	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	Seasonal Change 1	Classification of Animals	Everyday Materials	Parts of human body and the 5 senses.	Plants	Season Change 2
Year 4	Living things and their habitats	Humans – Healthy living	Materials and their everyday uses	→	Plants 1 (plant bulbs in Autumn)	Plants 2
Year 5	Skeletons and muscles	Light and Dark	Rocks and Soils	Plants and Flowers	Forces and Magnets	Forces and Magnets
Year 6	Electricity	Digestive system and teeth	States of matter	Sound	Classification of Animals	→
Year 7	Reversible and irreversible changes	Forces	Human life cycles	Life cycles of plants and animals	Earth and Space	→
Year 8	Evolution and inheritance	Heart and the circulatory system	Electricity	Light	Classification of all living things	→

Long-term overview for Science

YEAR 3

Physics

- The only physics unit in Key Stage 1
- Children will have done quite a lot of seasons in EYFS (Understanding the world)

How do seasons change?

Why do we have seasons and what are the months associated with each?

Why do so many people love the spring?

What do we know about the summer?

Why are there so many leaves on the floor in autumn?

Science Knowledge

- Know the names of the seasons
- Know about the weather associated with each season
- Know the months within each season

Working Scientifically

Observation over time

- Changes in temperature throughout the year
- Changes in rainfall throughout the year

Pattern seeking

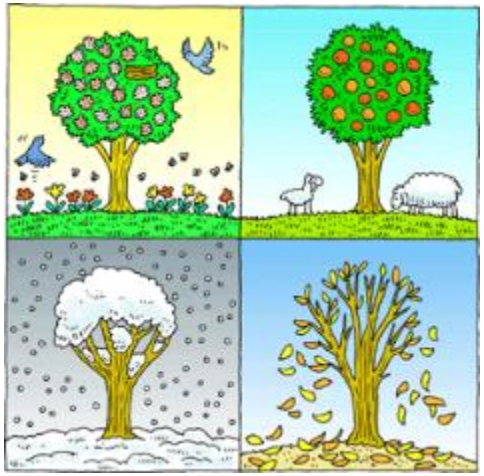
- Length of daylight throughout the year
- Leaf colour and fall and different stages

Science Year 3 Knowledge Organiser

Main Learning: Season Change

Key knowledge
Know the main differences between the four seasons
Know the names of the four seasons
Know the type of weather normally associated with the four seasons
Know that we have longest periods of light in summer and shortest periods of light in winter
Know that different parts of the world have their summer and winter at different times to us
Know that the temperature varies during the different seasons

Vocabulary	
Autumn	The time of year between September and November. Many leaves fall off the trees
Winter	The coldest season in the UK. We often have snow in this season. It occurs between December and February
Spring	The time of year between March and May. There is usually lots of signs of new growth in Spring
Summer	The hottest season in the UK. It happens between June and August. The longest day is June 21st
temperature	It is measurement of hot or cold that can be calculated using a thermometer
weather s 	These are signs used to help us understand more about our daily weather



Prior Knowledge–

Long-term overview for Science

YEAR 3

Biology

- The first in a range of learning about classifying animals which is picked up again in Year 2

How are animals classified?

What are the main differences between carnivore, omnivore and herbivore?

How can we identify reptiles, mammals and amphibians?

What are the birds in our locality called?

How do we sort according to living and not living?

