

Year 6	Working scientifically	Circulatory System	Evolution and inheritance (& Frozen Kingdom)	Light Theory	Electrical Circuits & components
Knowledge	S: Plan and carry out a range of enquiries,	S: Name and	S: Describe some significant	S: Identify that light	S: Explain how
(Substantive)	including writing methods, identifying and	describe the	changes that have happened on	travels in straight	the brightness of
(Substantité)	controlling variables, deciding on equipment	purpose of the	Earth and the evidence, such as	lines.	a lamp or
	and data to collect and making predictions	circulatory system	fossils, that support this.	K: To know that	volume of a
Skills	based on prior knowledge and understanding.	and the functions		light travels in	buzzer is
(disciplinary	(& in Electrical Circuits & Components)	of the heart, blood	S: Explain that living things have	straight lines.	affected by the
knowledge)	(& in Light theory)	vessels and blood.	changed over time, using specific		number and
Kitowicage)	(& in Evolution & Inheritance)		examples and evidence.	S: Describe, using	voltage of cells
	(& in Frozen Kingdoms)	K: To know that		diagrams, how light	used in a circuit.
		the circulatory	K: To know that scientists	behaves when	
	K: To know that a method is a set of clear	system includes the	compare fossilised remains from	reflected off a	K: To know that
	instructions for how to carry out a scientific	heart, blood	the past to living species that	mirror	voltage is
	investigation, including what equipment to use	vessels and blood.	exist today to hypothesise how		measured in
	and observations to make. A variable is	The heart pumps	living things have evolved over	K: To know that	volts (V) and is
	something that can be changed during a fair	blood through the	time. Humans and apes share a	mirrors and lenses	a measure of the
Topic: Electrical	test. A prediction is a statement about what	blood vessels and	common ancestry and evidence	are used in a range	difference in
Circuits &	might happen in an investigation based on	around the body.	for this comes from fossil	of everyday objects.	electrical energy
	some prior knowledge or understanding.	There are three	discoveries and genetic	The human eye has	between two
Components.	(& in Electrical Circuits & Components)	types of blood	comparison.	a lens that bends	parts of a
	(& in Light theory)	vessel: arteries,		and focuses light on	circuit. The
	(& in Evolution & Inheritance)	veins and	S: Identify that living things	the back of the eye	bigger the
	(& in Frozen Kingdoms)	capillaries. They	produce offspring of the same	so we can see.	voltage, the
		each have a	kind, although the offspring are	6.5	more electrons
	S: Ask and answer deeper and broader	different-sized hole	not identical to either parent.	S: Describe, using	are pushed
Topic: Evolution	scientific questions about the local and wider	(lumen) and walls.	W. T. I	scientific language,	through the
& Inheritance	world that build on and extend their own and	The blood carries	K: To know that animals that	phenomena	circuit. The
	others' experiences and knowledge. (& in	gases (oxygen and	sexually reproduce generate new	associated with	more voltage
	Electrical Circuits & Components)	carbon dioxide),	offspring of the same kind by	refraction of light.	flowing through
	(& in Light theory)	water and	combining the genetic material of		a lamp, buzzer
	(& in Evolution & Inheritance)	nutrients to where	two individuals. Each offspring		or motor, the



- (& in Frozen Kingdoms)
- K: To know that questions can help us find out about the world and can be answered using a range of scientific enquiries, including fair tests, research and observation.

  (& in Electrical Circuits & Components) (& in
- (& in Evolution & Inheritance)
  (& in Frozen Kingdoms)

Light theory)

- S: Take accurate, precise and repeated measurements in standard units, using a range of chosen equipment. (& in Light theory) (& in Evolution & Inheritance)
- K: To know that specialised equipment is used to take accurate measurements in standard units. Examples include data loggers plus sensors, such as light (lux), sound (dB) and temperature (°C); timers (seconds, minutes and hours); thermometers (°C) and measuring tapes (millimetres, centimetres, metres).
  (& in Light theory)
  (& in Evolution & Inheritance)
- S: Independently decide which observations to make, when and for how long and make systematic and careful observations, using them to make comparisons, identify changes, classify and make links between cause and effect.
- (& in Electrical Circuits & Components)
  (& in Light theory)

- they are needed.
  The red blood cells
  carry oxygen and
  carbon dioxide
  around the body.
  The blood also
  contains white
  blood cells, which
  protect the body
  from infection.
- S: Explain that the circulatory system in animals transports oxygen, water and nutrients around the body.
- K: To know that the role of the circulatory system is to transport oxygen, water and nutrients around the body. They are transported in blood and delivered to where they are needed.

- inherits two of every gene, one from the female parent and one from the male parent.
- S: Describe how animals and plants can be bred to produce offspring with specific and desired characteristics (selective breeding).
- K: To know that animals and plants can be bred to produce offspring with specific and desired characteristics. This is called selective breeding. Examples include cows that produce large quantities of milk or crops that are disease-resistant.
- S: Identify how animals and plants are adapted to suit their environment, such as giraffes having long necks for feeding, and that adaptations may lead to evolution. (& in Frozen Kingdoms)
- K: To know that an adaptation is a physical or behavioural trait that allows a living thing to survive and fill an ecological niche. Adaptations evolve by natural selection. Favourable traits help an organism survive and pass on their genes to

- K: To know that 'white' lights is a term used to describe visible, ordinary daylight.
- S: Explain that, due to how light travels, we can see things because they give out or reflect light into the eye.
- K: To know that light sources give out light. They can be natural or artificial. When light hits an object, it is absorbed, scattered, reflected or a combination of all three. Light from a source or reflected light enter the eye. Vertebrates, such as mammals, birds and reptiles, have a cornea and lens that refracts light that enters the eye and focuses it on the nerve tissue at the back of the eye, which is called the

