Science Curriculum Objectives 2022-2023

	R	1	2	3	4	5	6
Working Scientifically	- asking simple questions and recognising the answered in different ways - observing closely, using simple equipment - performing simple tests - identifying and classifying - using their observations and ideas to sugge questions - gathering and recording data to help in ans questions		ple equipment	- asking relevant questions ar scientific enquiries to answer - setting up simple practical efair tests - making systematic and care appropriate, taking accurate standard units, using a range thermometers and data logge - gathering, recording, classifivariety of ways to help in ans - recording findings using sim drawings, labelled diagrams, reporting on findings from enwritten explanations, displays and conclusions - using results to draw simple predictions for new values, sur aise further questions - identifying differences, simil simple scientific ideas and pro- using straightforward scient	them enquiries, comparative and ful observations and, where measurements using of equipment, including ers ying and presenting data in a wering questions ple scientific language, keys, bar charts, and tables iquiries, including oral and s or presentations of results conclusions, make uggest improvements and larities or changes related to occesses ific evidence to answer	questions, including recognis where necessary - taking measurements, using equipment, with increasing a repeat readings when approp	a a range of scientific ccuracy and precision, taking oriate of increasing complexity using , classification keys, tables, raphs redictions to set up further ddings from enquiries, relationships and f trust in results, in oral and s and other presentations that has been used to
I					questions or to support their findings		
	The Natural World	Plants	Living things and their	Plants	Living things and their	Living things and their	Living things and their
EYFS	 Explore the natural world around them, 	identify and name a variety of common wild	habitats - explore and compare the	-identify and describe the functions of different parts	habitats - recognise that living	habitats - describe the differences	habitats - describe how living things
	making observations and	and garden plants,	differences between things	of flowering plants: roots,	things can be grouped in a	in the life cycles of a	are classified into broad
Framework /	drawing pictures of	including deciduous and	that are living, dead, and	stem/trunk, leaves and	variety of ways	mammal, an amphibian, an	groups according to
National	animals and plants; 15	evergreen trees	things that have never been	flowers	- explore and use	insect and a bird	common observable
	- Know some similarities	-identify and describe the	alive	-explore the requirements	classification keys to help	- describe the life process	characteristics and based
Curriculum	and differences between the natural world around	basic structure of a variety of common flowering	-identify that most living things live in habitats to	of plants for life and	group, identify and name a variety of living things in	of reproduction in some plants and animals	on similarities and differences, including
Objectives	them and contrasting	plants, including trees.	which they are suited and	growth (air, light, water, nutrients from soil, and	their local and wider	piants and animais	microorganisms, plants and
Objectives	environments, drawing	plants, melaaning treesi	describe how different	room to grow) and how	environment	Animals including humans	animals
	on their experiences and	Animals including humans	habitats provide for the	they vary from plant to	- recognise that	- describe the changes as	- give reasons for classifying
	what has been read in	- identify and name a	basic needs of different	plant	environments can change	humans develop to old	plants and animals based
	class;	variety of common animals	kinds of animals and plants,	- investigate the way in	and that this can	age.	on specific characteristics.
	- Understand some important processes and	including fish, amphibians, reptiles, birds and	and how they depend on each other	which water is transported within plants	sometimes pose dangers to living things	Properties and changes of	Animals including humans
	changes in the natural	mammals	- identify and name a	- explore the part that	to living tilligs	materials	- identify and name the
	world around them,	- identify and name a	variety of plants and	flowers play in the life	Animals including humans	- compare and group	main parts of the human
	including the seasons and	variety of common animals	animals in their habitats,	cycle of flowering plants,	- describe the simple	together everyday	circulatory system, and
	changing states of matter.	that are carnivores,	including microhabitats	including pollination, seed	functions of the basic parts	materials on the basis of	describe the functions of
	Past and Present	herbivores and omnivores -describe and compare the	describe how animals obtain their food from	formation and seed dispersal.	of the digestive system in humans	their properties, including their hardness, solubility,	the heart, blood vessels and blood
	- Know some similarities	structure of a variety of	plants and other animals,	uispersai.	- identify the different	transparency, conductivity	- recognise the impact of
	and differences between	common animals (fish,	using the idea of a simple	Animals including humans	types of teeth in humans	(electrical and thermal),	diet, exercise, drugs and
	things in the past and	amphibians, reptiles, birds	food chain, and identify and	-identify that animals,	and their simple functions	and response to magnets	lifestyle on the way their
	now, drawing on their	and mammals, including	name different sources of	including humans, need	- construct and interpret a	- know that some materials	bodies function
	experiences and what has	pets)	food.	the right types and amount	variety of food chains,	will dissolve in liquid to	- describe the ways in
	been read in class;	- identify, name, draw and label the basic parts of the	<u>Plants</u>	of nutrition, and that they cannot make their own	identifying producers, predators and prey.	form a solution, and describe how to recover a	which nutrients and water are transported within
		human body and say which	-observe and describe how	food; they get nutrition	predators and prey.	substance from a solution	animals, including humans.
		part of the body is	seeds and bulbs grow into	from what they eat	States of matter	- use knowledge of solids,	,
		associated with each	mature plants	- identify that humans and	- compare and group	liquids and gases to decide	Evolutions and inheritance
		sense.	-find out and describe how	some other animals have	materials together,	how mixtures might be	- recognise that living
		Everyday materials	plants need water, light and	skeletons and muscles for	according to whether they are solids, liquids or gases -	separated, including through filtering, sieving	things have changed over time and that fossils
		Lveryuay materiais	a suitable temperature to grow and stay healthy	support, protection and movement.	observe that some	and evaporating	provide information about
			6. 2 and stay incurry		materials change state	and craporating	living things that inhabited

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

Seasonal changes

- observe changes across the four seasons -observe and describe weather associated with the seasons and how day length varies.

Animals, including humans

-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.

Uses of everyday materials

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

Rocks

-compare and group together different kinds of rocks on the basis of their appearance and simple physical properties -describe in simple terms how fossils are formed when things that have lived are trapped within rock recognise that soils are made from rocks and organic matter.

-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 -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 an opaque object -find patterns in the way that the size of shadows

Forces and magnets

change

- compare how things move on different surfaces -notice that some forces need contact between two objects, but magnetic forces can act at a distance - observe how magnets attract or repel each other and attract some materials and not others -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 - describe magnets as having two poles - predict whether two magnets will attract or repel each other, depending on which poles

are facing

cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) - identify the part played by evaporation and condensation in the water cycle and associate the

rate of evaporation with

when they are heated or

Sound

temperature.

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

Electricity

electricity

buzzers

- identify common

electrical circuit,

appliances that run on

- construct a simple series

identifying and naming its

basic parts, including cells,

wires, bulbs, switches and

- identify whether or not a

whether or not the lamp is

lamp will light in a simple

series circuit, based on

part of a complete loop

- recognise that a switch

opens and closes a circuit

and associate this with

whether or not a lamp

lights in a simple series

- recognise some common

conductors and insulators,

and associate metals with

being good conductors.

with a battery

circuit

- fainter as the distance - describe the Sun. Earth from the sound source and Moon as increases. approximately spherical bodies
 - use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

- give reasons, based on

comparative and fair tests,

for the particular uses of

including metals, wood

everyday materials,

- demonstrate that

dissolving, mixing and

changes of state are

reversible changes

- explain that some

formation of new

changes result in the

materials, and that this

associated with burning

and the action of acid on

- describe the movement

planets, relative to the Sun

- describe the movement

of the Moon relative to the

of the Earth, and other

in the solar system

bicarbonate of soda

Earth and space

kind of change is not

usually reversible,

including changes

evidence from

and plastic

Forces

Earth

- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling obiect
- identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

- 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.