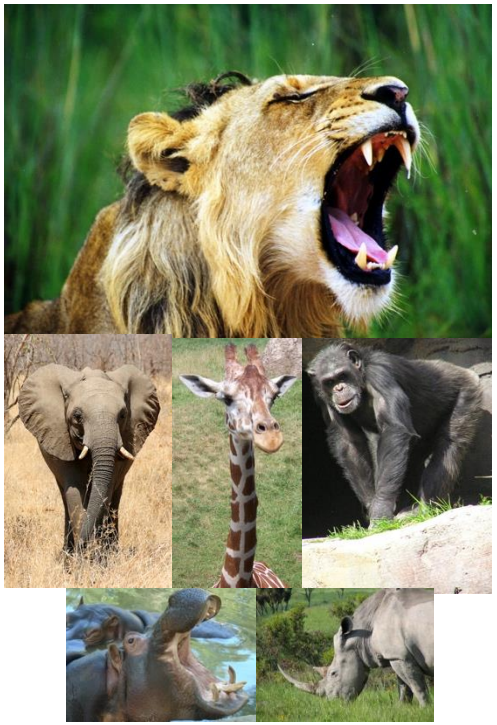
Science Knowledge	Working Scientifically
• Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds • Know and classify animals by what they eat (carnivore, herbivore and omnivore) • Know how to sort by living and non living things	**Research using secondary sources** • Research animals that live in a particular habitat **Grouping and Classifying** • Group/ classify animals according to what they eat

Science Year 3 Knowledge Organiser

Main Learning: Animals

Key knowledge
Know how to classify a range of animals
Know the difference between carnivore, omnivore and herbivore
Know the difference between a mammal, reptile and amphibian
Know how to classify by living, non living and never alive
Know the names of some common birds
Begin to know why certain animals live in certain areas

Vocabulary	
amphibians	All begin their life in water with gills and tails. Examples are frogs and newts
reptiles	Are animals that are cold-blooded. Most lay eggs and their skin is covered with hard, dry scales
mammals	Are also warm blooded animals. They breath air and have a backbone
herbivore	A herbivore eats only plants
carnivore	Is a meat-eating animal that gets its food from killing other animals
omnivore	Eats plants and meat



Prior Knowledge –

Long-term overview for Science

YEAR 3

Chemistry

- The first unit related to materials which is built upon in Year 2.
- In EYFS children will have become familiar with using many different materials which includes naming them.

What are the materials that are around us called?

What are the names of the materials that we see around the school?

Why do we use different materials to build a house?

Which materials keep us dry?

Which materials keep us warm?

Working Scientifically

Comparative and Fair tests

- Compare the suitability of everyday materials for a specific job, e.g., keeping us warm

Grouping and Classifying

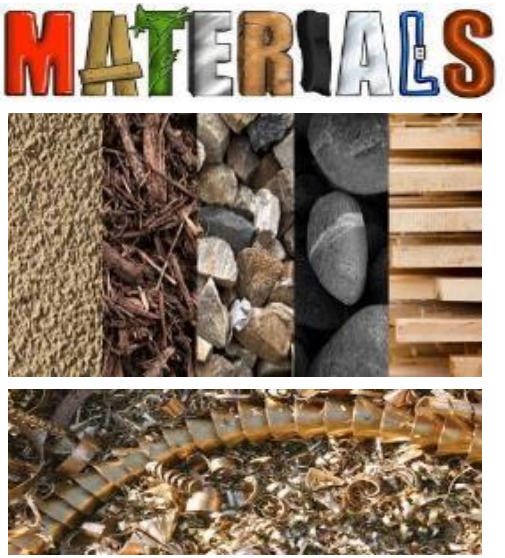
- Identify different materials based on their properties

Science Year 3 Knowledge Organiser

Main Learning: Materials

Key knowledge
Know the names and uses of some common materials
Know that there are many different types of materials
Know the names of many types of materials
Know what we use glass, wood and bricks for
Know that plastics are easy to bend
Know that some materials are not useful for certain things

Vocabulary	
plastic	A 'man-made' material that can be shaped or moulded to any shape
stretch	A material that is like elastic
stiff	A material that is firm and hard and not flexible
metal	Are usually tough and strong material and can be heated and shaped into anything
liquid	Can flow and take on the shape of their container
gas	We can't see it, but it is all around us



Prior Knowledge–

Long-term overview for Science

YEAR 3

Biology

- The first unit related to the human body. There is a unit related to the human body in each year from Y1 to Y6.
- Children will have used rhymes and songs in EYFS which relate to body parts, etc.