- brighter the lamp, the louder the buzzer and the faster the motor.
- S: Compare and give reasons for variations in how components in electrical circuits function (brightness of lamps; volume of buzzers and function of on or off switches).
- K: To know that a circuit needs a power source, such as a battery or cell, with wires connected to both the positive and negative terminals. Other components include lamps, buzzers or motors, which an electric current passes through and



- K: To know that an observation involves looking closely at objects, materials and living things. Accurate observations can be made repeatedly or at regular intervals to identify changes over time, identify processes and make comparisons.
- (& in Electrical Circuits & Components)
  (& in Light theory)
- S: Choose an appropriate approach to recording accurate results, including scientific diagrams, labels, timelines, classification keys, tables, models and graphs (bar, line and scatter), linking to mathematical knowledge. (& in Electrical Circuits & Components) (& in Light theory)
  (& in Evolution & Inheritance)
- K: To know that data can be recorded and displayed in different ways, including tables, bar and line charts, scatter graphs, classification keys and labelled diagrams.
  (& in Electrical Circuits & Components) (& in Light theory)
- (& in Evolution & Inheritance)
- S: Report on and validate their findings, answer questions and justify their methods, opinions and conclusions, and use their results to suggest improvements to their methodology, separate facts from opinions, pose further questions and make predictions for what they might observe.

  (& in Electrical Circuits & Components)

- subsequent generations. (& in Frozen Kingdoms)
- S: Identify that living things produce offspring of the same kind, although the offspring are not identical to either parent.
- K: To know animals that sexually reproduce generate new offspring of the same kind by combining the genetic material of two individuals. Each offspring inherits two of every gene, one from the female parent and one from the male parent.
- S: Classify living things, including microorganisms, animals and plants, into groups according to common observable characteristics and based on similarities and differences. (& in Frozen Kingdoms)
- K: To know that scientists classify living organisms into broad groups according to their characteristics. Vertebrates are an example of a classification group. There are a number of ranks, or levels, within the biological classification system. The first rank is called a kingdom, the

- retina. Once light reaches the retina, it is transmitted to the brain via the optic nerve.
- S: Explain the dangers of using lasers and ways to use them safely.
- K: To know that lasers are intense beams of light and should never be pointed at people's faces or aircraft.
- S: Explain, using words, diagrams or a model, why shadows have the same shape as the objects that cast them and how shadows can be changed.
- K: To know that a shadow appears when an object blocks the passage of light. Apart from some distortion or fuzziness at the

- affects a response, such as lighting a lamp or turning a motor. When a switch is open, it creates a gap and the current cannot travel around the circuit. When a switch is closed, it completes the circuit and allows a current to flow all the way around it.
- S: Create
  circuits using a
  range of
  components and
  record
  diagrammaticall
  y using the
  recognised
  symbols for
  electrical
  components.
- K: To know that there are recognised symbols for different



Moorland Primary Scho	ol – Progression of Knowledge and	skills in Science
(& in Light theory) (& in Evolution & Inheritance)	second a phylum, the order, family, genus a	
(& in Evolution & Intertance)	(& in Frozen Kingdor	·
K: To know that the results are information,	,	distortion or
such as measurements or observations, that	S: Research unfamilia	animals fuzziness depends
have been collected during an investigation. A	and plants from a ran	ge of on the position or
conclusion is an explanation of what has been	habitats, deciding upo	31 3 3
discovered, using correct, precise terminology	explaining where they	<u> </u>
and collected evidence.	the classification syste	m. (& in
(& in Electrical Circuits & Components) (& in Light theory)	Frozen Kingdoms)	
(& in Evolution & Inheritance)	K: To know that living	thinas are
	classified into groups,	
	to common observable	
	characteristics and ba	sed on
	similarities and differen	nces. (& in
	Frozen Kingdoms)	



Year 5	Working scientifically	Human reproduction and ageing	Sow, Grow & Farm	Properties and changes of material	Earth and space	Forces & Mechanisms
Knowledge (substantive)	S: Plan and carry out a range of enquiries, including writing methods, identifying variables and making predictions based on prior knowledge and understanding.	S: Describe the changes as humans develop from birth to old age.	S: Describe, using their knowledge of food chains and webs, what could	S: Explain the precautions needed for working safely when heating, burning, cooling and mixing materials.	S: Describe or model the movement of the planets in our Solar System,	S: Explain that objects fall to Earth due to the force of gravity.
Skills (Disciplinary knowledge)	(& in Human Reproduction & Ageing) (& in Properties & changes of material) (& in Sow, Grow & Farm)	K: To know that humans go	happen if a habitat had a living thing removed or	K: To know that very hot and very cold materials	including Earth, relative to the Sun.  K: To know that	K: Gravity is a force of attraction.
J	K: To know that method is a set of clear instructions for how to carry out a scientific investigation. A prediction is a	through characteristic stages as they develop towards	introduced.  K: To know that	can burn skin. Heating materials should be done safely.	the Solar System is made up of the Sun and	Anything with a mass can exert a gravitational pull on another object.
	statement about what might happen in an investigation based on some prior knowledge or understanding.  (& in Human Reproduction & Ageing)	old age. These stages include baby, infant, toddler, child,	population changes in a habitat can have significant	S: Compare and group everyday materials by their properties, including hardness, solubility,	everything that orbits around it. There are eight planets in our	The Earth's large mass exerts a gravitational pull on all objects on
Topic: Earth & Space	(& in Properties & changes of material) (& in Sow, Grow & Farm)  S: Ask a wide range of relevant scientific	adolescent, young adult, adult and senior	consequences for food chains and webs.	transparency, conductivity (electrical and thermal) and magnetism.	Solar System: Mercury, Venus, Earth, Mars,	Earth, making dropped objects fall to the ground.
Topic: Human Reproduction & Ageing Topic:	questions that broaden their understanding of the world around them and identify how they can answer them. (& in Earth & Space) (& in Human Reproduction & Ageing)	citizen. Puberty is the transition between childhood and adulthood.	S: Group and sort plants by how they reproduce.	K: To know that materials can be grouped according to their basic physical properties. Properties include	Jupiter, Saturn, Uranus and Neptune. Earth orbits around the Sun and a year (365.25 days) is	S: Compare and describe, using a range of toys, models and natural objects,
Properties & changes of materials	(& in Properties & changes of material)  K: To know that questions can help us find out about the world and can be answered using a range of scientific enquiries.	S: Compare the life cycles of animals, including a mammal, an amphibian, an	K: To know that flowering plants reproduce sexually. The flower is essential for	hardness, solubility, transparency, conductivity (electrical and thermal) and magnetism.	the length of time it takes for Earth to complete a full orbit.	the effects of water resistance, air resistance and friction.