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

Electricity

- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- 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 when representing a simple
- use recognised symbols circuit in a diagram

Redwell Science LTP 2022-2023

Heart and Lungs (Animals including humans) Describe the functions of bincluding clotting Know that blood is pumper round the body by the heathere are different groups human blood Describe the basic structur the circulatory system Explain the functions of the
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work together to keep us a Know that the heart rate of
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where pulse points are fou
Relate these changes to the
for more oxygen and energ
the muscles
the use of some drugs can
the body
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and long term effects of alc
smoking and drugs
Classification (living things
things
life Describe the characteristic
orn, different vertebrate and
dult, invertebrate groups
ying Understand that there is a
rom variety of living things
Understand the term biod
Know about some of the t
to biodiversity, including th
threats posed by humans
Know that micro-organism
things that are often too si
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bo ad dy fi

Knowledge

Biology Chemistry **Physics**

be altered by squashing, bending, twisting and stretching know that transparent objects let

Plants (Plants)

plant it know what a bulb is and how to plant it know what plants and seeds need

know what a seed is and how to

to grow and how to take care of plants

name the basic parts of a plant: stem, leaves, roots, flower, petals, fruit, bulb and seed know that bulbs grow into new

distinguish between trees and other flowering plants know the main parts of a tree: trunk, roots, branches, leaves,

know that some trees are evergreen and do not lose their leaves in winter but others are deciduous and do identify trees as deciduous and evergreen

name some common native trees know that some plants produce flowers which develop into seeds know that the fruit produced by trees contains its seeds discuss the idea of a "weed"

The weather (Seasonal Changes)

Describe the changes in the weather with the seasons Learn how to stay safe in the sun. world

Know that rain comes from

Know that not all clouds produce

Know that some storms in the UK lightning

Know that snow comes from

Know that some parts of the

know that plants provide humans and other animals with food identify the parts of the plant that are consumed for a range of vegetables

describe how plants change through the seasons know that some plants are perennial and some are annual or

describe the difference between perennial plants and annual

know, through investigation, that seeds and bulbs need water and warmth but not light to grow know that growing plants need light to stay healthy

Materials (Everyday materials)

name some naturally occurring

describe in simple terms how and why the use of materials has

know the contribution made to

Habitats (Living things and their

learn the term habitat and microhabitat give examples of different habitats describe a woodland habitat describe the kind of microhabitats found in woodland know some of the common woodland animals and plants describe a seashore habitat describe the kind of microhabitats found in the seashore know some of the common seashore animals and plants

know that living things should be treated with respect identify some animals and plants living in and around ponds know that plants do not need to eat because they make their own

know that some animals are carnivores, some are herbivores

Know that friction is a force between two surfaces that slows obiects down Describe some factors that affect friction

Describe what a magnet is Know that magnets can exert forces at a distance

Know that magnets have two ends called poles that attract or repel each other depending on how they are arranged Describe some everyday uses for magnets

Describe some uses of magnets Summarise their learning about magnetism

Plants (plants)

use their knowledge of plants to plan and set up an investigation into plant growth set up a simple experiment take careful measurements and make systematic observations describe the structure of a flowering plant explain that water moves from the roots through branches and stems to leaves and flowers describe some methods of seed dispersal explain why seeds need to be dispersed describe the life cycle of a flowering plant describe the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal generate oral and written reports on the findings of their investigation explain that plants do not need to eat food because they make their describe why plants need water,

Light (Light)

growth

know that some objects produce light energy and that these are light sources know that some surfaces reflect distinguish between light sources and objects that reflect light know that the Sun is a light source but the Moon is not know that some surfaces reflect light

know which surfaces have the

light, space and nutrients for

understand what pitch is describe some ways of changing the pitch of a vibrating object

Know that the Sun, planets and moons in the solar system are approximately spherical in shape Explain how ideas about the solar system have changes through the centuries Identify the eight planets within the solar system and their positions relative to the Sun

Identify animals that are predators, those that are prev Compare planets in terms of and those that are both atmosphere, time to orbit the Earth, period of rotation, number of moons etc

Know that all food chains start

with plants that create their own

food using energy from the Sun

Know that some animals are

predators and some are prev.

them to describe feeding

Identify that a number of

equipment use electricity

common appliances and pieces of

Know that some appliances use

mains electricity and some use

electricity and how to avoid them

Know the dangers of mains

Understand that a flow of

electricity (electric current) is

only possible when there is a

complete loop of conducting

Know that some materials let

Recognise that all metals are

Know that air is an insulator

components in a circuit

Describe the relationship

between the numbers of

cause the bulb to blow

and the brightness of bulbs

electricity flow through them and

conductors and most non-metals

Describe the purpose of different

components, including switches

batteries, the numbers of bulbs

Know that too much current will

Associate sound with vibrating

Describe how the shape of our

Describe the basic structure of

Establish that sounds get fainter

Know that sound travels through

Associate loudness with stronger

solids and liquids as well as air

Describe a range of ways of

getting things to vibrate

as the distance increases

ears helps us hear

relationships

Electricity

batteries

material

others do not

are insulators

and buzzers

Sound

objects

the ear

vibrations

Understand food chains and use

Explain night and day in terms of the rotation of the Earth Describe and explain in simple terms how the appearance of the Moon in the sky changes over the course of 28 days

Mixtures and Reactions (Properties and changes of materials

properties to include more Know that metals have similar, Know that some materials Know that a substance is still present in the solution when it Describe ways in which dissolved

Know that burning results in the formation of new materials including gases that we cannot

Know that chemical changes are Recognise that chemical reactions form new substances and that

wrinkle-free cotton were

Human Development (animals including humans)

Describe the basic changes as humans develop from birth to old age

Know that whilst some microorganisms bring about disease many others are useful State some of the uses for yeast

Know how to stay safe when working with electricity Describe the use of different components within a circuit: cells. wire, switch, buzzer, bulb, motor Represent and reproduce simple circuits in diagrams using recognised symbols Describe the differences between series and parallel circuits Design and build a game that involves an electric circuit

Evolution (Evolution and inheritance)

Describe the contribution he made to scientific knowledge about evolution Understand the term evolution Describe ways in which animals are adapted to avoid predation, for example camouflage, use of warning colours in insects, spines on plants explain how fossils provide evidence for evolution explain how humans have evolved

Light

describe and give examples of light sources state some basic properties of

know that light travels in straight

Know that many objects reflect

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

Know the basic structure of the

And come are norm-lower. In contracting the properties of the company of the contracting properties of the company of the contracting protection of the company of the com		T	T ,	1	C	
Riowledge Biology Chemistry Physics Rook Hat Resource of light in order to see things and that dark is the absence of light in order to see things and that dark is the absence of light in who with protect their eyeight, including protection from son damage an extra paperent, translucers and open and the protection of shadows are transparent, translucers and open and the protection of shadows are transparent, translucers and open and the protection of shadows are transparent, translucers and open and the protection of shadows are transparent, translucers and open and the protection of shadows are transparent, translucers and open and the protection of shadows are transparent, translucers and open and the protection of shadows are transparent, translucers and open and the protection of shadows are transparent, translucers and open and the protection of shadows are transparent, translucers and open and the protection of shadows are transparent, translucers and open and the protection of shadows are transparent, translucers and open and the protection of shadows are transparent, translucers and open and the protection of shadows are the properties of solds, lower than there are gases all around us but they are invisible on the protection of shadows are therefore the same material can be covered the same material can be covered the same material can be covered the same material can be desirable to the same material can be covered the same shadows are the same material can be covered the same shadows are to cover the same material can be covered the same shadows are to cover the same material can be covered the same shadows are to cover the same material can be covered the same shadows are to cover the same material can be covered the same shadows are to cover the same shadows ar		world and some seasons are	and some are omnivores	best reflective properties	States of Matter	Describe the changes that
Roowledge Biology Chemistry Physics Physics Rook how to protect their eyesight, including protection from sun damage know that some substances allow light to past through comparent, translucent and opaque know how shadows are formed know what determines the length of shadows Rocks (Rocks) Rock (Rocks) Rocks (Rocks		more likely to have snow				
Biology Chemistry Physics In the properties of the state of the properties of the p			and cite some simple examples of	organs of sight	liquids or gases	Describe the development of a
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Physics September Septemb				9		Tallow How busies and both
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Skills