What are our seen body parts called and what do we mean by the five senses?

What are the names of the seen parts of the human body?

What are the five senses?

Science Knowledge

- Know the name of parts of the human body that can be seen
- Know about the five senses.

Working Scientifically

Pattern seeking

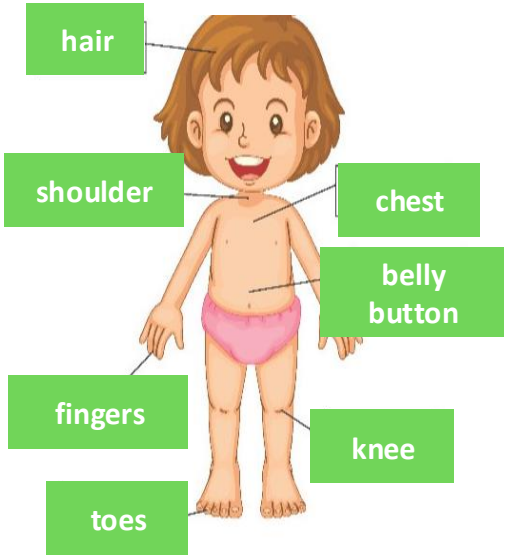
- Height and weight changes as we get older

Science Year 3 Knowledge Organiser

Main Learning: Parts of the Human Body

Key knowledge
Know the names of the seen parts of the human body
Know the names of all seen body parts above the shoulders
Know the names of the seen body parts below the shoulders and above the legs
Know the names of all seen body parts below the hips
Know what the five senses are
Know what each of our senses does

Vocabulary	
toes	The digits at the end of our feet
fingers	The digits at the end of our fingers
touch	The sensation you get when you Brush against something
hearing	The sound made by anything around
taste	The sensation you get when you eat
chest	The part of the body below the neck and shoulders and between the arms



Prior Knowledge–

Long-term overview for Science

YEAR 3

Biology

- The first unit related to plants which is picked up again in Years 2 and 3.
  - Children will have grown plants and talked about them in EYFS.

What are the names of the different parts of plants?

What are the names of the main parts of plants, including roots, stem, leaf and petal?

What part does each part of a plant plays in keeping a plant healthy?

How many wild and garden flowers do you recognise?

What are the main parts of a tree called?

How many birds can you recognise?

Science Knowledge

- Know and name a variety of common wild and garden plants
- Know and name the petals, stem, leaves and root of a plant
- Know and name the roots, trunk, branches and leaves of a tree

Working Scientifically

Observations over time

- Changes to plants/ trees as they grow or in different seasons

Grouping and Classifying

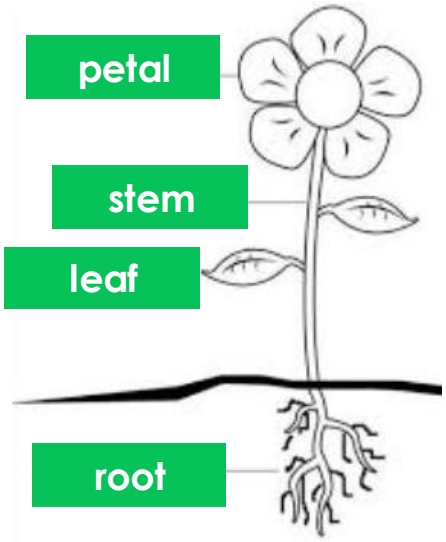
- Identify local trees and plants

Science Year 3 Knowledge Organiser

Main Learning: Plants

Key knowledge
Know the names of parts of a plant
Know the names of a variety of common wild and garden plants
Know the name of the different parts of a plant, including stem, root, petal and flower
Know the difference between deciduous and evergreen trees
Know the names of a variety of common trees
Know the names of some of the plants that grow in the local environment