### Moorland Primary School – Progression of Knowledge and skills in Science insect and a sexual S: Explain, following S: I

reproduction.

Other plants

asexually. Bulbs,

some parts used

reproduction in

S: Label and

in sexual

draw the parts of

a flower involved

reproduction in

plants (stamen,

filament, anther,

ovary, ovule and

K: To know parts

stamen, filament,

anther, pollen,

carpel, stiqma,

ovule and sepal.

S: Research and

describe different

style, ovary,

of a flower

include the

pollen, carpel,

stigma, style,

sepal).

reproduce

corms and

in asexual

plants

rhizomes are

(&	in	Earth & Space)
(&	in	Human Reproduction & Ageing)
(&	in	Properties & changes of material)

- S: Take increasingly accurate measurements in standard units, using a range of chosen equipment. (& in Human Reproduction & Ageing)
  (& in Properties & changes of material)
- K: To know that specialised equipment is used to take measurements in standard units. Examples include data loggers plus sensors, such as light (lux), sound (dB) and temperature (°C); timers (seconds, minutes and hours); thermometers (°C), and measuring tapes (millimetres, centimetres, metres).

  (& in Human Reproduction & Ageing)

(& in Properties & changes of material)

- S: Within a group, decide which observations to make, when and for how long, and make systematic and careful observations, using them to make comparisons, identify changes, classify and make links between cause and effect. (& in Human Reproduction & Ageing) (& in Properties & changes of material)
- K: To know that an observation involves looking closely at objects, materials and living things. Accurate observations can be made repeatedly or at regular intervals to identify changes over time.

insect and a bird. (& in Sow, Grow & Farm)

K: To know that a life cycle is the series of changes in the life of a living thing and includes these basic stages: birth, growth, reproduction and death. (& in Sow, Grow & Farm)

- S: Describe the process of human reproduction and some plants and animals. (& in Sow, Grow & Farm)
- K: To know that humans reproduce sexually, which involves two parents (one female and one male) and

S: Explain, following observation, that some substances (solutes) will dissolve in liquid (solvents) to form a solution and the solute can be recovered by evaporating off the solvent.

- K: To know that some materials (solutes) will dissolve in liquid (solvents) to form a solution. The solute can be recovered by evaporating off the solvent by heating.
- S: Separate mixtures by filtering, sieving and evaporating.

K: To know that some

mixtures can be separated by filtering, sieving and evaporating. Sieving can be used to separate large solids from liquids and some solids from other solids. Filtering can be used to separate small solids from liquids. Evaporating can be used S: Describe or model the movement of the Moon relative to Earth.

K: o know that the Moon orbits Earth, completing a full orbit every month (27.3 days).

S: Describe the
Sun, Earth and
Moon as
approximately
spherical bodies
and use this
knowledge to
understand the
phases of the
Moon and eclipses.

K: o know that the Sun, Earth, Moon and the planets in our solar system are roughly spherical..

S: Use the idea of Earth's rotation to explain day and night, and the Sun's apparent

K: Friction, air
resistance and
he water resistance
to are forces that
oppose motion
and slow down

oppose motion and slow down moving objects. These forces can be useful, such as bike brakes and parachutes, but sometimes we need to minimise their effects, such as streamlining boats and planes to move through water or air more easily and using lubricants and ball bearings between two surfaces to reduce friction.

S: Describe and demonstrate how simple levers, gears and pulleys assist the movement of objects.

K: Mechanisms, such as levers,



(& in Human Reproduction & Ageing) (&
in Properties & changes of material)
S: Gather and record data and results of
increasing complexity, selecting from a
range of methods (scientific diagrams,
labels, classification keys, tables, graphs
and models). (& in Human Reproduction
& Ageing)
(& in Properties & changes of materials)
(& in Groupina & Classifuina)

- K: To know that data can be recorded and displayed in different ways, including tables, bar and line charts, classification keys and labelled diagrams. (& in Human Reproduction & Ageing) (& in Properties & changes of materials)
- S: Use relevant scientific vocabulary to report on their findings, answer questions and justify their conclusions based on evidence collected, identify improvements, further questions and predictions. (& in Earth & Space) (& in Human Reproduction & Ageing)
  (& in Properties & changes of material)
- K: To know that the results are information, such as measurements or observations, that have been collected during an investigation. A conclusion is an explanation of what has been discovered using evidence collected. (& in Earth & Space) (& in Human Reproduction & Ageing)

produces
offspring that are
different from the
parents. (& in
Sow, Grow &
Farm)

- S: Explain why personal hygiene is important during puberty.
- K: To know that good personal hygiene (washing, wearing clean clothes and brushing teeth) can prevent disease or illness. Puberty is the period during which adolescents reach sexual maturity and become capable of reproduction. It causes physical and emotional changes.

farming practices in the UK and how these can have positive and negative effects on natural habitats.

farming in the UK can be divided into three main types: arable (growing crops), pastoral (raising livestock), mixed (arable and pastoral).

K: To know that

to separate dissolved solids from liquids.

