

Year 6 Science coverage

	Discover	Explore		Belong	
	Evolution and Inheritance	Animals Inc Humans	Living things and Habitats	Earth and Space (yr5 objective)	Light
Knowledge	<ul style="list-style-type: none"> <li>recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</li> </ul> <p><b>KEY AREAS:</b></p> <ul style="list-style-type: none"> <li>➤ Know how the Earth and living things have changed over time.</li> <li>➤ Know how fossils can be used to find out about the past.</li> <li>➤ Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents).</li> <li>➤ Know how animals and plants are adapted to suit their environment.</li> </ul>	<ul style="list-style-type: none"> <li>identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>describe the ways in which nutrients and water are transported within animals, including humans</li> </ul> <p><b>KEY AREAS:</b></p> <ul style="list-style-type: none"> <li>➤ Identify and name the main parts of the human circulatory system.</li> <li>➤ Know the function of the heart, blood vessels and blood.</li> <li>➤ Know the impact of diet, exercise, drugs and lifestyle on health.</li> <li>➤ Know the ways in which nutrients and water are transported in animals, including humans.</li> </ul>	<ul style="list-style-type: none"> <li>describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</li> <li>give reasons for classifying plants and animals based on specific characteristics</li> </ul> <p><b>KEY AREAS:</b></p> <ul style="list-style-type: none"> <li>➤ Classify living things into broad groups according to observable characteristics and based on similarities and differences.</li> <li>➤ Know how living things have been classified.</li> <li>➤ Give reasons for classifying plants and animals in a specific way.</li> </ul> <p>Prior knowledge: children should be able to recognise that living things can be grouped in a variety of ways explore and use classification keys to help group, identify and name a</p>	<ul style="list-style-type: none"> <li>describe the movement of the Earth and other planets relative to the sun in the solar system</li> <li>describe the movement of the moon relative to the Earth</li> <li>describe the sun, Earth and moon as approximately spherical bodies</li> <li>use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</li> </ul> <p><b>KEY AREAS:</b></p> <ul style="list-style-type: none"> <li>➤ Know about and explain the movement of the Earth and other planets relative to the Sun.</li> <li>➤ Know about and explain the movement of the Moon relative to the Earth.</li> <li>➤ Know and demonstrate how night and day are created.</li> <li>➤ Describe the Sun, Earth and Moon (using the term spherical).</li> </ul>	<ul style="list-style-type: none"> <li>recognise that light appears to travel in straight lines</li> <li>use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye</li> <li>explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes</li> <li>use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</li> </ul> <p><b>KEY AREAS:</b></p> <ul style="list-style-type: none"> <li>➤ Know how light travels.</li> <li>➤ Know and demonstrate how we see objects.</li> <li>➤ Know why shadows have the same shape as the object that casts them.</li> <li>➤ Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.</li> </ul>

Year 6 Science coverage

	<ul style="list-style-type: none"> <li>➤ Link adaptation over time to evolution.</li> <li>➤ Know about evolution and can explain what it is.</li> </ul> <p>Prior knowledge: children should be able to describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p>	<p>Prior knowledge: children should be able to describe the changes as humans develop to old age. Can describe the simple functions of the basic parts of the digestive system in humans. Can identify the different types of teeth in humans and their simple functions. Can construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>variety of living things in their local and wider environment. Can recognise that environments can change and that this can sometimes pose dangers to living things. Can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Can describe the life process of reproduction in some plants and animals.</p>		<p>Prior knowledge: children should be able to recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Can recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows changes.</p>
<p>Key Vocabulary</p>	<p><b>Adaptation, changes, characteristics, Darwin, differences, environment, evolution, generations, genes, inherit, inheritance, parents, similarities, survival of the fittest, variation, interdependence, adaptation, habitat, environment, advantages/disadvantages.</b></p>	<p><i>Humans, circulation, circulatory system, heart, blood vessels, blood, veins, arteries, lungs, oxygen, capillaries, pump, pulse, exercise, oxygenate, deoxygenate, function, health, diet, balance, protein, carbohydrate, calcium, dairy, vitamins, minerals, fruit, vegetables, medicines, drugs, effects, smoking, tobacco, tar, carbon-monoxide, stimulant, depressant, alcohol, intoxication,</i></p>	<p><i>Micro-organisms, plants, animals, subdivisions, invertebrates, vertebrates, mammals, reptiles, birds, classification, <b>Animals, characteristics, classification, classify, deciduous, differences, evergreen, groups, insects, invertebrates, keys, molluscs, plants, similarities, systems, vertebrates</b></i>  <i>NB: Recap and revisit vocabulary from classification in year 4</i></p>	<p><i>Earth, planets, (Name all 8- Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune) moon(s) celestial, NB: Pluto renamed as a 'dwarf planet' in 2006 spherical, movement, rotation, spin, axis, orbit, daytime, night-time, gravity, solar, star, lunar, satellite, crescent, day, month, year, sunrise, sunset, shadow, sky, equator, poles, hemisphere, solar system, geocentric model, heliocentric model, astronomy</i></p>	<p><i>Light, straight lines, reflection, eye, see/sight, light sources, objects, shadows, barrier, shape, mirror, dull, matt, light beam, block, opaque, travel, darkness, bounce, shiny,</i></p>

