



## Science Knowledge and Skills Progression Grid

Big Ideas	<p><b>Changes/movement:</b> The children will understand how our world continues to change due to the discoveries made in science.</p> <p><b>Life:</b> All children will have the skills to describe and understand life around them and what animals including humans need to survive.</p> <p><b>Discovery:</b> The children at Fawbert and Barnard’s will learn about the discoveries scientists in the past have made in Science and how these impact on our everyday lives. The children, through first hand experience will make their own discoveries.</p>						
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	<ul style="list-style-type: none"> <li>Can describe the similarities and differences of different plants and trees.</li> <li>Describe different types of weather.</li> </ul> <p><b><u>Name parts of a plant and describe types of weather.</u></b></p>	<ul style="list-style-type: none"> <li>Can identify and name a variety of common wild and garden plants, including deciduous and evergreen.</li> <li>Can identify and describe the basic structure of a variety of common flowering plants, including trees.</li> <li>Can observe changes across the four seasons.</li> </ul> <p><u>Seasonal changes</u></p> <ul style="list-style-type: none"> <li>Can observe and describe weather associated with the seasons and how day length varies (create weather station).</li> </ul>	<ul style="list-style-type: none"> <li>Can observe and describe how seeds and bulbs grow into mature plants</li> <li>Can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> </ul> <p><b><u>How plants grow and develop.</u></b></p> <p><b><u>Where seeds and bulbs need to be planted differ.</u></b></p>	<ul style="list-style-type: none"> <li>Can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</li> <li>Can explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.</li> <li>Can investigate the way in which water is transported within plants.</li> <li>Can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</li> </ul>	Revisit in Snap science unit Our changing world.	Revisit in Snap science unit reproduction in plants and animals and Our changing world.	Revisit in Snap science unit Our changing world.

<p style="text-align: center;"><b>Key vocab for plants</b></p>	<p>Root, stem, leaf, flower</p>	<p>Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area. Names of garden and wild flowering plants in the local area Weather (sunny, rainy, windy, snowy etc.) Seasons, Sun, sunrise, sunset, day length</p>	<p>As for year 1 plus - light, shade, sun, warm, cool, water, grow, healthy</p>	<p>Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal</p>			
<p style="text-align: center;"><b>Links with Snap Science units</b></p>		<p>Plant detectives Our changing world: plants Sensing seasons</p>	<p>The apprentice gardener</p>	<p>Our changing world How does your garden grow?</p>			

- Can make observations of animals.
- Explain how animals have changed and why changes occur e.g. life cycle.

**Describe the features of animal and how they change over time.**

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- Can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.
- Can identify and name a variety of common animals that are carnivores, herbivores and omnivores
- Can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).
- Can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

- Notice that animals, including humans, have offspring which grow into adults
- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
- Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene

**Describe life cycles and what animals need to survive.**  
**Describe how hygiene practices helps prevent illnesses and infections.**

- Can identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.
- Can identify that humans and some other animals have skeletons and muscles for support, protection and movement.

- 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.

**Describe the different functions of the digestive system and how the body absorbs water**

- Can describe the changes as humans develop to old age.

- Can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.
- Can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.
- Can describe the ways in which nutrients and water are transported within animals, including humans.
- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

**Describe the human circulatory system.**  
**Describe how diet, exercise, drugs and life style have an impact on the way our bodies**

Key vocab for Animals inc humans		<p>Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves</p> <p>Names of animals experienced first-hand from each vertebrate group</p> <p>Parts of the body including those linked to PSHE teaching.</p> <p>Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue</p>	<p>Offspring, Reproduction, Growth, Child, Young/Old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), Exercise, Heartbeat, Pulse, Breathing, Hygiene, Germs, Disease, Nutrition, Food types (examples – meat, fish, vegetables, bread, rice, pasta)</p>	<p>Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, skull, ribs, spine, muscles, joints</p>	<p>Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain</p>	<p>Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, herbivore, carnivore, omnivore</p>	<p>Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs and lifestyle</p> <p>Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils</p>
Links with Snap Science		<p>Animal antics</p> <p>Looking at animals</p> <p>Our senses</p>	<p>Take care</p> <p>Growing up</p>	<p>Amazing bodies</p>	<p>Where does all that food go?</p>	<p>Circle of life</p>	<p>Body pump</p> <p>Body health</p>

features of their own immediate environment.

Link with Geography

**I can describe different materials.**

- between an object and the material from which it is made
- Can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.
- Can describe the simple physical properties of a variety of everyday materials.
- Can compare and group together a variety of everyday materials on the basis of their simple physical properties.

- and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
- Can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

**Objects are made from one or more material due to their suitability for the task. Objects made of some materials can be changed. This can be a property of the material or depend on how the material has been processed e.g. thickness.**

- group together different kinds of rocks on the basis of their appearance and simple physical properties.
  - Can describe in simple terms how fossils are formed when things that have lived are trapped within rock.
  - Can recognise that soils are made from rocks and organic matter.
- Link with Geography rivers with a locational study of the Lake district and it's mountains formed by different rocks. Further link to water cycle.