- S: Describe, using evidence from comparative or fair tests, why a material has been chosen for a specific use, including metals, wood and glass.
- K: To know that a material's properties dictate what it can be used for. For example, cooking pans are made from metal, which is a good thermal conductor, allowing heat to quickly transfer from the hob to the contents of the pan.
- S: Identify, demonstrate and compare reversible and irreversible changes.
- K: To know that reversible changes include heating, cooling, melting, dissolving and evaporating. Irreversible changes include burning, rusting, decaying and chemical reactions.

movement across the sky. K: o know that the Earth orbits the Sun, it also spins on its axis. It takes Earth a day (24 hours) to complete a full spin. During the day, the Sun appears to move through the sky. However, this is due to the Earth rotating and not the Sun moving. Earth rotates to the east or, if viewed from above the North Pole, it rotates anticlockwise, which means the Sun rises in the east and sets in the west. As Earth rotates, different parts of it face the Sun, which brings what we call daytime. The part facing away is in shadow, which is

night time.

pulleys and gears, give us a mechanical advantage. A mechanical advantage is a measurement of how much a simple machine multiplies the force that we put in. The bigger the mechanical advantage, the less force we need to apply.



	<del>,</del>	•		
(& in Properties & changes of material				



Year 4	Working scientifically	Grouping & Classifying	Food & the Digestive system	States of matter	Sound	Electrical Circuits and Conductors
Knowledge (Substantive)	S: Ask relevant scientific questions, independently, about the world around them and begin to identify how they can answer them. (& in Sound)	S: Compare, sort and group living things from a range of	S: Describe the purpose of the digestive system, its main parts and each	S: Group and sort materials into solids, liquids or gases.	S: Explain how sounds are made and heard using diagrams, models, written	S: Explain the precautions needed for working safely with electrical circuits.
Skills (Disciplinary	(& in Grouping & Classifying) (& in Electrical circuits & Conductors)	environments, in a variety of ways, based on	of their functions.  K: To know that the	K: To know that materials can be grouped according	methods or verbally.  K: To know that when	K: To know that working with electrical circuits can be dangerous.
knowledge)	K: To know that questions can help us find out about the world and can be answered using scientific enquiry. (& in Sound) (& in Grouping & Classifying) (& in Electrical circuits & Conductors)	observable features and behaviour.  K: To know that	digestive system is responsible for digesting food and absorbing nutrients and water. The main	to whether they are solids, liquids or gases.  S: Observe and	an instrument is played, the air around or inside it vibrates. These vibrations travel as a sound wave.	S: Compare common household equipment and appliances that are and are not powered by
Topic: Food and the Digestive system	S: Begin to independently plan, set up and carry out a range of comparative and fair tests, making predictions and following a method accurately. (& in Sound) (& in States	scientists classify living things according to shared characteristics.	parts of the digestive system are the mouth, oesophagus, stomach, small intestines, large	explain that some materials change state when they are heated or cooled and measure or	Sound waves travel through a medium, such as air or water, to the ear.	electricity.  K: To know that eectricity is a type of energy. It is used to
Topic: Sound	of Matter) (& in Electrical circuits & Conductors)	Animals can be divided into six main groups:	intestines and rectum.	research the temperature in degrees Celsius (°C)	S: Compare and find patterns in the pitch of a sound, using a range	power many everyday items, such as kettles, computers and
Topic: States of Matter	K: To know that scientific enquiries can be set up and carried out by following or planning a method. A prediction is a	mammals, reptiles, amphibians,	S: Identify the four different types of teeth in humans and	at which materials change state.	of equipment, such as musical instruments.	televisions. Electricity can also come from batteries. Batteries eventually run
Topic: Grouping & Classifying	statement about what might happen in an investigation, based on some prior knowledge or understanding. A fair test is one in which only one variable is changed and all others	birds, fish and invertebrates. These groups can be further	other animals, and describe their functions.	K: To know that heating or cooling materials can bring about a change of	K: To know that pitch is how high or low a sound is. Parts of an instrument that are	out of power and need to be recycled or recharged. Batteries power devices that can be carried
Topic: Electrical circuits & Conductors	remain constant. (& in Sound) (& in States of Matter) (& in Electrical circuits & Conductors)	subdivided. Classification keys are scientific tools	K: To know that there are four different types of teeth: incisors,	state. This change of state can be reversible or irreversible. The	shorter, tighter or thinner produce high- pitched sounds. Parts of an instrument that	around, such as mobile phones and torches.



- S: Take accurate measurements in standard units, using a range of equipment. (& in States of Matter)
- K: To know that equipment is used to take measurements in standard units. Examples include data loggers plus sensors, timers (seconds, minutes and hours), thermometers (°C), and metre sticks, rulers or trundle wheels (millimetres, centimetres, metres). (& in States of Matter)
- S: Gather, record, classify and present observations and measurements in a variety of ways (pictorial representations, timelines, diagrams, keys, tables, charts and graphs).
  (& in Grouping & Classifying)
  (& in Electrical circuits and conductors)
- K: To know that data can be recorded and displayed in different ways, including tables, charts, graphs, keys and labelled diagrams.
  (& in Grouping & Classifying)
  (& in Electrical circuits and conductors)
- S: Gather, record, classify and present observations and measurements in a variety of ways (pictorial representations, timelines, diagrams, keys, tables, charts and graphs) (& in States of Matter)
- K: To know that data can be recorded and displayed in different ways, including tables, charts, graphs, keys and labelled diagrams.
  (& in States of Matter)

- that aid the identification of living things.
- S: Compare, sort and group living things from a range of environments, in a variety of ways, based on observable features and behaviour.
- K: o know that Scientists classify living things according to shared characteristics. Animals can be divided into six main groups: mammals, reptiles, amphibians, birds, fish and invertebrates. These groups can be further subdivided. Classification keys are scientific tools

- canines, premolars and molars..
- S: Construct and interpret a variety of food chains and webs to show interdependence and how energy is passed on over time.