Year 6 Science coverage

		<i>substances, harmful, effects, lifestyle, addiction, illegal, abuse, health, medical, research, studies,</i>			
Linked Scientist	<b>Alan Goffe Gregor Mendel</b>	Paramjit Khurana	Sunetra Gupta	Dr Maggie Aderin-Pocock Habih Rahmani	Patricia Bath
Thinking Scientifically	<ul style="list-style-type: none"> <li>• observing and raising questions about local animals and how they're adapted to their environment.</li> <li>• compare how some living things are adapted to survive in extreme conditions.</li> <li>• analyse the advantages and disadvantages of specific adaptations e.g. having a long or short beak.</li> </ul>	<ul style="list-style-type: none"> <li>• exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.</li> </ul>	<ul style="list-style-type: none"> <li>• using classification systems and keys to identify some animals and plants in the immediate environment.</li> <li>• Research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.</li> </ul>	<ul style="list-style-type: none"> <li>• Comparing the time of day at different places of the Earth through internet links and direct communication.</li> <li>• Creating simple models of the solar system</li> <li>• Constructing simple shadow clocks and sundials calibrated to show midday and the start and end of the school day.</li> <li>• Finding out why some people think that structure such as Stonehenge might have been used as astronomical clocks.</li> </ul>	<ul style="list-style-type: none"> <li>• Deciding where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works.</li> <li>• They might investigate the relationship between light sources, objects and shadows by using shadow puppets.</li> <li>• They could extend their experience of light by looking a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters (they do not need to explain why these phenomena occur)</li> </ul>

Year Group 6	Suggested Assessment Activity(ies)
<p><b>Evolution and inheritance</b></p> <ul style="list-style-type: none"> <li>recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</li> </ul>	<p>Study fossils. Create 'fossils' in a day using leaves/plants</p> <p>Comparing activities-eye colour, hair colour</p> <p>Visit wild life park and compare animals/habitats/environments</p> <p>Label pictures to identify features linked to suitability to environment e.g mole-long nose for...</p> <p>Create/design animals to suit particular environments including 'extreme' e.g Mount Everest</p>
<p><b>Living things and their habitats</b></p> <ul style="list-style-type: none"> <li>describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</li> <li>give reasons for classifying plants and animals based on specific characteristics</li> </ul>	<p>Sorting and classifying organisms (including unfamiliar examples) including databases, sorting diagrams e.g sorting trees</p> <p>Sorting activities using pictures/ labels then using to produce a poster to explain to others</p>
<p><b>Animals including humans</b></p> <ul style="list-style-type: none"> <li>identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>describe the ways in which nutrients and water are transported within animals, including humans</li> </ul>	<p>Produce healthy lifestyle poster with focus on circulatory system</p> <p>Write a journey through the digestive system e.g Incredible Voyage</p> <p>Listening to heart beats</p> <p>Make models of hearts, identifying different parts-use range of materials e.g straws, sponges etc</p> <p>Pose enquiry questions and plan investigation</p> <p>Describe/map journey of a food type (linked to geography)</p> <p>Body maps and labels</p>
<p><b>Earth and Space</b></p> <ul style="list-style-type: none"> <li>describe the movement of the Earth and other planets relative to the sun in the solar system</li> <li>describe the movement of the moon relative to the Earth</li> <li>describe the sun, Earth and moon as approximately spherical bodies</li> <li>use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</li> </ul>	<p>Chn given a planet and order (also in order of size etc)</p> <p>Create own acronym</p> <p>Create a fact-file about planets</p>

Year 6 Science coverage

**Light and Shadow**

- recognise that light appears to travel in straight lines
- use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
- explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

Living room diagram-draw diagrams to show how person sat in the chair sees photo on windowsill and the image on the tv

Shine torch and have child explain how shadow is made

Set up test and prove –series of cards with holes in and shine light through-explain/discuss observations

Explore informative websites and create posters from websites e.g

Create shadow puppets and explain to younger children how they work (cross curricular with scripts/linked to topic)

## Ipad ideas for science

- ❖ Use of Hologo (AR app)
- ❖ Google Expeditions (science AR)
- ❖ Keynote animation of scientific concept (water cycle, forces, magnets, circuit)
- ❖ Use of numbers app to show data/results
- ❖ Using time-lapse to record plants growing
- ❖ 'Bug Hunt Bingo' on keynote
- ❖ Create a quiz on keynote
- ❖ Screen shot and narrate over the top (using screen record)
- ❖ Record selfie facts about a scientific concept
- ❖ Use of slo-mo function on camera (e.g. to show forces)
- ❖ Narrate over AR (using screen record)
- ❖ Using pages app to keep a journal of learning
- ❖ Use of Green screen (scientific report)
- ❖ Using Chatterpix - to share facts learned
- ❖ Photo journal