Vocabulary	
deciduous	Is the name given to trees that lose their leaves in autumn and are bare in the winter
evergreen	Is the name of trees that have leaves all year round
environment	The area where a plant or tree lives and thrives
blossom	Is the flower that comes before the fruit. For example, apple blossom comes before the apple starts to grow
petals	Is a part of the flower and is usually coloured. The colour attracts insects.
root	Is the part of the plant that is beneath the ground. It gives the plant food and keeps it steady



Prior Knowledge–

Long-term overview for Science

YEAR 4

Biology

- The picks up on the Year 1 plants unit and focuses on growth of plants.
- However, in Y3 there is big jump up to deal with issues of germination, pollination, etc.

What do plants and trees need to grow healthily?

What are the main parts of plants or trees, including roots, stem, leaf and petal, called?

How do we know that plants and trees need light, water and soil?

What are the names of some trees in our locality?

How can we find out how old a tree is?

Science Knowledge

- Classify things by living, dead or never lived
- Know how a specific habitat provides for the basic needs of things living there (plants and animals)
- Match living things to their habitat
- Name some different sources of food for animals
- Know about and explain a simple food chain

Working Scientifically

Fair testing

- Investigate which conditions plants need to grow

Observation over time

- Change in plant growth over time

Grouping and Classifying

- Identify parts of a plant

Science Year 4 Knowledge Organiser

Main Learning: Plants and Trees

Key knowledge
Know what plants, including trees need to survive
Know that a plant needs light, water, air and soil to survive
Know how important trees are for the environment
Know that trees and shrubs take in water and a gas called carbon dioxide and give out a gas called oxygen
Know how to set up a fair test to find out what plants need to survive
Know the names of many of out most common trees by shape of leaf and shape of tree

Vocabulary	
trunk	Holds up the trees' crown, protects its inner parts and works like a pipeline, transporting essential materials to the different parts of the tree
stem	Is the main part of the plant. It supports the weight of the leaves, as well as the flowers or fruit
blossom	Is the mass of flowers created by a tree. Almost all fruit bearing trees have blossom
bulbs	Are underground masses of food storage from which plants grow
woodland	Is a habitat where trees are the dominant plant form
crown	Is made up of the leaves and branches at the top of the tree

oak

horse chestnut

conifer

willow

Prior Knowledge–

Long-term overview for Science

YEAR 4

Biology

- Although the unit deals with animals it does not carry on directly from the Y1 classification unit.
- It is the first unit related to where animals live, etc.

Why do animals choose the habitats they have?

Which animals live underground, on the ground and in trees?

Which animals live in woodlands and forests in the UK and abroad?

Which animals would we normally find in our sea, rivers, lakes and ponds and why are they there?

Which animals start their life as an egg?

Which food sources are linked to which animals?

Science Knowledge

- Know and explain how seeds and bulbs grow into plants
- Know what plants need in order to grow and stay healthy (water, light & suitable temperature)

Working Scientifically

Researching

- Research animals and how they adapt to their environment

Grouping and Classifying

- Group animals based on their natural habitats

Science Year 4 Knowledge Organiser

Main Learning: Animals and their habitats

Key knowledge
Know that animals have preference about the habitats they live in
Identify and name plants and animals in a range of habitats
Know how a specific habitat provides for the basic needs of things living there
Match living things to their habitat
Know how animals find their food
Name some different sources of food for animals

Vocabulary	
habitat	Is a place that an animal lives. It provides the animal with food, water and shelter
rainforest	A habitat with a tropical forest with tall trees, warm climates and lots of rain
desert	A habitat that gets very little rain each year. Very few plants or animals live in desert areas
species	A group of animals, plants or other living things that all share common characteristics and that are all classified as alike in some way
pond	A body of water smaller than a lake. Ponds provide a habitat for a very wide range of wildlife
indigenous	Produced, growing, living, or occurring naturally in a particular region or environment

Prior Knowledge–

Long-term overview for Science

YEAR 4

Chemistry

- This unit follows on well from the Y1 unit, but focuses on using different materials.
- Is picked to a certain extent again in Y4 with the state of matter unit.

