

UKS2 Science Curriculum and Knowledge Map



and inheritance

– Understand evolution and inheritance)

the Earth millions of years ago.

fox.

Y5 B- Describe how fossils are formed (when animals and plants

water then replace the skeleton leaving an imprint in the rock. Y5/6 B – Describe how living things have changed over time and

that fossils provide information about living things that inhabited

Y5/6 A – Explain why and how fossils provide information about

Y6 A – Present information about Mary Anning and her findings.

Theme – Understand evolu

draw conclusions from this.

Y5 B- Identify different ada<mark>ptations</mark> Y5/6 B – Describe how ani<mark>mals and plants are</mark>

ways and that adaptation may lead to evolution

Y5/6 A – Explain how animals are more likely or less likely to survive in particular environments

e.g. exploring how giraffes' necks get longer or

the development of insulating fur on the arctic

Y6 A – Compare and contrast how different

animals have adapted to their environment.

Y6 D – Research the work of Charles Darwin and

weeks)

circuit

Electricity (Physics 6

trical circuits)

Y5 B – Describe and

associate the brightness of a

buzzer with the number and

voltage of cells used in the

Y5/6 <mark>B – Label recognised</mark>

symbols when representing

diagra<mark>m</mark> Y5/6 A – Compare and give

reasons for variations in

how components function,

a simple circuit in a

lamp or the volume of a

adapted to suit their enviro<mark>nment in different</mark>

Y6 D – Make generalisations based on Mary Anning's findings. <u>Adaptations (Biology 4 w<mark>eeks)</mark></u>

die, buried by sediment which is then compacted, minerals in

KS3 (Year 7)

Introduction to science particle model and separating mixtures Forces and gravity and electromagnets Organisms Ecosystems Acids & alkalis Metals and nonmetals Energy and Sound Light STEM project

<u> The circulatory system (Biology 3 weeks)</u> 'heme – Unde and animals

English Martyrs'

CATHOLIC VOLUNTARY ACADEMY

humans)

Y5 B – Name the main parts of the human circulatory system,

and describe the functions of the heart, blood vessels and blood

Y5/6 B - Describe the ways in which nutrients and water are transported within

- an<mark>imals, including human.</mark>
- Y5/6 A Give an overview of the circulatory system and what it is made up

Y6 A – Identify similarities and differences be<mark>tween the main parts</mark> of the circulatory

sy<mark>stem.</mark> Y6 <mark>D – Relate the circul</mark>atory system

(b<mark>lood) to viruses and b</mark>acteria and microorganisms (Advent to

Sustainability Focus - Light pollution (1

<u>week)</u> Y5/6 B – Describe what light pollution is Y5/6 A – Explain how we can reduce light llution.

рđ . Y6 A – Explain why reducing light pollution has positive effects for living things. Y6 D – Propose small changes within our

school setting to reduce the amount of light pollution.

<u> Sustainability Focus - Plastic</u> pollution (1 weeks)

Y5/6 B – Describe what plastic pollu<mark>tion is</mark>. . Y5/6 A – Explain the impact of plastic pollution on the planet. Y6 A – Present information abou plastic pollution around school. Y6 D – Persuade the school com<mark>munity to be more awa</mark>re plastic pollution.

Reproduction B (Biology 2 weeks) (Theme – Living things and their r Y5 B – Describe the life process of reproduction in some plants and animals Y5/6 B- describe the difference between asexual and sexual reproduction in plants. Y 5/6 A Compare and discuss results Y 6 A- Present evidence to answer the initial enquiry question. Y6 A- Propose further investigation questions

<u>Reve<mark>rsible and Irreversible</mark> Changes (Chemistry 4</u>

weeks) (The<mark>me - Investigate mater</mark>ial)

Describe how mixtures might be separated, Y5 B

including through filtering, sieving and evaporating Y5/6 B – Label how dissolving, mixing and changes of state are reversible changes

Y5/6 A – Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Y6 A – Compare and contrast materials that have reversible and irreversible changes Y6 D – Investigate and draw conclusions on materials

that can and cannot change state.

<u> Space (Physics 6 weeks)</u>

(Theme Understand t Y5/6 B - Describe the movement of the Earth and other planets relative to the sun in the solar system Y5/6 B – Describe the movement of the moon relative to the Earth Y5/6 B – Describe the sun, Earth and 15/6 B - Describe the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across th<mark>e sky</mark>.

