (FSD? activity only)
Lesson 5	To be able to plan and carry out an experiment to investigate how shadows behave.	Children will consider what questions could be asked about shadows and how they may be changed. They will then conduct practical shadow investigations where they will test their ideas and explain their findings.	- Can children choose a question to investigate and plan an investigation, deciding how they will make it a fair test? - Can children carry out an investigation appropriately and make careful observations? - Can children draw conclusions from their results?	- Slides - Worksheet 5A/5B/5C/5D - Torches - Opaque objects
Lesson 6	To explore the differences between shadows and reflections and consolidate knowledge of how we see things.	Children will describe differences between shadows and reflections in their own words, then ask and answer questions to show what they have learned during this, and previous lessons.	- Can children describe the difference between a shadow and a reflection? - Can children suggest questions they would like to find the answer to and suggest how to find an answer? - Can children review what they have found out about how we see things?	- Slides - Worksheet 6A - Information Book Template - Books CD ROMs, internet, etc. (FSD? activity only) - End of Unit Quiz

Changing Circuits : Science : Year 6



Learning Objective		Overview	Assessment Questions	Resources
Lesson 1	To recap knowledge of electricity and circuits.	Children will recap prior knowledge regarding electricity and circuits, then identify, discuss or test to find differences between series and parallel circuits.	- Do children know what the main components of a circuit are? - Do children recognise what the difference between a series and a parallel circuit is? - Can children draw and/or construct working circuits?	- Slides - Worksheet 1A/1B/1C - Wires, batteries, bulbs/motors, switches (FSD? activity only) - Circuit Cards (FSD? activity only) - Sticky notes
Lesson 2	To investigate ways in which the brightness of a bulb or speed of a motor is changed.	Children will suggest ways in which changing circuits could affect the brightness of a bulb or the speed of a motor. They may then either give reasons for differences between drawings of circuits, or investigate their ideas by making circuits.	- Do children know that the brightness of a bulb or the speed of a motor can be changed in a circuit? - Do children know that the brightness of a bulb or speed of a motor depends on how much power is supplied to each component? - Do children know that bulbs and motors will blow out if too high a voltage is used?	- Slides - Worksheet 2A/2B/2C/2D - Question Cards (FSD? activity only) - Batteries, bulbs/motors, wires, switches (FSD? activity only)
Lesson 3	To be able to recognise and use conventional symbols for circuits.	Children will learn about a variety of symbols used in circuit diagrams. They may then either match and draw circuits and symbols according to given instructions, or create circuits according to given diagrams.	- Do children know why symbols are used to draw circuit diagrams? - Can children recognise the symbols for various common circuit components? - Can children use conventional circuit symbols to draw and/or construct circuits?	- Slides - Worksheet 3A/3B/3C - Circuit Cards (FSD? activity only) - Wires, batteries, bulbs, buzzers, switches, motors (FSD? activity only) - Camera - optional (FSD? activity only)
Lesson 4	To be able to plan, carry out and evaluate an experiment to see how changing the wire in a circuit affects the brightness of a bulb.	Children will suggest ways in which wires of different lengths, thicknesses and materials may be tested to determine how they affect the brightness of a bulb. They may then either conduct an experiment, or interpret a given set of data.	- Do children know that the brightness of the bulb in a circuit can be altered by changing the wires? - Can children suggest questions to investigate, decide what to do and what equipment to use to test the question? - Can children make fair comparisons and draw conclusions from their results?	- Slides - Worksheet 4A/4B/4C/4D - Batteries and bulbs - Different thicknesses of fuse wire - Results Sheet (FSD? activity only)
Lesson 5	To be able to review and assess understanding of circuits.	Children will undertake a variety of activities, including a quiz, to show what they have learned and understood about circuits and electricity.	- Can children recall information they have found out about circuits and electricity? - Can children answer questions to demonstrate their knowledge? - Can children convey knowledge of circuits in a variety of ways?	- Slides - Worksheet 5A/5B/5C - Information Booklet Template - Challenge Cards (FSD? activity only) - Wires, bulbs, buzzers, motors, wire, batteries, etc. (FSD? activity only) - End of Unit Quiz