Working Scientifically

Biology Chemistry Physics

Yr 1 The Animal Kingdom (Animals including humans)

Sort and group different kinds of animals
Compare the diet of these animals with the human diet
Use a number of sources to find out about a common animal
Make notes in order to include relevant key facts in a report about an
animal

Yr 1 Everyday materials (Everday Materials)

make and record observations about materials

group materials together and make a record of groupings explore materials using appropriate senses, making observations an simple comparisons

carry out simple tests

use their observations and ideas to suggest answers to questions gather and record data to help in answering questions. present the data in a suitable manner

Yr 1 Plants (Plants)

sort and group a variety of objects into seeds and non-seeds monitor the growth of seeds and bulbs planted last weeks ago monitor the growth of seeds and bulbs planted two weeks ago monitor the growth of seeds and bulbs planted three weeks ago monitor the growth of seeds and bulbs planted four weeks ago compare a wild area and a garden make observations

monitor the growth of seeds and bulbs planted five weeks ago use observations notes and charts to describe the growth of seeds/bulb

Yr 1 The weather (Seasonal Changes)

Make and use simple instruments for observing the weather, setting up a simple weather station

Take measurements from the weather station and observe the weather outside

Take measurements from the weather station and observe the weather outside

Make a rainbow

Take measurements from the weather station and observe the weather outside

Take measurements from the weather station and observe the weather outside

Y4 Classification (Living things and their habitats)

Use a key to identify an unknown plant or animal

Create a key to identify a number of plants or animals

Identify the characteristics of each class

Correctly place unfamiliar vertebrates into one of these classes

Identify the characteristics of each class

Correctly place unfamiliar invertebrates into one of these classes Identify the characteristics of each class

Correctly place unfamiliar plants into one of these classes

Recognise that these animals and plants vary widely but that they can be sorted into different groups

Recognise that environments can change and that this can sometimes pose dangers to living things.

Y4 Digestion (Animals including humans)

Create a model of a digestive system

Identify in the model each part of the digestive system and describe its basic function

Link the use of the terms predator and prey to the terms herbivore, omnivore and carnivore

Construct a food web to show more complex feeding relationships

Y4 Electricity

Associate the use of batteries with the need for less power Construct a simple circuit involving batteries

Relate some incidents in the history of electricity (using secondary

sources)
Investigate the effect of changing components in a series circuit

Make systematic and careful observations

Using their knowledge of electricity, construct and test a burglar alarm for a house

Y4 Sound

Create sounds in a variety of ways

Use their ears to listen to and identify sounds

Investigate the effectiveness of different materials to muffle sound Use their knowledge of how sound is made to make and play a musical instrument

Y4 States of Matter

Begin to assign properties to different states of matter

Set up simple comparative and fair tests to establish the factors that affect evaporation

Record findings using simple scientific language, bar charts and/or tables

Use results to draw simple conclusions

Y4 Respecting our Environment

Present evidence they have collected in simple

Communicate simple features or components of living things or events they have observed in appropriate forms

Present their ideas and evidence in appropriate ways

Use simple scientific vocabulary to describe their ideas and observations

Y6 Classification (living things and their habitats)

Create a key to identify microorganism classes

Observe the growth of yeast and the waste products of yeast Investigate the things yeast needs to grow

Y6 Heart and Lungs (Animals including humans)

Record data and results using tables and line graphs Report and present findings from enquiries

Through investigation, describe the changes that take place in pulse rate and breathing rate before, during and after exercise

Y6 Electricity

Construct simple series circuits and identify the uses of different components

Examine an unfamiliar diagram of a simple circuit and explain how they know whether it will work when constructed

Investigate how differences in voltage affect the performance of components within a circuit

Plan and carry out an investigation, ensuring a fair test

Make accurate measurements and draw conclusions based on results

Plan an investigation, recognising and controlling variables where

Take measurements, using a range of scientific equipment, with accuracy and precision, repeating readings when appropriate Record data and results of increasing using circuit diagrams, tables and

Draw conclusion and explain the degree of trust in results

Build simple series and parallel circuits to solve problems

Design and build a game that involves an electric circuit

Evaluate the game

Y6 Evolution (Evolution and inheritance)

Research and recount the main events in the life of Charles Darwin Explore the reasons that some people do not believe that evolution happened and look at some creation stories from different religions, e.g. the Vikings

Research the ways in which animals and plants are adapted to their environment

 $\label{thm:model} \mbox{Model evolution through the use of games/simulations}$

Model and compare evolution and selective breeding

Y6 Field Studies

Use sampling techniques to record numbers of species
Make simple comparisons of the same habitat throughout the year
Use and evaluate some sampling techniques for environmental field
work

Compare populations of living things during the course of the year Provide reasons for the changes in population during the year Describe the strengths and weaknesses of different sampling techniques

Explain differences in populations during the year

Provide reasons for the differences observed and measured in different areas

6 Light

investigate changes in shadows depending on the relative positions of the light source and object and the use of filters

plan an investigation, recognising and controlling variables $% \left(1\right) =\left(1\right) \left(1\right)$

take measurements with accuracy and precision, repeating readings when appropriate

record results using scientific diagrams, tables, and graphs
Establish the best arrangement of light source and position of object in
a shadow puppet theatre

Skills

Working Scientifically

Biology Chemistry Physics

Yr 2 Living things (Living things and their habitats)

classify items as living things, things that were alive and things that have never been alive

Yr 2 Animals and their needs (animals including humans)

take a first look at animals to be observed (tadpoles, chicks, butterfly etc.) $% \begin{center} \begin{center$

observe the difference in growth of the animals since the previous week

observe the difference in growth of the animals since the previous week

design a healthy diet

observe the difference in growth of the animals since the previous week

Collate observations of animals into a single document to describe the growth of the animals in the study

Yr 2 Plants (Plants)

distinguish between seeds and other similar materials predict whether plants need water, warmth and/or light to grow make appropriate measurements and observations of plant growth make measurements and record observations of the growth of seeds and bulbs

to draw conclusions from a range of experiments about what plants need for growth

Yr 2 Materials (Everyday materials)

find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. compare and contrast the advantages of using different materials for the same object

compare the range and use of materials in a different time period with their use nowadays

ask simple questions and recognise that they can be answered in different ways performing simple tests

Plan an investigation into material properties

investigate the best paper for a food bag

Yr 2 Habitats (Living things and their habitats)

explore a pond habitat

Yr 3 Animals and skeletons (animals including humans)

Using research methods, identify the diets of a number of animals including birds

Classify animals as omnivores, herbivores and carnivores

Develop a classification system for foods

Investigate an owl pellet, making notes and observations

Classify animals as vertebrates or invertebrates

Yr 3 Forces and Magnets (Forces and magnets)