Y5/6 A – Give an overview of how the Solar System has changed over time by exploring the different views of scientists and mathematicians. Y6 A – Compare and contrast views of

scientists and mathematicians with current ideas about the Solar System. Y6 D – Research the ideas of Aristotle, Ptolemy, Copernicus, Galileo and

Newton, to explore how ideas and

theories have evolved over time and are still changing.

Diet, drugs and lifestyle (Biology 3 weeks) Understand animals and humans) Y5- describe how the circulatory system supports (Theme us during exercise.

Y5/6 B – Describe the impact of diet, exercise, drugs and lifestyle on the way

- heir bodies function
- Y5/6 A Explain the concept of a balanced diet, inc the 5 food groups.
- he effects they have on the body '6 D – Investigate multiple sources of evider
- to show the impact food/exercise/drugs has on the body.

<u>Light (Physics 5 weeks)</u>

Investigate light and seeing)

Label a diagram to show how Y5/6 B – Describe that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye

Y5/6 A — Explain' Refraction' Y6 A — Present information about light traveling in straight lines to explain why shadows have the same

pe as the objects that cast them Y6 D - summarise the relationship between angle of light sources and length of shadow

Year В in relation to reproduction in plants. Reproduction A (Biology 3 weeks)

(Theme –Living things and their Ha Y5 B define sexual reproduction and isexual reproduction (5/6 B – Describe the life process of reproduction in some plants and animals Y5/6 A – Compare and contrast the reproductive parts of a plant Y6 A – explain the process of pollination

Y6 D – Investigate asex plants through 'cloning' oduction in

<u> Sustainability Focus – Global Warming (2</u>

Describe what global warming is Y5/6- list the causes of Global warming. Y5/6 A – Explain the impact of global warming on living things Y6 A – Identify patterns of global warming in the last ten years. Y6 D – Recommend solutions to reduce global warming on a small scale.

Forces (Physics 6 weeks)

Y5 B – Describe how unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the alling object (5/6 B – Describe the effects of air resistance, water resistance and friction, that act between moving surfaces Y5/6 B — Describe how some mechanisms including levers. ulleys and gears allow a smaller force to have a greater effect (5/6 A – Explain how friction is useful in every day life exampl

Y6 A – Identify similarities and differences between air

resistance. water resistance and friction.

Y6 D – Draw conclusions from investigations based on forces

WR Science Themed projects (2 Fossils (Biology 3 weeks)

weeks) Year A- Melting points

Year B- Thermal conductivity

Y5 B- identify an enquiry question Y5/6 B- <mark>Research and predict an</mark> outcome. Y5/6 A- Compare and contrast

- variables to make a decision on what to change.
- Y6 A- summarise findings Y6 D- Propose changes to be made to improve the investigation
- Variation (Biology 2 weeks)

ition and inheritance) Y5 B- Describe the term 'variation'

- Y5/6 B Describe that living things produce offspring of the same kind, but normally offspring ary and are not identical to their parents Y5/6 A > Explain how people inherit characteristics from their parents.
- 16 A Compare and contrast different drugs and Y6 A Explain how characteristics are passed from
 - parents to offspring. Y6 D – Draw conclusions about what would

happen if, for example, labradors are crossed with poodles.

<u> Sustainability Focus – Renewable energy (1 weeks)</u> Y5/6 B – Describe what renewable energy is

the past.

Y5/6 A - Explain how to use renewable energy Y6 A - Compare and contrast the different ways that renewable energy can be used to limit the impact of global warming. Y6 D – Recommend ways in which we could incorporate

renewable energy strategies into our local community, providing reasons for this.

Living things and their habitats (Biology 6 weeks) Living things and their habi

Y5 B- Describe the term 'variation'

Y5/6 B - Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants ind animals

15/6 A – Explain reasons for classifying plants and animals based on specific characteristics and facts Y6 A – Identify the similarities and differences between organisms, microorganisms, bacteria, viruses

and fungi. Y6 D – Present and compare findings on the work of Carl Linnaeus.

Life cycles (Biology 3 weeks)

Y5/6 B - Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird

Y5/6 A – Compare and contrast the life cycle of a mammal and human.

Y6 A – Identify the similarities and differences between the life cycles.

Y6 D – Make generalisations about life cycles based on the similarities and differences.

Properties of materials (Chemistry 4 weeks) (Theme - Investigate materials)

Y5/6 B – Describe the comparison of grouped together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets

Y5/6 B – Describe how some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Y5/6 A - Explain, based on evidence from

Year

comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Y6 A – Compare and contrast groups of materials based on thei

properties.