K: To know that

- food chains show what animals eat within a habitat and how energy is passed on over time. All food chains start with a producer, which is eaten by a primary consumer (prey), which is eaten by a secondary consumer (prey), which is eaten by a tertiary consumer.
- S: Describe what damages teeth and how to look after them.

  K: To know that regular teeth brushing, limiting

- temperature at which materials change state varies depending on the material. To know the processes of melting, freezing, evaporation and condensation.
- S: Describe the water cycle using words or diagrams and explain the part played by evaporation and condensation.
- K: To know that the water cycle has four stages: evaporation, condensation, precipitation and collection

- are longer, looser or fatter produce lowpitched sounds.
- S: Compare and find patterns in the volume of a sound, using a range of equipment, such as musical instruments.
- K: To know that volume is how loud or quiet a sound is. The harder an instrument is hit, plucked or blown, the stronger the vibrations and the louder the sound.
- S: Compare how the volume of a sound changes at different distances from the source.
- K: To know that sounds are louder closer to the sound source and fainter as the distance from the sound source increases.

- S: Construct operational simple series circuits using a range of components and switches for control.
- K: To know that electrical components include cells, wires, lamps, motors, switches and buzzers. Switches open and close a circuit and provide control.
- S: Predict and describe whether a circuit will work based on whether or not the circuit is a complete loop and has a battery or cell.
- K: To know that s series circuit is a simple loop with only one path for the electricity to flow. A series circuit must be a complete loop to work and have a source of power from a battery or cell.
- S: Construct operational simple series circuits using a range of



Moorland Pri	mary School – F	Progression of Knowle	edge and skills in	Science	
S: Use scientific vocabulary to report and	that aid the	sugary foods and			components and switches
answer questions about their findings based	identification of	visiting the dentist			for control.
on evidence collected, draw simple	living things.	are important for			
conclusions and identify next steps,		good oral hygiene.			K: To know that
improvements and further questions. (& in					electrical components
States of Matter)					include cells, wires,
(& in Grouping & Classifying)		S: Explain how			lamps, motors, switches
(& in Electrical circuits and conductors)		unfamiliar habitats,			and buzzers. Switches
		such as a mountain			open and close a circuit
K: To know that results are information, such		or ocean, can			and provide control.
as data or observations, that have been found		change over time			
out from an investigation. A conclusion is the		and what influences			S: Describe materials as
answer to a question that uses the evidence		these changes.			electrical conductors or
collected.					insulators.
(& in States of Matter)		K: To know that			
(& in Grouping & Classifying)		habitats change over			K: To know that
(& in Electrical circuits and conductors)		time, either due to			electrical conductors
		natural or human			allow electricity to flow
S: Begin to choose which observations to		influences. Including			through them, whereas
make and for how long and make systematic,		extreme weather and			insulators do not.
careful observations and comparisons,		human influences.			Common electrical
identifying changes and connections.					conductors are metals.
(& in States of Matter)					Common insulators
(& in Grouping & Classifying)					include wood, glass,
(& in Electrical circuits & Conductors)					plastic and rubber.
K: To know that an observation involves					
looking closely at objects, materials and					
living things. Observations can be made					
regularly to identify changes over time.					
(& in States of Matter)					
(& in Grouping & Classifying)					
(& in Electrical circuits & Conductors)					



Year 3	Working scientifically	Plant nutrition	Animal nutrition and	Rocks, Relics	Light & Shadow	Forces and
rear 3		and	skeletal system	& Rumbles		magnets
		reproduction				
Knowledge	S: Ask questions about the world around them	S: Name and	S: Compare and contrast	S: Compare	S: Describe the	S: Compare how
<b>-</b>	and explain that they can be answered in	describe the	the diets of different	and group	differences between	objects move over
(Substantive)	different ways. (& in Forces & magnets)	functions of the	animals.	rocks based on	dark and light and	surfaces made from
	(& in Plant nutrition & Reproduction)	different parts of		their	how we need light	different materials.
Skills	(& in Light & Shadows)	flowering plants	K: To know that animals	appearance,	to be able to see.	
		(roots, stem,	cannot make their own	properties or		K: To know that
(Disciplinary	K: To know that questions can help us find out	leaves and	food and need to get	uses.	K: To know that	friction is a force
knowledge)	about the world and can be answered in different	flowers).	nutrition from the food		dark is the absence	between two surfaces
<b>J</b> .	ways.		they eat. Carnivores get	K: To know	of light and we need	as they move over
	(& in Forces & magnets)	K: To know what	their nutrition from eating	that there are	light to be able to	each other. Friction
	(& in Plant nutrition & Reproduction)	the plant's roots,	other animals. Herbivores	three different	see.	slows down a moving
	(& in Light & Shadows)	stem (or trunk),	get their nutrition from	rock types:		object.
		leaves and flowers	plants. Omnivores get	sedimentary,	S: Group and sort	
	S: Set up and carry out some simple, comparative	do.	their nutrition from eating	igneous and	materials as being	S: Explain that an
Topic: Rocks,	and fair tests, making predictions for what might		a combination of both	metamorphic.	reflective or non-	object will not move
Relics &	happen.	S: Describe the	plants and other animals.		reflective.	unless a push or pull
	(& in Forces & magnets)	requirements of		S: Describe		force is applied,
Rumbles	(& in Plant nutrition & Reproduction)	plants for life and	S: Describe how humans	simply how	K: To know that	describing forces in
	(& in Light & Shadows)	growth (air, light,	need the skeleton and	fossils are	light can be reflected	action and whether
		water, nutrients	muscles for support,	formed, using	from different	the force requires
	K: To know that tests can be set up and carried	and room to	protection and movement.	words, pictures	surfaces. Some	direct contact or
	out by following or planning a set of instructions.	grow).		or a model.	surfaces are poor	whether the force can
T : DI :	A prediction is a best guess for what might		K: To know that humans		reflectors, while	act at a distance
Topic: Plant	happen in an investigation based on some prior	K: To know that	have a skeleton and	K: To know	other surfaces are	(magnetic force).
nutrition &	knowledge.	plants need air,	muscles for movement,	that fossils	good reflectors.	
Reproduction	(& in Forces & magnets)	light, water,	support and protecting	form over		K: To know that an
	(& in Plant nutrition & Reproduction)	minerals from the	organs., latissimus dorsi	millions of	S: Explain why light	object will not move
	(& in Light & Shadows)	soil and room to	and pectorals.	years and are	from the Sun can be	unless a force is
		grow, in order to	S: Identify and group	the remains of	dangerous.	applied. Some forces
		survive. Different	animals that have no	a once-living		require direct contact,