What are the properties of different materials?

Why are some materials more suitable than others for making our toys?

Why glass, wood, plastic, brick or metal would be used for certain jobs?

Why can some materials be squashed, twisted or bent according to need?

Why certain materials are suitable for many different uses?

Who are the important people that have developed useful new materials?

Science Knowledge

- Know how materials can be changed by squashing, bending, twisting and stretching
- Know why a material might or might not be used for a specific job

Working Scientifically

Fair testing

- Compare materials to see which is the most waterproof

Grouping and Classifying

- Group different materials based on their properties

Science Year 4 Knowledge Organiser

Main Learning: Uses and properties of different materials

Key knowledge
Know about the properties and uses of different materials
Know why some materials are more suitable than others for specific uses
Know why glass, wood, plastic, brick or paper would be used for certain jobs
Know that some materials can be squashed, twisted or bent according to need
Know why certain materials are suitable for many different uses
Know about the lives of important people who have developed useful new materials

Vocabulary	
stretching	Is to change shape by pulling it to make it longer or wider
squashing	Is pushing things closely together
bending	Is changing the shape and direction of something
twisting	Moving one part clockwise and the other part anticlockwise
John Dunlop	A person who improved the tyres on cars. You may see tyres on cars with the name DUNLOP on them
Charles Macintosh	He invented mackintoshes which was a special type of coat. We use the word 'mac' today because of his invention

Prior Knowledge–

Long-term overview for Science

YEAR 4

Biology: Human Body

- This unit follows on well from the Y1 naming parts of the human body.
- Links to DT and PE are clear.
- Move on to Y3 skeleton and muscles unit.

Why is it important to keep our bodies healthy?

What do we mean by a balanced diet and why is it important for humans?

Who is the fittest in our class?

Why is exercise and good hygiene important for humans?

What are the main stages of growth from babies to adulthood, in humans and in in animals?

Science Knowledge	Working Scientifically
• know 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 amount of different types of food, and hygiene	**Investigation** • Set up an investigation to find out who is the fittest in class **Grouping and Classifying** • Identify the off-spring of different animals

Science Year 4 Knowledge Organiser

Main Learning: Healthy Living

Key knowledge
Know how important it is to keep our bodies healthy
Know why a balanced is important for humans
Know what is meant be a balanced diet
Know why exercise and good hygiene are also important for humans
Know that the babies will grow into adults
Know what humans need to survive (including food and water)

Vocabulary	
proteins	Is a food group which includes meat, eggs, fish, dairy products, nuts and seeds
carbohydrates	Are sugars and starches, which are found in foods such as starchy vegetables, grains, rice, breads, and cereals
off-spring	Refers to a person's children or an animal's young
fats	Are found in meat and other animal products, such as butter and cheese
nutrition	Is the process by which the body nourishes itself by transforming food into energy and body tissues
hygiene	Taking care of our body by being clean and making sure we don't smell

SCIENCE	**Prior Knowledge–**

Long-term overview for Science

YEAR 5

Physics

- This the first full unit on light and dark although pupils will have met elements of it in Y1.
- Picked up again in the unit in Y6.

Why do we have light and dark and what is its impact on our everyday life?

What is dark (in relation to absence of light)?

Why do we need light?

What happens to light when it hits a shiny object?

How is a shadow formed and why does it change shape?

Why is dangerous to look directly into the sun?