Y6 D – Make generalisations about the uses and suitability of materials for different purposes, using evidence from investigations.

LKS2

including the brightness of bulbs, the loudness of buzzers and the on/off position of switches Y6 A – Explain complete and incomplete circuits and variations between circuits Y6 D – Investigate and

draw conclusions with a variation of circuits and voltages.

Animals including humans (Biology 5 weeks)

. Inimals and humans Y5/6 B – Describe the <mark>changes as humans devel</mark>op to old age.

Y5/6 A – Provide a ch<mark>ronology of life process</mark>es Y6 <mark>A – Identify patterns</mark> between gestation periods of

different animals. Y6 D - Draw conclusions as

the whether there is a relationship between the gestation period of an animal and the lifespan.



English Martyrs'LKS2 Science Curriculum and Knowledge Map



Electricity (Physics - 4 week) (Theme - Understand electrical circuits)	UKS2	The digestive sigstem. (Biology - 5 weeks) (Theme - Understand animals and humans) Y3/4 B - Describe the simple functions of the basic parts of the digestive system in humans Y3/4 B - Name the different types of teeth in humans and their simple functions Y3/4 A - Explain the different functions of the human digestive system. Y4 A - Give an overview of the digestive system. Inc teeth. Y4 D - Investigate the digestive system using multiple sources of evidence.	Ford chains (Biology - 2 weeks (Theme - Understand animals of humans) Y3/4 B - Create and interpret a ford chains, identifying produces predators and prey Y3/4 A - Compare and contrust chains Y4 A - Summarise a range of di ford chains, explaining what w happen ij Y4 D - Dr you agree with the g chain? Explain why.	and Sustainability Focus- Deforestation (2 wreks) Y3/4 B - Describe what deforestation is food Y3/4 A - Explain the impacts of deforestation on UK and the rest of the world. Y4 A - What evidence is then that deforestation is
Y3/4 B – Name and identify living (Theme – In things in the local area (beginning of data collection). vibrating	ntifying and, switches and a simple series. a complete loop a circuit and a simple series. Y3/4 B – Describe what energy is Y3/4 A – Explain how to reduce our energy Y3/4 A – Explain how to reduce our energy across the school. Y4 D – Propase ways to reduce energy across the school and at home/in our local community. Sites components. Sites - 5 weeks) vestigate sound and hearing) scribe how sounds are made, associating some of them w	 Y3/4 A - Compare the data collected. usage V4 A - Compare and contrast the data collected. Y4 D - Make generalisations based on the data collections. States of Matter (Chemister (Theme - Investigate mater Y3/4 B - Name and group gases. Y3/4 B - Describe how som 	 Y3 B - Describe Upperts biodiversity found in the Y3/4 B - Create a classify our local environment Y3/4 A - Present inform why animals/plants live Y4 A - Explain the ways habitats to increase biod Y4 A - Explain the ways habitats to increase biod Y4 A - Explain the school Y9 - Zveeks inals materials together, according to the 	reeks) and their habitats) It types of local Habitat and the m- urban, Rural, woodland, aquatic etc. cation key for plants and animals in ation using a classification key as to in a certain habitat in which humans can impact on isorsity. ures needed to create an effective nature I grounds whether they are solids, liquids or hey are heated or cooled, and
changes influence plant and animal life. Y3/4 A - Compare the data collected. Y4/4 A - Compare and contrast the data collected. Y4/4 D - Make generalisations based on the data collections. Y4/4 D - Nake generalisations based on Y4/4 D - Sumu Magnete (Physics - 2 weeks)		the object that y3/4 B – Label the part pla associate the rate of evapor y3/4 A – Identify the similar y3/4 A – Identify the similar y3/4 A – Present informati gas and how to categorise V4 A – Explain the impact Y4 D – Draw conclusions for Sounds. Group.and.classify living of (Theme – Living Things on	arities and differences between so on about materials that challeng them. that dimate change is having on room investigations about solids, l things (Biology - 4 weeks)	ation in the water cycle and stids, liquids and gases. their definition of solid, liquid or the water cycle, iquids and gases. Data collection A (Biology _ 1 week) Y3/4 B - Name and identify living things in the local area (beginning of data