- S: Take measurements in standard units, using a range of simple equipment.
  (& in Plant nutrition & Reproduction)
  (& in Light & Shadows)
- K: To know that equipment is used to take measurements in standard units. Examples include data loggers plus sensors, timers (seconds, minutes and hours), thermometers (°C) and metre sticks (millimetres, centimetres and metres). Taking repeat readings can increase the accuracy of the measurement.

  (& in Plant nutrition & Reproduction)
- S: Make increasingly careful observations, identifying similarities, differences and changes and making simple connections.

(& in Light & Shadows)

- K: To know that an observation involves looking closely at objects, materials and living things, which can be compared and grouped according to their features.
- S: Gather and record findings in a variety of ways (diagrams, tables, charts and graphs) with increasing accuracy.
- (& in Forces & magnets)
  (& in Plant nutrition & Reproduction)
  (& in Light & Shadows)
- K: To know that data can be recorded and displayed in different ways, including tables, charts, graphs and labelled diagrams. Data can be used to provide evidence to answer questions.

- plants have different needs depending on their habitat.
- S: Investigate how water is transported within plants.
- K: To know that water is transported in plants from the roots, through the stem and to the leaves, through tiny tubes called xylem.
- S: Draw and label the life cycle of a flowering plant.
- K: To know that flowers are important in the life cycle of flowering plants & the processes of a plant's life cycle.

skeleton, an internal skeleton and an external skeleton.

K. To know that some

- animals have skeletons for support, movement and protection. Endoskeletons are those found inside some animals.

  Exoskeletons are those found on the outside of some animals. Some animals have no skeleton.
- S: Explain the importance and characteristics of a healthy, balanced diet.

K: To know that humans

have to get nutrition from what they eat. It is important to have a balanced diet made up of the main food groups. Humans need to stay hydrated by drinking water.

- organism,
  preserved as
  rock. Scientists
  can use fossils
  to find out
  what life on
  Earth was like
  in prehistoric
  times.
- S: Investigate soils from the local environment, making comparisons and identifying features.

K: To know

that soils are made from tiny pieces of eroded rock, air and organic matter. There are a variety of naturally occurring soils, including clay, sand and silt. Different areas

have different

soil types.

- K: To know that light from the Sun is damaging for vision and the skin.

  Protection from the Sun includes sun cream, sun hats, sunglasses and staying indoors or in the shade.
- S: Explain, using words or diagrams, how shadows are formed when a light source is blocked by an opaque object.
- K: To know that a shadow is formed when light from a light source, such as the Sun, is blocked by an object.
- S: Find patterns in the way shadows change during the day.
- K: To know that shadows change shape and size when the light source moves.

- whereas other forces can act at a distance, such as magnetic force.
- S: Compare and group materials based on their magnetic properties.
- K: To know that some materials have magnetic properties. Magnetic materials are attracted to magnets.
- S: Investigate and compare a range of magnets (bar, horseshoe and floating) and explain that magnets have two poles and that opposite poles attract, while like poles repel.
- K: To know that magnets have two poles (north and south). Opposite poles attract each other, while like poles (north and north, or



Moorland Primary School – Progression of K	nowledge and skills in Science	
(& in Forces & magnets)		south and south)
(& in Plant nutrition & Reproduction)		repel each other.
(& in Light & Shadows)		, i
S: Use suitable vocabulary to talk or write about		
what they have done, what the purpose was and,		
with help, draw a simple conclusion based on		
evidence collected, beginning to identify next		
steps or improvements.		
(& in Forces & magnets)		
(& in Plant nutrition & Reproduction)		
(& in Light & Shadows)		
W. T. J J. C J. C J.		
K: To know that results are information that has		
been discovered as part of an investigation. A		
conclusion is the answer to a question that uses the evidence collected.		
(& in Forces & magnets)		
(& in Plant nutrition & Reproduction)		
(& in Light & Shadows)		
S: Make increasingly careful observations,		
identifying similarities, differences and changes		
and making simple connections.		
(& in Forces & magnets)		
(& in Plant nutrition & Reproduction)		
K: To know that an observation involves looking		
closely at objects, materials and living things,		
which can be compared and grouped according		
to their features. (& in Forces & magnets)		
(& in Plant nutrition & Reproduction)		