- and group materials together, according to whether they are solids, liquids or gases.
- Can observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).
- Can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

**Solid, liquid and gases. How sand can be mistaken for a liquid. Melting, freezing, boiling point, evaporation, condensation. Water cycle**

- group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.
- Can name some materials that will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.
- Can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.
- Can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.
- Can demonstrate that dissolving, mixing and changes of state are reversible

Key vocab for materials		Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through	Suitable/unsuitable, use/useful, hard/soft, stretchy/stiff, rigid/flexible, waterproof/absorbent, strong/weak, rough/smooth, transparent/opaque, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching	Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil	Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve reversible/non-reversible change, burning, rusting, new material  Absorbent, thermal conductivity, melting, solid, liquid, gas, dissolve, solution, soluble.	
Links with Snap Science units		Everyday materials	Materials: Shaping up Materials: Good choices	Rock detectives	In a state	Everyday materials Marvellous mixtures All change Get sorted!	

observations about living things and their environments.

**Name common living things and describe where you would find it e.g. Woodlouse under a rock and fish in the sea.**

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and compare the differences between living, dead, and things that have never been alive.

- Can identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
- Can identify and name a variety of plants and animals in their habitats, including micro-habitats.
- Can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different

World' plants.

- living things can be grouped in a variety of ways
- Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
- Recognise that environments can change and that this can sometimes pose dangers and have an impact on living things.

**Living things can be classified – classification keys. Living things live in a habitat which may change naturally positively and negatively.**

differences in the life cycles of a mammal, an amphibian, an insect and a bird.

- Describe the changes as humans develop to old age.
- Can 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.
- Can give reasons for classifying plants and animals based on specific characteristics.
- Can describe the life process of reproduction in some plants and animals.
- Can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.
- Can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.
- Can identify how animals and plants are adapted to suit their environment.

<b>Key vocab for living things and their habitats</b>	Names of living things, ocean, sea, woods		Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed Names of local habitats e.g. pond, woodland etc. Names of micro-habitats e.g. under logs, in bushes etc.		Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate		Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering
<b>Links with Snap Science units</b>			Our changing world What is your habitat?		Human impact Our changing world	Reproduction in plants and animals	Our changing world Nature library



Light and sound

Continuous provision:  
Making shadows. Noticing how shadows are made using torches, sun etc.

Continuous provision:  
Noticing how shadows change at different times of the day. Notice how living things in the environment cast shadows (links with seasonal changes.)

Continuous provision:  
How shadows change due to the seasons (links with seasonal changes.)

- Can recognise that they need light in order to see things and that dark is the absence of light.
- Can 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.

Covered in KS1 so only short recap may be needed.  
Can recognise that shadows are formed when the light from a light source is blocked by a solid object.  
Can find patterns in the way that the size of shadows change.

**Identify sources of light.**

**Explain how we see objects and when we cannot see them.**

**The light from the sun can damage our eyes and therefore we should not look directly at the sun. Know how we can protect our eyes.**

**How shadows are formed.**

- Can identify how sounds are made, associating some of them with something vibrating.
- Can recognise that vibrations from sounds travel through a medium to the ear.
- Can find patterns between the pitch of a sound and features of the object that produced it.
- Can find patterns between the volume of a sound and the strength of the vibrations that produced it.
- Can recognise that sounds get fainter as the distance from the sound source increases.

**How sound transfers from the source to our ears. What factors effect the volume of sound.**

- Can 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.
- Can 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.
- Can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

**Light appears to travel in straight lines, and we see objects when light from them goes into our eyes. The light may come directly from light sources, but for other objects some light must be reflected from the object into our eyes for the object to be seen. Objects that block light (are not fully transparent) will cause shadows. Because light travels in straight lines the shape of the shadow will be the same as the outline shape of the object.**

Key vocab for light and sound				Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous	Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation		As for Year 3 - Light, plus straight lines, light rays
Links with Snap Science				Can you see me?	Good vibrations		Light up your world

provision:

Children to experiment with wires, cells and bulbs.

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provision:

Children to experiment with wires, cells and bulbs to make a simple circuit.

provision:

Children to experiment with wires, cells and bulbs to make a simple circuit and make changes to their circuit e.g. make the bulb brighter.

common appliances that run on electricity.

- Can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.
- Can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.
- Can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.
- Can recognise some common conductors and insulators, and associate metals with being good conductors.

**How to include a switch into a circuit.**

**Metals are good conductors so they**

brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.

- Can compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.
- Can use recognised symbols when representing a simple circuit in a diagram.

**Adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound. If you use a battery with a higher voltage, the same thing happens. Adding more bulbs to a circuit will make each bulb less bright. Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter. Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well.**

Key Vocab Electricity					Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol		Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage
Links to science units					Switched on		Danger! Low voltage

seasonal changes/lights and Shadows

changes/Light and Shadows.

Materials unit 'Shaping up' and Seasonal changes/Light and Shadows.

changes/Light

- Can compare how things move on different surfaces.
- Can notice that some forces need contact between two objects, but magnetic forces can act at a distance.
- Can observe how magnets attract or repel each other and attract some materials and not others describe magnets as having two poles.
- Can predict whether two magnets will attract or repel each other, depending on which poles are facing.
- Can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.

**A magnet attracts magnetic material.**  
**The strongest parts of a magnet are the poles. Repealing and attracting.**  
**Contact and non-contact forces.**

- Can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
- Can identify the effects of air resistance, water resistance and friction, which act between moving surfaces.
- Can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
- Understand the Earth orbits the sun and that the sun does not move.
- Can describe the movement of the Moon relative to the Earth.
- Can describe the Sun, Earth and Moon as approximately spherical bodies.
- Can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

Key vocab Earth, Sun and Moon				Contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole		Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears	
Links to science unit				The power of forces		Feel the force Earth and Beyond	