Provide examples of useful and non-useful friction in everyday life Classify materials as magnetic or non-magnetic

Determine a general rule for predicting which materials are magnetic Investigate the relationship between the size of a magnet and its strength

Yr 3 Plants (plants)

recording findings using simple scientific language and measurements observe the movement of food dye through a flower use results to draw simple conclusions, suggest improvements and raise further questions

use straightforward scientific evidence to support their findings

Yr 3 Light (Light)

set up a simple comparative and fair test make measurements using data loggers record findings using simple scientific language, bar charts, and tables reporting on findings and draw conclusions

Yr 3 Rocks (Rocks)

classify rocks according to their own criteria investigate the properties of igneous and sedimentary rocks carry out simple tests on rocks, recording results and drawing conclusions

nvestigate the composition of soil

use the investigation to come up with a model of how soil is formed use fossil pictures to draw conclusions about dinosaurs

75 Decay and Recycling

Plan a scientific enquiry with help

Observe closely, recording findings

Identify materials that will decay

Plan a scientific enquiry to find decay times of common materials,

Record findings and estimate degree of trust in results

From investigation, estimate the time needed for some common

Plan a scientific, recognising dependent, independent and contributes

Select appropriate methods for presenting data

Present reasoned, well evidenced conclusions

Y5 Life Cycles (living things and their habitats)

Make observations of plant and animal life cycles

Compare the production of new plants through the planting of seeds and the taking of cuttings

Research the life cycle of an unfamiliar bird and an unfamiliar mammal Describe the changes that occur during the growth and development of insects and amphibians

Compare the life cycles of an insect and an amphibian in simple terms

Y5 Earth and Space

Investigate differences in the time of day and the length of day in different parts of the World

Investigate factors that affect the formation of craters, taking measurements with increasing accuracy and precision, taking repeat readings when appropriate

Y5 Mixtures and Reactions (Properties and changes of materials

Match material properties to their use

Separate solute from a solution by crystallisation

Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering and sieving

Plan an investigation to determine ways in which solids can be removed from liquids

Report the findings from their investigation into treating sewage including conclusions and explanations of their findings Identify some changes as irreversible and explain reasons for doing so Identify substances through their chemical and physical changes

Y5 Human Development (animals including humans)

Compare the human life cycle to the life cycle of other animals

Y5 Forces

Be able to use a force meter carefully, interpreting the scale correctly Investigate a range of simple machines: pulleys, gears, ramps, wheel and axle and levers

Build a catapult and describe how it works, identifying any simple machines in its construction

Evaluate the catapult they have built

	Key Stage	Key Sta	ge One		Key Sta	ige Two	
	Year Group	1	2	3	4	5	6
	Topic	My 5 Senses	Pirates	India	Africa	Macbeth	Woeful Wars
	Science Focus	The Animal kingdom	<u>Materials</u>	<u>Light</u>	States of Matter	Mixtures and reactions	Heart and lungs
Autumn 1	Knowledge & Understanding Biology Chemistry Physics	The Animal Kingdom (Animals including humans) Name the parts of the external human body (head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth lips etc.) Describe what we use these body parts for or what they do Discuss some basic ways of staying healthy – eating well, exercising, keeping clean Know the basic animal classes of birds, fish, amphibians, reptiles, mammals and invertebrates Know the basic animal classes of birds, fish, amphibians, reptiles, mammals and invertebrates Name the main body parts that characterise of different animal classes Describe the diet of some of the common British animals they have been studying Use the research from the previous week to contribute a report to a class book or blog about animals	Materials (Everyday materials) revise work on materials from Year 1 list the uses of a particular material in and around school recognise that some materials are naturally occurring and some are not name some naturally occurring materials describe in simple terms how and why the use of materials has changed know the contribution made to materials science by John Boyd Dunlop	Light (Light) know that some objects produce light energy and that these are light sources know that some surfaces reflect light distinguish between light sources and objects that reflect light know that the Sun is a light source but the Moon is not know that some surfaces reflect light know which surfaces have the best reflective properties know that the eyes are the organs of sight recognise that they need light in order to see things and that dark is the absence of light know how to protect their eyesight, including protection from sun damage know that some substances allow light to pass through completely or partially and use the terms transparent, translucent and opaque know how shadows are formed know what determines the length of shadows	Identify materials as solids, liquids or gases Describe the properties of solids, liquids and gases Know that solids consisting of very small pieces (e.g. sand) behave like liquids in some ways Know that there are gases all around us but they are invisible State the properties of gases Know how to use a thermometer Know that the same material can exist as both solid and liquid Name the changes of state Describe the water cycle in terms of changes of state	Mixtures and Reactions (Properties and changes of materials Extend their knowledge of properties to include more abstract properties such as hardness, thermal and electrical conductivity, magnetic attraction Know that metals have similar, specific properties Know that some materials dissolve in water and others do not and give examples of both Know that a substance is still present in the solution when it has dissolved Describe ways in which dissolved substances can be recovered from solution Understand that melting and dissolving are different processes Know that burning results in the formation of new materials including gases that we cannot see Know that chemical changes are usually not reversible Identify hazards associated with burning materials Recognise that chemical reactions form new substances and that this kind of change is not usually reversible Know how post-its and/or wrinkle-free cotton were developed	Heart and Lungs (Animals including humans) Describe the functions of blood, including clotting Know that blood is pumped round the body by the heart that there are different groups of human blood Describe the basic structure of the circulatory system Explain the functions of the heart, arteries veins and capillaries Describe the structure of the heart Explain the basic function of the heart Describe the structure of the lungs and the basic functions of the lungs work together to keep us alive Know that the heart rate can be determined by taking a pulse, and where pulse points are found Relate these changes to the need for more oxygen and energy in the muscles Know that alcohol, smoking and the use of some drugs can harm the body Describe some of the short term and long term effects of alcohol, smoking and drugs