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	B -describe the ional effects on B - measure and length accurately A - Compare data gs - Present findings on how biodiversity in our forest - Summarise your gs - Present findings - Can increase biodiversity in our local area - Summarise your - Storot area - Present findings - Present findings - Present findings - Present	A variety of ways. Y3/4 B - Create dassificati identifying and name a var local and wider environmer	on keys to help group, iety of living things in their nt. tion about different groups res. and differences between	collection). Y3/4 A - Explain how seasonal changes influence plant and animal life. Y3/4 A - Compare the data collected. Y4 A - Compare and contrast the data collected. Y4 D - Make generalisations based on the data collections.
Forces (Physics - 2 weeks) (Theme - Understand movement, forces and magnets) Y3/4 B - Describe how things move on different surfaces Y3/4 B - Notice that some forces need contact between 2 objects, hut magnetic forces can act at a distance Y3/4 A - explain the link between types of surface and friction. Y4 A - Investigate friction using a fair test Y4 D - Justify investigation methods.	Plants A (Biology - 7 weeks) (Theme - Understand plants) 13/4 B - Identify and describe the functions of different p of flowering plants: roots, stem/trunk, leaves and flowers 13/4 B - describe the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to growy) and how they vary from plant to plant 13/4 B - describe the way in which water is transported within plants 13/4 A - Explore the part that flowers play in the life cyc of flowering plants, including pollination, seed formation and seed dispersal. 13/4 A - Explain the process of Germination 14/4 A - Explain the process of germination 14/4 A - Explain the life cycle of plants.	Y3/4 B - Describe that they need light Y3/4 B - Name how light is reflected] or Y3/4 B - Describe that light from the: Y3/4 B - Describe that shadows are fo object. Y3/4 B - Describe patterns in the way Y3/4 A - Explain the difference betwe	t in order to see things and that d from surfaces sun can be dangerous and that th ormed when the light from a ligh y that the size of shadows change en different sources of light to the two categories – natural an	here are ways to protect their eyes, t source is blocked by an opaque e
Sustainability Focus - Food Waste (1 week) V3/4 B - Name food waste V3/4 B - Name ways we can reduce our food waste V3/4 A - Explain ways we can reduce food waste V4 A - Classify food waste into correct waste category e.g. recycling V4 D - Recommend ways we can reduce food waste in school	 Rocks (Chemistry - 4 weeks) Theme - Investigate materials. Y3/4 B - Label different kinds of rocks on the basis of appearance and simple physical properties. Y3/4 A - Identify similarities and differences between. Y4 A - Organise information about rocks based on the properties. Y4 D - Investigate the different purposes for rocks e.g. buildings, gravestones, walls, etc 	rocks Y3/4 A – Classify rocks based on w eir have grains, crystals or fossils in th Y4 A – Compare different kinds of li	ved are y3/4 B - Descri organic matter hether they em. ving things y4 A - Compar ary rock. Y4 D - Make ge	tigate materials) the how soils are made from rocks and in the importance of soil to many living e and contrast the different types of soil enerulisations based on what soil is best
$\begin{array}{c} \textbf{Y3/4 B} \stackrel{-}{=} \textbf{Name the right types}\\ and amount of nutrition for animals and humans, and that they cannot make their own food; they get nutrition from what they eat, Y3/4 A - Explain the different types of nutrition for animals and humans. Y4 A - Organise information about food groups Y4 D - Recommend a healthy Y4 D - Recommend to healthy Y4 D - Recom$		eeletons and muscles tion on and muscles of eletons for animals as of animals with and ions on what would	K	S1