Year 2	Working scientifically	Habitats	Plant Survival	Human Survival	Uses of materials
Knowledge (Substantive)	S: Ask and answer scientific questions about the world around them. (& in Habitats) (& in Uses of Materials) (& in Plant survival) (& in Animal survival)	S: Compare and group things that are living, dead or have never been alive.	S: Observe and describe how seeds and	S: Describe the stages of human development (baby, toddler, child,	S: Compare the suitability of a range of everyda
Skills (Disciplinary knowledge)	<ul><li>K: To know that questions can help us to find out about the world.</li><li>(&amp; in Habitats) (&amp; in Uses of Materials) (&amp; in Plant survival) (&amp; in Animal survival)</li></ul>	K: To know that living things are those that are alive. Dead things are those that were once living but are no longer. Some things have never been alive.	bulbs change over time as they grow into mature plants.  K: To know	teenager, adult and elderly).  K: To know that human offspring go through different stages as they	materials for particular uses, including wood, metal, plastic, glass, break, rock paper and
	S: Use simple equipment to measure and make observations. (& in Uses of Materials) (& in Plant survival) (& in Animal survival)	S: Describe a range of local habitats and habitats beyond their locality (beaches, rainforests, deserts, oceans and mountains) and what all habitats	that plants grow from seeds and bulbs. Seeds	grow to become adults. These include baby, toddler, child, teenager, adult and elderly.	cardboard. (& in Animal survival)
Topic: Habitats	K: To know that simple equipment is used to take measurements and observations. Examples include timers, hand lenses, metre sticks and trundle wheels.  (& in Uses of Materials) (& in Plant survival) (& in Animal	provide for the things that live there. (& in Plant survival) (& in Animal survival)	and bulbs need water and warmth to start growing	S: Describe the basic life cycles of some familiar animals (egg, caterpillar,	K: To know that material's physic properties make suitable for
	survival)  S: Follow a set of instructions to perform a range of simple	K: To know that local habitats include parks, woodland and gardens.	(germinate). As the plant	pupa, butterfly; egg, chick, chicken; spawn,	particular purposes, such a
Topic: Plant survival	tests, making simple predictions for what might happen and suggesting ways to answer their questions. (& in Habitats) (& in Uses of Materials) (& in Plant survival) (& in Animal survival)	Habitats beyond the locality include beaches, rainforests, deserts, oceans and mountains. All living things live in a habitat to which they are suited and it must provide everything they need	grows bigger, it develops leaves and flowers.	tadpole, froglet, frog).  K: To know that animals have offspring that grow into adults. Different	glass for window and brick for building walls. Many materials are useful more
	K: To know that tests can be carried out by following a set of instructions. A prediction is a guess at what might happen in an investigation. (& in Habitats) (& in Uses of Materials) (& in Plant survival)	to survive. (& in Plant survival) (& in Animal survival)  S: Explain how animals, including humans, need water, food, air and	S: Describe how plants need water, light and a suitable temperature to	animals have different stages of growth or life cycles.  S: Describe what humans need to survive.	than one purpose such as metal for cutlery and cars. (& in Animal survival)



- S: Observe objects, materials, living things and changes over time, sorting and grouping them based on their features and explaining their reasoning.
- (& in Habitats)
- (& in Uses of Materials)
- (& in Plant survival) (& in Animal survival)
- K: To know that objects, materials and living things can be looked at, compared and grouped according to their features.
- (& in Habitats)
- (& in Uses of Materials)
- (& in Plant survival) (& in Animal survival)
- S: Begin to notice patterns and relationships in their data and explain what they have done and found out using simple scientific language. (& in Uses of Materials) (& in Plant survival) (& in Animal survival)
- K: To know that the results are information that has been found out from an investigation and can be used to answer a question. (& in Uses of Materials) (& in Plant survival) (& in Animal survival)
- S: Use a range of methods (tables, charts, diagrams and Venn diagrams) to gather and record simple data with some accuracy.
- (& in Habitats) (& in Uses of Materials) (& in Plant survival) (& in Animal survival)
- K: To know that data can be recorded and displayed in different ways, including tables, charts, pictograms and drawings.
- (& in Habitats) (& in Uses of Materials) (& in Plant survival) (& in Animal survival)

- shelter to survive. (& in Animal survival)
- K: To know that animals need water, food, air and shelter to survive. Their habitat must provide all these things.
  (& in Animal survival)
- S: Identify and name a variety of plants and animals in their habitats, including microhabitats. (& in Plant survival)
- (& in Animal survival)
- K: To know that a habitat is a place where a living thing lives. A microhabitat is a very small habitat.
  (& in Plant survival)
- (& in Animal survival)
- S: interpret and construct simple food chains to describe how living things depend on each other as a source of food.
- (& in Animal survival)
- K: To know that food chains show how living things depend on one another for food. All food chains start with a plant, followed by animals that either eat the plant or other animals. (& in Animal survival)

grow and stay
healthy.

K: 7

K: To know

- that plants
  need water,
  light and a
  suitable
  temperature to
  grow and stay
  healthy.
  Without any
  one of these
  things, they
  will die.
- K: To know that humans need water, food, air and shelter to survive.
- S: Describe the importance of a healthy lifestyle, including exercise, a balanced diet, good quality sleep and personal hygiene.
- K: To know that a healthy lifestyle includes exercise, good personal hygiene, good quality sleep and a balanced diet. Risks associated with an unhealthy lifestyle include obesity, tooth decay and mental health problems.
- S: Describe typical UK seasonal weather patterns.
- K: To know that The UK has typical weather in each of the seasons. For example, winter is cold and sometimes frosty, whereas summer is warm and sometimes sunny

- S: Describe how some objects and materials can be changed and how these changes can be desirable or undesirable.
- K: To know that some objects and materials can be changed by squashing, blending, twisting, stretching, heating, cooling, mixing and being left to decay.