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	Yr 1 The Animal Kingdom	Yr 2 Materials (Everyday	Yr 3 Light (Light)	Y4 States of Matter	Y5 Mixtures and Reactions	Y6 Heart and Lungs (Animals	
	(Animals including humans)	materials)	set up a simple comparative	Begin to assign properties to	(Properties and changes of	including humans)	
	Sort and group different kinds	find out how the shapes of solid	and fair test	different states of matter	<u>materials</u>	Record data and results using	
	of animals	objects made from some	make measurements using data	Set up simple comparative and	Match material properties to	tables and line graphs	
	Compare the diet of these	materials can be changed by	loggers	fair tests to establish the	their use	Report and present findings	
	animals with the human diet	squashing, bending, twisting	record findings using simple	factors that affect evaporation	Separate solute from a solution	from enquiries	
	Use a number of sources to find	and stretching.	scientific language, bar charts,	Record findings using simple	by crystallisation	Through investigation, describe	
	out about a common animal	compare and contrast the	and tables	scientific language, bar charts	Use knowledge of solids, liquids	the changes that take place in	
	Make notes in order to include	advantages of using different	reporting on findings and draw	and/or tables	and gases to decide how	pulse rate and breathing rate	
	relevant key facts in a report	materials for the same object	conclusions	Use results to draw simple	mixtures might be separated,	before, during and after	
	about an animal	compare the range and use of		conclusions	including through filtering and	exercise	
		materials in a different time			sieving		
Skills		period with their use nowadays			Plan an investigation to		
Skills		ask simple questions and			determine ways in which solids		
		recognise that they can be			can be removed from liquids		
		answered in different ways			Report the findings from their		
		performing simple tests			investigation into treating		
		gather and record data to help			sewage including conclusions		
		in answering questions.			and explanations of their		
		Plan an investigation into			findings		
		material properties			Identify some changes as		
		investigate the best paper for a			irreversible and explain reasons		
		food bag			for doing so		
					Identify substances through		
					their chemical and physical		
					changes		
Key Vocabulary	bird, mammal, plant, flower,	material, properties, force,	light, dark, night, day, light	state, solid, liquid, gas, shape,	property, material, glass,	blood, circulate, heart, blood	
indy rodanamy	tree, weed, seed, bark, branch,	wood, glass, metal, fabric,	source, Sun, Moon, torch,	volume, fixed, spread,	ceramic, rubber, wood, steel,	type, red cells, white cells,	
	twig, environment, respect,	plastic, stone, brick, rubber,	candle, lamp, glow, shine,	compressed, squashed, change	aluminium, metal, non-metal,	plasma, microscope, platelets,	
	nature, wild, cultivated,	opaque, malleable, transparent,	reflect, sparkle, shine, reflected	of state, melt, freeze,	cotton wool, characteristic,	nutrients, oxygen, transfusion,	
	animals, mini-beasts, insects,	hard, soft, bendy (flexible),	light, mirror, reflect	evaporate, condense, pour	hardness, magnetic attraction,	carbon dioxide, clotting,	
	spiders, worm	rigid, elastic, texture, smooth,			opacity, thermal conductivity,	infection, haemoglobin	
		twist, stretch, bend, squash			electrical conductivity,		
					flexibility		
Assessment			Κ\	NL			
	Self-assessment						
Resources in school							
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	Key Stage	Key Sta	ige One		Key Sta	age Two	
	Year Group	1	2	3	4	5	6
	Торіс	Explorers	Victorians	Stone Age	Rainforests	The Anglo-Saxons	Magnificent Mountains
	Science Focus	The Animal Kingdom continued	Animals and their needs	Animals and skeletons	Classification	Human development	<u>Electricity</u>
Autumn 2	Knowledge & Understanding Biology Chemistry Physics	The Animal Kingdom (Animals including humans) Name the parts of the external human body (head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth lips etc.) Describe what we use these body parts for or what they do Discuss some basic ways of staying healthy – eating well, exercising, keeping clean Know the basic animal classes of birds, fish, amphibians, reptiles, mammals and invertebrates Know the basic animal classes of birds, fish, amphibians, reptiles, mammals and invertebrates Name the main body parts that characterise of different animal classes Describe the diet of some of the common British animals they have been studying Use the research from the previous week to contribute a report to a class book or blog about animals	Animals and their needs [animals including humans] know that animals grow in different ways know that mammals have live young but other animals do not describe how humans grow describe the basic needs of animals – food, air, warmth state some ways in which humans stay healthy know that eating a good diet is helps us stay healthy know that foods can be sorted into groups state the basic foods that are needed for a healthy diet and those foods that should be eaten in moderation Know how humans stay healthy – hygiene, exercise and rest observe the difference in growth of the animals since the previous week	Animals and skeletons (animals including humans) Know that animals need to eat because they do not make their own food as plants do. Understand and use the terms variable and value Know that the digested food is used for energy, to help us grow and to repair the body Know that different kinds of food are used for different things: protein for growth and repair, fat and carbohydrate for energy Come to a conclusion about the diet of an owl as a result of their findings Know that some animals have skeletons inside their bodies and others, such as insects and crustaceans, have a skeleton outside their bodies Note some differences in movement between animals without a skeleton and animals without a skeleton and animals without a skeleton Know the main parts of the body associated with the muscular and skeletal system Know that different parts of the muscular-skeletal system have different functions Know that muscles are attached to the skeleton and help us move	Classification (Living things and their habitats) Describe the main events in the life of Carl Linnaeus Describe the contribution Carl Linnaeus made to our understanding of classification Understand how keys are constructed Describe the classification of vertebrates into fish, amphibians, reptiles, birds, and mammals Describe the classification of invertebrates into snails/slugs, worms, insects, crabs and spiders Recognise that some flowers such as grasses and some tree flowers do not have petals Describe the classification of plants into flowering plants (including grasses) and non-flowering plants such as ferns and mosses Identify, using support materials where necessary, the common animals and plants in the local area	Human Development (animals including humans) Describe the basic changes as humans develop from birth to old age Describe the changes that happen during puberty Describe the development of a baby Know how babies are born	Electricity Know how to stay safe when working with electricity Describe the use of different components within a circuit: cells, wire, switch, buzzer, bulb, motor Represent and reproduce simple circuits in diagrams using recognised symbols Describe the differences between series and parallel circuits Design and build a game that involves an electric circuit

	Yr 1 The Animal Kingdom	Yr 2 Animals and their needs	Yr 3 Animals and skeletons	Y4 Classification (Living things	Y5 Human Development	Y6 Electricity		
	(Animals including humans)	(animals including humans)	(animals including humans)	and their habitats)	(animals including humans)	Construct simple series circuits		
	Sort and group different kinds of	take a first look at animals to be	Using research methods,	Use a key to identify an	Compare the human life cycle to	and identify the uses of		
	animals	observed (tadpoles, chicks,	identify the diets of a number of	unknown plant or animal	the life cycle of other animals	different components		
	Compare the diet of these	butterfly etc.)	animals including birds	Create a key to identify a		Examine an unfamiliar diagram		
	animals with the human diet	observe the difference in	Classify animals as omnivores,	number of plants or animals		of a simple circuit and explain		
	Use a number of sources to find	growth of the animals since the	herbivores and carnivores	Identify the characteristics of		how they know whether it will		
	out about a common animal	previous week	Develop a classification system	each class		work when constructed		
	Make notes in order to include	observe the difference in	for foods	Correctly place unfamiliar		Investigate how differences in		
	relevant key facts in a report	growth of the animals since the	Investigate an owl pellet,	vertebrates into one of these		voltage affect the performance		
	about an animal	previous week	making notes and observations	classes		of components within a circuit		
	about an anima	design a healthy diet	Classify animals as vertebrates	Identify the characteristics of		Plan and carry out an		
		observe the difference in	or invertebrates	each class		investigation, ensuring a fair te		
		growth of the animals since the	of invertebrates	Correctly place unfamiliar		Make accurate measurements		
				invertebrates into one of these		and draw conclusions based or		
		previous week Collate observations of animals						
Skills				classes		results		
JKIIIS		into a single		Identify the characteristics of		Plan an investigation,		
				each class		recognising and controlling		
				Correctly place unfamiliar plants		variables where necessary		
				into one of these classes		Take measurements, using a		
				Recognise that these animals		range of scientific equipment,		
				and plants vary widely but that		with accuracy and precision,		
				they can be sorted into different		repeating readings when		
				groups		appropriate		
				Recognise that environments		Record data and results of		
				can change and that this can		increasing using circuit		
				sometimes pose dangers to		diagrams, tables and line graph		
				living things		Draw conclusion and explain th		
						degree of trust in results		
						Build simple series and parallel		
						circuits to solve problems		
						Design and build a game that		
						involves an electric circuit		
						Evaluate the game		
Key Vocabulary	bird, mammal, pant, flower,	mammals, eggs, live, young,	diet, omnivore, invertebrate,	environment, urban, impact,	life cycle, baby, toddler, child,	plug, mains electricity, battery,		
Rey Vocabulary	tree, weed, seed, bark, branch,	birth, nest, parents,	carnivore, herbivore, mammal,	human, structure, damage,	teenager, adult, man, woman,	switch, bulb, motor, crocodile		
	twig, environment, respect,	observation, description, notes,	plant, animal, bird, food, fish,	negative, no effect, positive,	maturity, adolescence, maturity,	clips, wire, complete circuit,		
	nature, wild, cultivated, animals,	milk, hatch	reptile	pollution, litter, enhance,	grow, develop, birth, pregnancy,	conductor, insulator, buzzer,		
	mini-beasts, insects, spiders,	mink, materi	reptile	survey, wildlife, plant life,	old age, die	fan, bright, dim		
	worm			habitat	old age, die	lan, bright, dim		
Assessment			• • •	VL .				
		Self-Assessment Self-Assessment						
Resources								