English Martyrs' KS1 Science Curriculum and Knowledge Map



LKS2		Sustainability Focus – Wildlife (4 week) B – Describe what wildlife do for us B – List what we can do for our wildlife A – Compare the different wildlife around school D – Recommend and make new places for living e.g. bug hotels		(Biology (Theme – and hum B – List ti humans I A – Give animals, offspring D – Inves needs for grow.	up (Butterfly diary) - 1 week) Understand animals ans) he basic needs that need to survive an overview how including humans, have that grow into adults. tigate how the basic survival help humans to	Plants (bulbs and seeds findings) (Biology - 1 week) (Theme - understand plants) B - Describe how plants need wate light and a suitable temperature to grow and stay healthy. A - Explain how seeds and bulbs of into mature plants. D - Recommend suitable environme for growing plants. Buy hutterflies	
	ants (light and dark) Findin <mark>iology – 1 week)</mark>		<u>- s week</u>				
(Theme - Investigate living things) (T B - Describe the differences between things B hat are living, dead and things that have W never been alive. U B - Describe that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals A	heme – understand plants) – Describe how plants need ater, light and a suitable mperature to grow and stay saithy. – Give an overview how plan ow in different environments. – Recommend suitable wironments for growing plant	uts.	(Theme – understand pl \mathbf{B} – Describe how plants: water, light and a suital temperature to grow and healthy. \mathbf{A} – Give an overview ho and bulbs grow into ma \mathbf{D} – Investigate the imp different growing conditi plants.	need ple l stay w seeds ture plants. acts of	 A – Give an overview ho humans, have offspring D – Investigate how the 	nimals and humans) that humans need to survive w animals, including	
their habitats, including microhabitats . B - Describe how animals obtain their food				Directio	Matorials (Chomi	star (umaha)	
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	tts (light and dark) (Biology me – understand plants) Describe how plants need wa itable temperature to grow a thy. Give an overview how seeds a v into mature plants. Investigate the impacts of di ving conditions on plants	ter, light and nd stay and bulbs	Sustainability Focus – (1 week) B - Describe how plast and harmful $B - List ways we can r plastic waste in school A - Compare helpful ar plastics D - Research ways of r in school$	ic is helpful educe our ud harmful	materials for differ B – Describe how some materials ca bending, twisting A – Compare the s materials for differ	ate materials) uitability of a variety of everyday erit uses: the shapes of solid objects made fro n be changed but squashing, and stretching. uitability of a variety of everyday	
Sustainability Focus – Growing and cooking 3 weeks To use home grown vegetables from earlier planting A, B and C topics. B – Describe where food comes from B – List what you have planned and grown this year. A – Explain where different foods come from	Seasonal Changes (Phys week) (Theme - Understand the movement in space) B - Describe changes in Sp including the weather and length. B - Describe the collection data recorded about autu A - Summarise the main in the four seasons.	e earths pring d day n ad mn.	Year 2	4 weeks) (Theme – Und humans) B - List the ba need to surviv B – Describe h animals requir A – Identify th differences bet different types D – Summaris	erstand animals and sic needs that animals e air, food, water, shelter now different types of e different habitats te similarities and ween the needs of	Humans (Biology – 2 weeks) (Theme – Understand animals and humans) B – Describe the importance for humans of exercise, eating the right amounts of different types of good and hygiene. A – Classily the different types of foods (meat, veg, fruit, sugar). D – Recommend a healthy lifestyle tor for a Year 2 child.	
- List a variety of common (Theme - Unde	<u>Plants (Biology – 5 weeks)</u> (Theme – Understand plants) B- List a variety of common wild and		Planting B (Biology - 1 week) Theme - Understand plants)		<u>hanges (Physics – 1</u> nderstand the earths	Sustainability Focus Caring for the planet (2 weeks) B - Describe why it is	
 Give an overview of the garden plants Sic structure of a variety of mmon flowering plants, cluding trees. B - Label the basic structure of a variety of common flowering plants. A - Identify similarities and differences between flowering plants 		garden plants. A – Give an overview of the the basic		movement in space) B - Describe changes in Spring, including the weather and day length. A - Summarise the collection of data recorded about Spring			
Everyday materials (Chemistry – 6 weeks) (Theme – Investigate materials) B - Describe the difference between an object and the material from which it is made B - Name a variety of everyday materials and their simple physical properties A - Compare and group together everyday materials based on their simple physical properties.	Seasonal Changes (Phy (Theme – Understand th in space) B - Describe changes in weather and day length A - Summarise the colle recorded about Winter	e Earth's mover Winter, includir	(Theme - U B - Name o their class, fish. B - Name o are carnivor	variety of a bird, amphi variety of a res, herbivor re the structu	veeks) inimals and humans) common animals and bian, reptile, mammal, common animals that es and omnivores ure of a variety of	Planting A (Biology – 1 week) (Theme – Understand plants) B - List a variety of common wild and garden plants. A – Give an overview of the the basic structure of a variety of common flowering plants, including trees. (leaves, flowers, blossom, petals, fruit, roots, bulb, seed, trunk, branches, stem)	

Year 1

onal Changes (Physics – 1 <u>week)</u>

B - Describe changes in Autumn, including the weather and day length. Α Summarise the collection ad lata recorded about Autumn.

The Human Body (Biology - 5 weeks) (Theme - Understand animals and humans) B - Name the basic parts of the human body

 ${\bf B}$ - List the 5 main senses ${\bf A}$ - Organise information about which part of the body is associated with each sense

<u>Reception</u>

• Explore the natural world around them; making observations and drawing pictures of animals and plants

• Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class

• Understand some important processes and changes in the natural world around them; including seasons and changing states of matter.