Topic Vocabulary, Skills and Knowledge

Subject: Science Year: 3 Curriculum leads: Mrs Barlow / Mrs Wakefield

Vocabulary

I can understand and use these words:

rock	sedimentary	igneous	metamorphic	permeable
impermeable	layers	grains	slate	limestone
sandstone	chalk	marble	pumice	granite
fossil	organic matter	erosion	balanced diet	nutritious
dairy	vegetables	fruit	protein	carbohydrates
nutrients	vitamins	minerals	sugar	fats
healthy	heart rate	exercise	oxygen	muscle
expand	contract	triceps	biceps	function
skeleton	skull	brain	ribcage	heart
lungs	spine	vertebrate	invertebrate	
light	dark	shadow	reflection	absence
function	flower	roots	leaf	leaves
stem	petals	fruit	bulb	seed
germinate	pollinate	seed dispersal	seed formation	transported
temperature	habitat	friction	force	magnet
poles	attract	repel	magnetic	

Working Scientifically (KS2)

Skills: I can:

Ask relevant questions and use different types of scientific enquiries to answer them.	Set up simple practical enquiries, comparative and fair tests.	Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
Gather, record, classify and present data in a variety of ways to help in answering questions.	Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
Use results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions.	Identify differences, similarities or changes related to simple scientific ideas and processes.	Use straightforward scientific evidence to answer questions or to support my findings.

Rocks

Skills: I can:	
Compare and group rocks based on their appearance and physical properties.	Explain how I have grouped rocks.
Describe and explain the difference between sedimentary, igneous and metamorphic rocks.	Describe how fossils are formed.
Describe how soil is formed (Bishop's Wood Trip)	

Knowledge I know:	
What a rock is and where it comes from.	Rocks have different physical properties.
The three main ways that rocks are formed.	The names of some types of rocks (see vocab list above)
What a fossil is.	That soil is made from rocks and organic matter

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Rocks Greater Depth Statements

Sc3/3.1a compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	Sc3/3.1b describe in simple terms how fossils are formed when things that have lived are trapped within rock	Sc3/3.1c recognise that soils are made from rocks and organic matter.
I can group rocks and use the correct scientific language to describe their properties (e.g. permeable / impermeable) I know the three main ways that rock is formed I know the terms sedimentary, igneous and metamorphic, and can match descriptions to these terms I can describe and explain the difference between sedimentary, igneous and metamorphic rocks	I can describe in detail how a fossil is formed, including the chemical reactions that turn the sediment into rock and the bones into mineralised fossils I recognise that there is more than one way a fossil can be formed I know that only a very small proportion of things that were once alive become fossils	I can describe how soil is formed I recognise that soil will be different according to the geographical area in which it is found I know that nutrients contained within the remains of organic matter are being slowly released into the soil I can describe the difference between topsoil and subsoil

Animals including humans

Skills: I can:	
Explain the importance of a nutritious, balanced diet (including main food groups)	Describe and explain the skeletal system of a human.
Describe the purpose of the skeleton in humans and animals.	Describe and explain the muscular system of a human.

Knowledge I know:	
The main food groups (fruit, vegetables, carbohydrates, protein, dairy)	The difference between a vertebrate and an invertebrate.
What a skeleton is, and its purpose.	The functions of the muscles and how they work together.

Animals Greater Depth Statements

Sc3/2.2a 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	Sc3/2.2b identify that humans and some other animals have skeletons and muscles for support, protection and movement.
I can name the main food groups (carbohydrates, proteins, dairy, fats&oils, fruit&veg) and the benefits to the human body I can explain the effect on the human body that eating too much of a particular food group has (e.g. sugar/fat/salt/alcohol) I know the importance of limiting sugar and fats for a healthy diet I know that calorific food values can be measured and how many calories humans should consume in a day I can describe/research the effect of poor nutrition on our health (e.g.ricketts, Type II diabetes, heart disease, scurvy)	I can construct a model of the human skeleton with accuracy I know that the adult human has 206 bones I know that a human baby has more bones than an adult I know the correct names of many bones in the human body (e.g. patella, clavicle, femur, spine, pelvis) I can compare the human skeleton to that of another animal I can name animals that do not have a skeleton (e.g. worm, starfish, jellyfish) I can use the terms vertebrate and invertebrate correctly to describe animals with/without a backbone I can describe how muscles work in pairs

Light

Skills: I can:	
Investigate how we see and the impact of light and dark on sight.	I can demonstrate and explain how a shadow is formed.
I can explore shadow size and explain how and why it changes.	