	Key Stage	Key Sta	ge One		Key Sta	ge Two	
	Year Group	1	2	3	4	5	6
	Торіс	Fire! Fire!	China	Extreme Earth: Volcanoes and Earthquakes	Fantastic Beasts	Raging Rivers	Vikings
	Science Focus	Everyday materials	Living things	<u>Rocks</u>	Animals including humans	Life cycles	<u>Evolution</u>
Spring 1	Knowledge & Understanding Biology Chemistry Physics	Everyday materials Begin to name common materials and describe their properties. Distinguish between an object and the material it is made from. know that materials can be used in a variety of ways know that materials can be sorted in a variety of ways according to their properties know that materials are chosen for specific purposes on the basis of their properties know that there is a range of materials with different characteristics develop the vocabulary needed to describe material properties know that objects made from elastic or malleable materials can be altered by squashing, bending, twisting and stretching know that transparent objects let the light through but opaque objects do not	Living things (Living things and their habitats) understand that plants are living things know some of the characteristics of living things – movement, growth, excretion, reproduction, sensitivity know that all living things have certain needs understand that plants are living things know that plants are alive describe the differences between animals and plants	Rocks (Rocks) examine and describe different specimens of rock name some of the most common rocks describe in simple terms how igneous, sedimentary and metamorphic rocks are formed describe how fossils are made explain how the fossil record helps us learn about life millions of years ago	Digestion (Animals including humans) Describe the human teeth and their positions in the mouth Name the different sorts of teeth found in humans Know that children have milk teeth that are lost as adult teeth develop Understand the need to take care of your teeth and how to do this Describe the differences in teeth that have been cared for and those that have not Know that the tongue is the organ for taste and that it helps to move food into the oesophagus Name the different parts of the digestive system Outline the basic function of each part of the digestive system	Life Cycles (living things and their habitats) Recognise that flowering plants produce seeds from their flowers which grow into new plants Describe the life cycle of flowering plants including pollination, fertilisation, seed production, seed dispersal and germination Describe the structure of a flower, naming the main parts of the flower Describe different ways of growing new plants other than using seeds Know the difference between asexual and sexual reproduction in plants Know that all animals have a life cycle that includes being born, developing into an adult, reproducing, and eventually dying Know that life cycles vary from one class to another Know that insects and amphibians undergo metamorphosis	Evolution (Evolution and inheritance) Describe the contribution he made to scientific knowledge about evolution Understand the term evolution Describe ways in which animals are adapted to avoid predation, for example camouflage, use of warning colours in insects, spines on plants explain how fossils provide evidence for evolution explain how humans have evolved

Skills	Yr 1 Everyday materials (Everday Materials) make and record observations about materials group materials together and make a record of groupings explore materials using appropriate senses, making observations and simple comparisons carry out simple tests use their observations and ideas to suggest answers to questions gather and record data to help in answering questions. present the data in a suitable manner provide a simple conclusion that answers the question	Yr 2 Living things (Living things and their habitats) classify items as living things, things that were alive and things that have never been alive	Yr 3 Rocks (Rocks) classify rocks according to their own criteria investigate the properties of igneous and sedimentary rocks carry out simple tests on rocks, recording results and drawing conclusions investigate the composition of soil use the investigation to come up with a model of how soil is formed use fossil pictures to draw conclusions about dinosaurs	Y4 Digestion (Animals including humans) Create a model of a digestive system Identify in the model each part of the digestive system and describe its basic function	Y5 Life Cycles (living things and their habitats) Make observations of plant and animal life cycles Compare the production of new plants through the planting of seeds and the taking of cuttings Research the life cycle of an unfamiliar bird and an unfamiliar mammal Describe the changes that occur during the growth and development of insects and amphibians Compare the life cycles of an insect and an amphibian in simple terms	Y6 Evolution (Evolution and inheritance) Research and recount the main events in the life of Charles Darwin Explore the reasons that some people do not believe that evolution happened and look at some creation stories from different religions, e.g. the Vikings Research the ways in which animals and plants are adapted to their environment Model evolution through the use of games/simulations Model and compare evolution and selective breeding
Key Vocabulary	material, appearance, texture, property, wood, stone, fabric, plastic, clay, rubber, metal, glass, paper, cardboard, rough, smooth, hard, soft, shiny, dull	mammals, eggs, live, young, birth, nest, parents, observation, description, notes, milk, hatch	criteria, appearance, texture, weight, rough, smooth, sharp, hard, lumpy, cracked, flaky, coarse, flat, round, layered, glassy, sparkling, polished, jagged, shiny, crystalline, sandy, fine, grainy (granular)	classification, kingdom, university, voyage, biography, botanist, study	evidence, observation, measurement, life cycle, stage, offspring, metamorphosis, growth, germination, structure, habitat	biography, variation, inherited, natural selection, survival, naturalist, voyage, specimens, adaptation, evolution, hypothesis
Assessment			• • •	WL essment		
Resources			Rocks and soil samples			

	Key Stage	Key Sta	age One		Key Sta	age Two	
	Year Group	1	2	3	4	5	6
	Торіс	How does our food grow?	Arctic/Antarctic	Robots	Romans	Ancient Greeks	Frozen Kingdoms
	Science Focus	<u>Plants</u>	Habitats continued	Forces and magnets	Animals including humans continued	<u>Forces</u>	Classification
Spring 2	Knowledge & Understanding Biology Chemistry Physics	Plants (Plants) know what a seed is and how to plant it know what a bulb is and how to plant it know what plants and seeds need to grow and how to take care of plants name the basic parts of a plant: stem, leaves, roots, flower, petals, fruit, bulb and seed know that bulbs grow into new plants distinguish between trees and other flowering plants know the main parts of a tree: trunk, roots, branches, leaves, fruit know that some trees are evergreen and do not lose their leaves in winter but others are deciduous and do identify trees as deciduous and evergreen name some common native trees know that some plants produce flowers which develop into seeds know that the fruit produced by trees contains its seeds discuss the idea of a "weed"	Habitats (Living things and their habitats) learn the term habitat and micro-habitat give examples of different habitats describe a woodland habitat describe the kind of microhabitats found in woodland know some of the common woodland animals and plants describe a seashore habitat describe the kind of microhabitats found in the seashore know some of the common seashore animals and plants know that living things should be treated with respect identify some animals and plants living in and around ponds know that plants do not need to eat because they make their own food know that some animals are carnivores, some are herbivores and some are omnivores understand the term food chain and cite some simple examples of food chains	Forces and Magnets (Forces and magnets) Identify forces as pushes, pulls or twists Know that a force can change the speed, direction or shape of an object Know that force is measured using a force meter and that the units of measurement are Newtons. Recognise that many forces require a contact between them for the force to take effect Know that friction is a force between two surfaces that slows objects down Describe some factors that affect friction Describe what a magnet is Know that magnets can exert forces at a distance Know that magnets have two ends called poles that attract or repel each other depending on how they are arranged Describe some everyday uses for magnets Describe some uses of magnets Summarise their learning about magnetism	Digestion (Animals including humans) Know that all food chains start with plants that create their own food using energy from the Sun Know that some animals are predators and some are prey, Understand food chains and use them to describe feeding relationships Identify animals that are predators, those that are prey and those that are both	Forces Know that the Earth and objects are pulled towards each other; this gravitational attraction causes objects to have weight Know that weight is a force and is measured in Newtons and that mass is the amount of matter and is measured in kilograms Know that air resistance slows moving objects Know that when an object falls, air resistance acts in the opposite direction to the weight Know that when an object is submerged in water, the water provides an upward force (upthrust) on it Know that things will float if the upthrust is greater than the weight Know that water resistance acts to slow down objects that are moving through the water Compare air and water resistance Know that the force between two moving surfaces in contact is called friction Know that friction can be useful or a problem and provide examples of both Describe how simple machines such as gears, levers and pulleys are used to transfer forces or to change speed or direction	Classification (living things and their habitats) Name the five kingdoms of living things Describe the characteristics of different vertebrate and invertebrate groups Understand that there is a great variety of living things Understand the term biodiversity Know about some of the threats to biodiversity, including the threats posed by humans Know that micro-organisms living things that are often too small to be seen with the naked eye Know that whilst some micro-organisms bring about disease many others are useful State some of the uses for yeast