Year 1	Working scientifically	Plant Parts	Human Senses Animal Parts	Everyday materials	Seasonal changes
Knowledge	S: Ask simple scientific questions.	S: Identify, compare,	S: Identify, compare,	S: Identify and	S: Observe changes
(Substantive)	(& in Human Senses)	group and sort a variety	group and sort a variety	name what an	across the four seasons.
(Substantive)	(& in Seasonal changes)	of common wild and	of common animals,	object is made	
	(& in Plant parts) (& in Animal Parts)	garden plants, including	including fish,	from, including	K: To know that there
Skills		deciduous and evergreen	amphibians, reptiles,	wood, plastic,	are four seasons:
(Dissiplinary	K: To know that question words include what, why, how,	trees, based on	birds, invertebrates and	glass, metal, water	spring, summer, autumn
(Disciplinary	when, who and which.	observable features. (&	mammals, based on	and rock.	and winter. Certain
knowledge)	(& in Human Senses)	in Plant parts)	observable features.		events and weather
	(& in Seasonal changes)		W. T. I	K: To know that a	patterns happen in
Topic: Everyday	(& in Plant parts) (& in Animal Parts)	K: To know that plants	K: To know that animals	material is what	different seasons.
Materials	C Will a series of the	are living things.	are living things.	an object is made	C O1
Traceriais	S: With support, use simple equipment to measure and make	Common plants include	Animals can be sorted	from. Everyday	S: Observe and describe
	observations. (& in Human Senses) (& in Seasonal changes)	the daisy, daffodil and	and grouped into six	materials include	how day length
Topic: Human	(& in Plant parts) (& in Animal Parts)	grass. Trees are large, woody plants and are	main groups: fish, amphibians, reptiles,	wood, plastic, glass, metal,	changes across the
Senses	K: To know that simple equipment is used to take	either evergreen or	birds, invertebrates and	water, rock, brick,	year.
	measurements and observations. Examples include metre	deciduous. (& in Plant	mammals.	paper and fabric.	K: To know day length
Topic: Seasonal	sticks, measuring tapes, egg timers and hand lenses.	parts)	mummus.	paper una jubric.	(the number of daylight
changes	(& in Human Senses) (& in Seasonal changes)	pares	S: Group and sort a	S: Investigate and	hours) is longer in the
on any co	(& in Plant parts) (& in Animal Parts)	S: Label and describe	variety of common	describe the simple	summer months and
Tania Dlant		the basic structure of a	animals based on the	physical properties	shorter in the winter
Topic: Plant	S: With support, follow instructions to perform simple tests	variety of common	foods they eat.	of some everyday	months.
parts	and begin to talk about what they might do or what might	plants.	,	materials, such as	
	happen. (& in Seasonal changes) (& in Plant parts)		K: To know that	hard or soft;	S: Observe and describe
Topic: Animal	(& in Animal Parts)	K: To know the basic	carnivores eat other	stretchy or stiff;	different types of
Parts		plant parts include root,	animals (meat),	rough or smooth;	weather.
	K: To know that simple tests can be carried out by following	stem, leaf, flower, petal,	herbivores eat plants	opaque or	
	a set of instructions. (& in Seasonal changes) (& in Plant	fruit, seed and bulb.	and omnivores eat other	transparent; bendy	K: To know that
	parts)	Trees have a woody	animals and plants.	or rigid and	different types of
	(& in Animal Parts)	stem called a trunk.		waterproof or not	weather include
				waterproof.	sunshine, rain, hail,



- S: Observe objects, materials, living things and changes over time, sorting and grouping them based on their features.
  (& in Human Senses) (& in Seasonal changes)
  (& in Plant parts) (& in Animal Parts)
- K: To know that objects, materials and living things can be looked at and compared. (& in Human Senses)
  (& in Seasonal changes)
  (& in Plant parts) (& in Animal Parts)
- S: Talk about what they have done and say, with help what they think they have found out. (& in Human Senses)
  (& in Seasonal changes) (& in Plant parts)
  (& in Animal Parts)
- K: To know that the results are information that has been found out from an investigation. (& in Human Senses) (& in Seasonal changes) (& in Plant parts) (& in Animal Parts)
- S: Observe the local environment throughout the year and ask and answer questions about living things and seasonal change.(& in Plant parts)
- K: To know that the local environment is a habitat for living things and can change during the seasons. (& in Plant parts)
- S: With support, gather and record simple data in a range of ways (data tables, diagrams, Venn diagrams). (& in Human Senses) (& in Seasonal changes) (& in Plant parts) (& in Animal Parts)
- K: To know that data can be recorded and displayed in different ways, including tables, pictograms and drawings) (& in Human Senses) (& in Seasonal changes) (& in Plant parts) (& in Animal Parts)

- S: Describe how to care for plants and animals, including pets. (& in Animal Parts)
- K: To know that living things need to be cared for in order for them to survive. They need water, food, warmth and shelter. (& in Animal Parts)
- S: Label and describe the basic structures of a variety of common animals, including fish, amphibians, reptiles, birds and mammals. (& in Animal Parts)
- K: To know different animal groups have some common body parts, such as eyes and a mouth, and some different body parts, such as fins or wings.
  (& in Animal Parts)
  S: Draw and label the main parts of the human body and say which body part is associated with which sense.
- K: To know the basic body parts are the head, arms, legs, nose, eyes, ears, mouth, hands and feet. The five senses are hearing, sight, smell, taste and touch. Ears are used for hearing, eyes are used to see, the nose is used to smell, the tongue is used to taste and skin gives the sense of touch.

- K: To know that materials have different properties, such as hard or soft; stretchy or stiff; rough or smooth; opaque or transparent; bendy or rigid; waterproof or not waterproof.
- S: Compare and group materials in a variety of ways, such as based on their physical properties; being natural or manmade and being recyclable or non-recyclable.
- K: To know that materials can be grouped according to their properties.

- wind, snow, fog, lightning, storm and cloud. The weather can change daily and some weather types are more common in certain seasons, such as snow in winter.
- S: Describe, following observation, how plants and animals change over time. (& in Plant parts)
- K: To know that all living things (plants and animals) change over time as they grow and mature. (& in Plant parts)
- S: Investigate weather using toys, models or simple equipment.
- K: To know that Simple equipment can be used for measuring weather, such as measuring temperature with a thermometer; identifying wind direction and force with a windsock or



 		10.100	
			measuring rainfall with
			a rain gauge.