Knowledge I know:	
That darkness is the absence of light.	That light is needed in order to see.
That light is reflected from a surface.	The danger of direct sunlight and how to keep protected
That the length and position of a shadow (relative to the object) depends on the time of day.	

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Light (Greater Depth)

Sc3/4.1a recognise that they need light in order to see things and that dark is the absence of light	Sc3/4.1b notice that light is reflected from surfaces	Sc3/4.1c recognise that light from the sun can be dangerous and that there are ways to protect their eyes	Sc3/4.1d recognise that shadows are formed when the light from a light source is blocked by a solid object	Sc3/4.1e find patterns in the way that the size of shadows change.
I can explain why animals are unable to see when it is completely dark I can explain that we see objects because light reflected from the object enters our eyes I can investigate how we see and the impact of light and dark on sight	I understand that some surfaces reflect light better than others and give examples of how this can be used every day (e.g. reflector strips for clothing, choosing a suitable colour t-shirt on a hot day) I am beginning to observe how water and other liquids can change the path of light (refraction)	I can explain the effects of direct sunlight on my eyesight	I know that light travels in straight lines I know that the darkness of the shadow can vary depending on whether the object blocking the light is opaque, transluscent or transparent I can explain how shadows move when an object causing the shadow moves	I can explain why shadows vary in length according to time of day I can explain why shadows vary in length according to time of year I can explain the difference between a shadow and a reflection

Plants

Skills: I can:	
Describe the function of different parts of flowering plants and trees.	Investigate what plants need to survive.
Use a data logger to measure temperature and light	Explore and describe how water is transported within plants.
Draw /describe the plant life cycle, and explain the importance of flowers.	Describe the needs of different plants for survival.

Knowledge I know:	
The different parts of a flowering plant and tree.	The basic function of each part of a flowering plant and tree.
How seeds are dispersed and their importance for reproduction.	How water is transported in plants.
The plant life cycle.	The function and importance of flowers in the plant life cycle (including how they attract insects).

Plants (Greater Depth)

Sc3/2.1a identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers	Sc3/2.1b 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	Sc3/2.1c investigate the way in which water is transported within plants	Sc3/2.1d explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.
Name and know the function of other parts of a plant (pips, seeds, stones, stamen, petals, stigma) Know that plants can reproduce in different ways (sexual and asexual)	I can recognise the different needs of plants according to the habitat where they grow (e.g plants in desert, plants in rainforest)	I know that xylem transport water and phloem transports food I can explain why a plant withers I can explain why a plants leaves start to go brown or the leaves / roots rot	I can draw and label the plant life cycle, and explain the function and importance of flowers I can explain each part of the plant life cycle I can name and know the function of other parts of a plant (e.g. stones, stamen, stigma) I know that plants can reproduce in different ways (e.g. sexual and asexual) I know that seeds dispersed in the right conditions for growth stand a better chance of survival (e.g. not too many seeds in the same place) I can describe a greater variety of ways that seeds can be dispersed (e.g. some native plants in Australia and S. Africa have seedpods that open as a result of the heat from bushfires)

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Forces and Magnets

Skills: I can:	
Explore and describe how objects move on different surfaces.	Explain how some forces require contact and some do not, giving examples.
Explore and explain how objects attract and repel in relation to objects and other magnets.	Predict whether objects will be magnetic and carry out an enquiry to test this out.
Describe how magnets work.	Predict whether magnets will attract or repel and give a reason.

Knowledge I know:	
That a force is a push or pull. This can be affected by friction and/or magnets.	That some metals are magnetic.
That opposite poles attract and like poles repel.	That friction is a force that slows objects down.

Forces and Magnets (Greater Depth)

Sc3/4.2a compare how things move on different surfaces	Sc3/4.2b notice that some forces need contact between 2 objects, but magnetic forces can act at a distance	Sc3/4.2c observe how magnets attract or repel each other and attract some materials and not others	Sc3/4.2e describe magnets as having 2 poles
I know that gravity is a force that does not require contact I know that friction is a force that slows things down I can explain my findings, using the term 'friction' in my explanation	I can give examples of how magnetic forces are used in everyday life (e.g. fasteners on a mobile phone case)	I can name a metal which is magnetic I can name a metal that is not magnetic	I can describe why the poles of a magnet are called north and south