Skills	Yr 1 Plants (Plants) sort and group a variety of objects into seeds and non- seeds monitor the growth of seeds and bulbs planted last week/ 2 weeks ago/ 3 weeks ago/ 4 weeks ago/ 5 weeks ago compare a wild area and a garden use observations notes and charts to describe the growth of seeds/bulb	Yr 2 Living things (Living things and their habitats) classify items as living things, things that were alive and things that have never been alive	Yr 3 Forces and Magnets (Forces and magnets) Provide examples of useful and non-useful friction in everyday life Classify materials as magnetic or non-magnetic Determine a general rule for predicting which materials are magnetic Investigate the relationship between the size of a magnet and its strength	Y4 Digestion (Animals including humans) Link the use of the terms predator and prey to the terms herbivore, omnivore and carnivore Construct a food web to show more complex feeding relationships	Y5 Forces Be able to use a force meter carefully, interpreting the scale correctly Investigate a range of simple machines: pulleys, gears, ramps, wheel and axle and levers Build a catapult and describe how it works, identifying any simple machines in its construction Evaluate the catapult they have built	Y6 <u>Classification (living things</u> and their habitats) Create a key to identify microorganism classes Observe the growth of yeast and the waste products of yeast Investigate the things yeast needs to grow	
Key Vocabulary	seed, bulb, grow, plant, compost, water, sprout	alive, animal, earthworm, category, move, dead, plant, food, sort, senses, living, non- living, classify, natural, human, wormery, soil, chalk, sand, leaves	force, Newton, twist, force meter, direction, compress, pull, speed, stretch, push, distance, shape	tooth, teeth, decay, carnivore, herbivore, omnivore, incisor, canine, pre-molar, gum, saliva, tongue, taste, sweet, salt, sour, bitter, taste buds	force, gravity, speed, acceleration, fall, attract, planet, Moon, Newtons, force meter, kilograms, weightless	classification, kingdom, order, plants, flowering plants, conifers, ferns, mosses, algae, animals, vertebrates, invertebrates, mammals, birds, fish, reptiles, amphibians, arthropods, insects, characteristic, species	
Assessment	KWL Self-assessment						
Resources							

	Key Stage	Key Sta	ge One		Key Sta	age Two	
	Year Group	1	2	3	4	5	6
	Topic	Toy Story	Castles	South America / Bean to Bar	Tudors	Space	British Empire
	Science focus	Everyday materials continued	Animals and their needs	Animals and skeletons continued	<u>Electricity</u>	Earth and space	No science in Summer 1
Summer 1	Knowledge & Understanding Biology Chemistry Physics	Everyday materials Begin to name common materials and describe their properties. Distinguish between an object and the material it is made from. know that materials can be used in a variety of ways know that materials can be sorted in a variety of ways according to their properties know that materials are chosen for specific purposes on the basis of their properties know that there is a range of materials with different characteristics develop the vocabulary needed to describe material properties know that objects made from elastic or malleable materials can be altered by squashing, bending, twisting and stretching know that transparent objects let the light through but opaque objects do not	Animals and their needs (animals including humans) know that animals grow in different ways know that mammals have live young but other animals do not describe how humans grow describe the basic needs of animals – food, air, warmth state some ways in which humans stay healthy know that eating a good diet is helps us stay healthy know that foods can be sorted into groups state the basic foods that are needed for a healthy diet and those foods that should be eaten in moderation Know how humans stay healthy – hygiene, exercise and rest observe the difference in growth of the animals since the previous week	Animals and skeletons (animals including humans) Know that animals need to eat because they do not make their own food as plants do. Understand and use the terms variable and value Know that the digested food is used for energy, to help us grow and to repair the body Know that different kinds of food are used for different things: protein for growth and repair, fat and carbohydrate for energy Come to a conclusion about the diet of an owl as a result of their findings Know that some animals have skeletons inside their bodies and others, such as insects and crustaceans, have a skeleton outside their bodies Note some differences in movement between animals with a skeleton and animals without a skeleton and animals without a skeleton shelten body associated with the muscular and skeletal system Know that different parts of the muscular-skeletal system have different functions Know that muscles are attached to the skeleton and help us move	Electricity Identify that a number of common appliances and pieces of equipment use electricity Know that some appliances use mains electricity and some use batteries Know the dangers of mains electricity and how to avoid them Understand that a flow of electricity (electric current) is only possible when there is a complete loop of conducting material Know that some materials let electricity flow through them and others do not Recognise that all metals are conductors and most non- metals are insulators Know that air is an insulator Describe the purpose of different components in a circuit components, including switches and buzzers Describe the relationship between the numbers of batteries, the numbers of bulbs Know that too much current will cause the bulb to blow	Earth and Space Describe the relative motion of the Earth, the Moon and the Sun State the difference between a sun, a planet and a moon Know that the Sun, planets and moons in the solar system are approximately spherical in shape Explain how ideas about the solar system have changes through the centuries Identify the eight planets within the solar system and their positions relative to the Sun Compare planets in terms of atmosphere, time to orbit the Earth, period of rotation, number of moons etc Explain night and day in terms of the rotation of the Earth Describe and explain in simple terms how the appearance of the Moon in the sky changes over the course of 28 days	