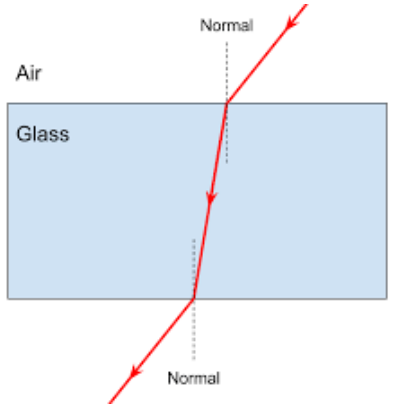
Substantive Knowledge	Disciplinary Knowledge
• Know that dark is the absence of light • Know that light is needed in order to see and is reflected from a surface • Know and demonstrate how a shadow is formed and explain how a shadow changes shape • Know about the danger of direct sunlight and describe how to keep protected	**Fair testing** • Compare materials based on reflectiveness **Observation over time** • Shadow length throughout the day **Grouping and Classifying** • Group materials based on their opacity and transparency **Pattern Seeking** • Object size compared to shadow

Science Year 5 Knowledge Organiser

Main Learning: Light and Dark

Key knowledge
Know why we have light and dark and its impact on our everyday life
Know what dark is (in relation to absence of light)
Know that we need light so we can see things
Know that light can be reflected
Know how a shadow is formed and why they change shape
Know the dangers of looking directly at the Sun

Vocabulary	
reflection	Occurs when a ray of light hits a surface and bounces off
shadows	Is formed when an object blocks out the light. The object must be opaque or translucent to make a shadow
opaque	Opaque objects do not allow light to pass through them, in most cases creating a shadow
refraction	It is the change of direction of a light ray as it passes through different surfaces, for example, from air to water
convex	These are lenses, also called positive lenses. Are lenses that curve outward from the edges to the centre
concave	This is a lens where the centre of the lens is thinner than the edges



Prior Knowledge–

Long-term overview for Science

YEAR 5

Chemistry

- This the first and only full unit on rocks and soil. However, pupils will have focused on dinosaurs and fossils at some stage even if it is in EYFS.

What are the main types of rocks on our Earth?

How are fossils are formed?

What is soil?

What is the difference between igneous, sedimentary and metamorphic rocks?

Why are some crystals extremely rare and valuable?

Science Knowledge

- Compare and group rocks based on their appearance and physical properties, giving reasons
- Know how soil is made and how fossils are formed
- Know about and explain the difference between sedimentary, metamorphic and igneous rock

Working Scientifically

Research

- Research how fossils and different types of rocks are formed

Grouping and Classifying

- Identify different rocks and the group they belong to

Science Year 5 Knowledge Organiser

Main Learning: Rocks

Key knowledge
Know that the Earth is made up of different types of rocks
Know how fossils are formed
Know what soil is
Know the difference between igneous, sedimentary and metamorphic rocks
Group together different rocks according to different attributes
Know that some crystals are extremely rare and valuable

Vocabulary	
sedimentary	Are formed when sand, mud and pebbles get laid down in layers. Over time, these layers are squashed under more and more layers
metamorphic	When a rock experiences heat and pressure, it becomes a metamorphic rock
igneous	Is formed when magma cools and solidifies. It may do this above or below the Earth's surface
crystals	These are a special kind of solid material where the molecules fit together in a repeating pattern
fossil	A fossil is the preserved remains or traces of a dead organism
soil	Consists of a mix of organic material (decayed plants and animals) and broken bits of rocks and minerals

Prior Knowledge–

Long-term overview for Science

YEAR 5

Physics

- This the first full unit on forces. However, pupils will have met some forces work in KS1 and EYFS. Focus here on friction and air and water resistance

What do we mean by a 'force'?

What is friction?

What is a magnet?

How do pulleys work?