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Skills	Yr 1 Everyday materials [Everday Materials] make and record observations about materials group materials together and make a record of groupings explore materials using appropriate senses, making observations and simple comparisons carry out simple tests use their observations and ideas to suggest answers to questions gather and record data to help in answering questions. present the data in a suitable manner provide a simple conclusion that answers the question	Yr 2 Animals and their needs (animals including humans) take a first look at animals to be observed (tadpoles, chicks, butterfly etc.) observe the difference in growth of the animals since the previous week observe the difference in growth of the animals since the previous week design a healthy diet observe the difference in growth of the animals since the previous week Collate observations of animals into a single document to describe the growth of the animals in the study	Yr 3 Animals and skeletons [animals including humans] Using research methods, identify the diets of a number of animals including birds Classify animals as omnivores, herbivores and carnivores Develop a classification system for foods Investigate an owl pellet, making notes and observations Classify animals as vertebrates or invertebrates	Y4 Electricity Associate the use of batteries with the need for less power Construct a simple circuit involving batteries Relate some incidents in the history of electricity (using secondary sources) Investigate the effect of changing components in a series circuit Make systematic and careful observations Using their knowledge of electricity, construct and test a burglar alarm for a house	Y5 Earth and Space Investigate differences in the time of day and the length of day in different parts of the World Investigate factors that affect the formation of craters, taking measurements with increasing accuracy and precision, taking repeat readings when appropriate	
Key Vocabulary	material, appearance, texture, property, wood, stone, fabric, plastic, clay, rubber, metal, glass, paper, cardboard, rough, smooth, hard, soft, shiny, dull	mammals, eggs, live, young, birth, nest, parents, observation, description, notes, milk, hatch	diet, omnivore, invertebrate, carnivore, herbivore, mammal, plant, animal, bird, food, fish, reptile	mains electricity, battery, electricity, appliance, electric shock, electrocution, wire, plug, socket, adapter, current, power, power station, electricity substation, RCD/circuit breaker, pylon	Earth, Sun, planets, orbit, sphere, horizon, Moon, astronomer, astronomy, distance, heavenly body	
Assessment	KWL Self-assessment					
Resources						

	Key Stage	Key Stage One		Key Stage Two			
Year Group		1	2	3	4	5	6
	Торіс	What a Wonderful World (Gambia)	Madagascar	Ancient Egypt	Urban Life and Diversity	Endangered Earth	Mayans
	Science Focus	The Weather	<u>Plants</u>	<u>Plants</u>	Sound	Decay and recycling	<u>Light</u>
Summer 2	Knowledge & Understanding Biology Chemistry Physics	The weather (Seasonal Changes) Describe the changes in the weather with the seasons Provide a fictional weather forecast for a month of the year Learn how to stay safe in the sun. Learn about the effects of the Sun in the UK and around the world Know that rain comes from clouds Know that rot all clouds produce rain and that there are different kinds of clouds Look at different types of storm around the World – hurricanes, tornados, monsoons Know that some storms in the UK are accompanied by thunder and lightning Know that snow comes from clouds Know that some parts of the world and some seasons are more likely to have snow	Plants (Plants) give a basic explanation of what a seed is know that plants have stem, leaves, roots (recap of Year 1) know that plants lose water from their leaves know that bulbs and seeds differ in structure and formation know that plants provide humans and other animals with food identify the parts of the plant that are consumed for a range of vegetables describe how plants change through the seasons know that some plants are perennial and some are annual or biennial describe the difference between perennial plants and annual plants know, through investigation, that seeds and bulbs need water and warmth but not light to grow know that growing plants need light to stay healthy	Plants (plants) use their knowledge of plants to plan and set up an investigation into plant growth set up a simple experiment take careful measurements and make systematic observations describe the structure of a flowering plant explain that water moves from the roots through branches and stems to leaves and flowers describe some methods of seed dispersal explain why seeds need to be dispersed describe the life cycle of a flowering plant describe the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal generate oral and written reports on the findings of their investigation explain that plants do not need to eat food because they make their own describe why plants need water, light, space and nutrients for growth	Sound Associate sound with vibrating objects Describe a range of ways of getting things to vibrate Describe how the shape of our ears helps us hear Describe the basic structure of the ear Establish that sounds get fainter as the distance increases Know that sound travels through solids and liquids as well as air Associate loudness with stronger vibrations understand what pitch is describe some ways of changing the pitch of a vibrating object	Decay and Recycling Know that some things decay and others do not Know that some living things are decomposers Know that some materials can be recycled Describe the process of decay and its usefulness Know that some materials can be recycled into useful new materials Describe some of the factors that will accelerate or slow down decay Consider some of the ethical and financial aspects of recycling and waste	Light describe and give examples of light sources state some basic properties of light know that light travels in straight lines Know that many objects reflect light 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 Know the basic structure of the eye

	Yr 1 The weather (Seasonal	Yr 2 Plants (Plants)	Yr 3 Plants (plants)	Y4 <u>Sound</u>	Y5 Decay and Recycling	Y6 <u>Light</u>
	Changes)	d istinguish between seeds and	recording findings using simple	Create sounds in a variety of	Plan a scientific enquiry with	investigate changes in shadows
	Make and use simple	other similar materials	scientific language and	ways	help	depending on the relative
	instruments for observing the	predict whether plants need	measurements	Use their ears to listen to and	Observe closely, recording	positions of the light source
	weather, setting up a simple	water, warmth and/or light to	observe the movement of food	identify sounds	findings	and object and the use of
	weather station	grow	dye through a flower	Investigate the effectiveness of	Identify materials that will	filters
	Take measurements from the	make appropriate	use results to draw simple	different materials to muffle	decay	plan an investigation,
	weather station and observe	measurements and	conclusions, suggest	sound	Plan a scientific enquiry to find	recognising and controlling
	the weather outside	observations of plant growth	improvements and raise	Use their knowledge of how	decay times of common	variables
	Take measurements from the	make measurements and	further questions	sound is made to make and	materials, recognising and	take measurements with
	weather station and observe	record observations of the	use straightforward scientific	play a musical instrument	controlling variables	accuracy and precision,
	the weather outside	growth of seeds and bulbs	evidence to support their		Record findings and estimate	repeating readings when
	Make a rainbow	to draw conclusions from a	findings		degree of trust in results	appropriate
Skills	Take measurements from the	range of experiments about			From investigation, estimate	record results using scientific
	weather station and observe	what plants need for growth			the time needed for some	diagrams, tables, and graphs
	the weather outside				common materials from litter	Establish the best arrangement
	Take measurements from the weather station and observe				to decay Plan a scientific, recognising	of light source and position of
	the weather outside					object in a shadow puppet theatre
	the weather outside				dependent, independent and control variables	Devise and perform a shadow
					Select appropriate methods for	puppet show using their
					presenting data	knowledge of shadows to add
					Present reasoned, well	dramatic interest
					evidenced conclusions	Represent the direction of a
					CVIdenced conclusions	beam or ray of light travelling
						from a light source by a straight
						line with an arrow
						Use the properties of reflection
						to make periscopes
Key Vocabulary	Weather, season, spring,	Plant, root, seed, leaf, leaves,	Seed, seedling, conditions,	Sound, hear, detect, hearing,	Decay, rot, compost, nutrients,	Light, ray, beam, light source,
ney vocabalary	summer, autumn, winter,	bud, flower, fruit, vegetable,	observations, thermometer,	sense, ear, noise, loud, soft,	decomposers, bacteria, funghi,	data logger, light sensor, Lux,
	typical, climate, measure,	sprout, treelight, shrivel, wilt,	water, compost, variable,	quiet, vibration, sound wave,	waste, scavengers, fertiliser,	opaque, transparent,
	predict, weather forecast,	soil, bean, nut compost,	recording, ruler, soil, light,	travel, air, volume, squashed,	break down, litter, recycle,	translucent, object, shadow,
	weather station, weather	excrete water, germinate,	prediction, results table, filter,	stretched, amplify,	reuse	reflection, mirror, eye
	satellite, sun, temperature,	edible, store, stem, taproot,	data logger, light sensor,	compression, rarefaction		
	wind, rain, rainfall, clouds,	humans, warmth, temperature,	measurement			
	precipitation, fog, frost, mist,	die, annual, biennial, perennial,				
	snow, thunder, symbol	evergreen, decudious, healthy,				
		grow, propagator, evaluation				
Assessment				WL		
			Self-ass	essment		
Resources						