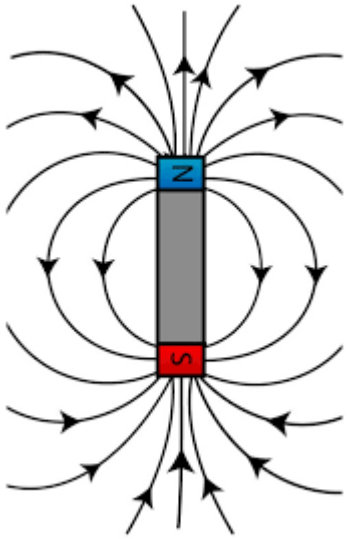
Science Knowledge	Working Scientifically
• Know about and describe how objects move on different surfaces • Know how a simple pulley works and used to lift an object • Know how some forces require contact and some do not, giving examples • Know about and explain how magnets attract and repel Predict whether magnets will attract or repel and give a reason	**Fair testing** • Compare materials based on the amount of friction they generate **Grouping and Classifying** • Group magnetic and non-magnetic materials

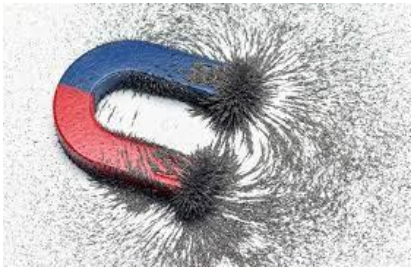
Science Year 5 Knowledge Organiser

Main Learning: Magnets and forces

Key knowledge
Know what we mean by a 'force'
Know how different surfaces speed thing up or slows things down
Know what a pulley is and how it works
Know how magnets work

Vocabulary	
repel	Two (magnetic) poles which are the same will repel each other
attract	Two (magnetic) poles which are not the same will attract each other
Pole	There are two Poles on Earth a South Pole and North Pole
pulley	A collection of one or more wheels over which you loop a rope to make it easier to lift things
magnet	A material or object that creates a magnetic force
magnetism	Magnetism is a force that can be felt by metals such as iron, steel, nickel and cobalt.





Prior Knowledge –

Long-term overview for Science

YEAR 5

Biology: Plants

- This follows on from the two previous plants units in Y1 and Y2. This one is much more demanding and requires quite a bit of igniting prior learning.

What part do different parts of plants play in helping them grow healthily?

What are the functions of different parts of the flowering plant?

What are key factors that are important for a plant's growth?

How is water transported within a plant?

What do we mean by pollination?

What types of pollination are there?

Science Knowledge

- Know the function of different parts of flowing plants and trees
- Know what pollination is
- Know about seed dispersal

Working Scientifically

Observation over time

- Observe how water travels up the stem

Research

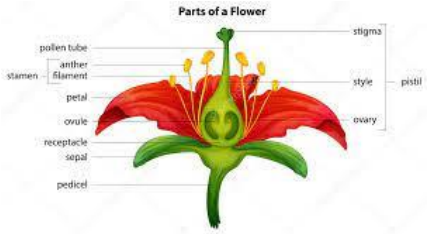
- Research different types of seed dispersal

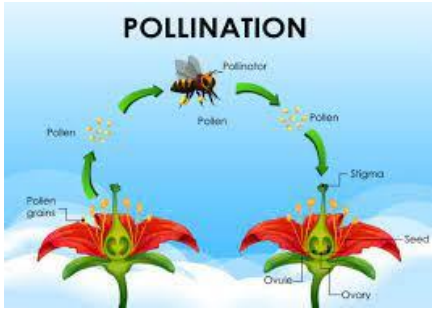
Science Year 5 Knowledge Organiser

Main Learning: Plants

Key knowledge
Understand what a plant needs to flourish and find out about its life cycle
Know the function of the different parts of the flowering plant
Know that light, air, water, nutrients from soil are all important for plant growth
Find out how water is transported within a plant
Know the part that flowers play in the life cycle of a flowering plant
Know about pollination, seed formation and seed dispersal

Vocabulary	
pollination	This is the act of transferring pollen grains from the male anther of a flower to the female stigma
seed dispersal	Is the movement or transport of seeds away from the parent plant
seed formation	A seed is a small baby plant enclosed in a covering called the seed coat, usually with some stored food
nutrients	Are the food the plant wants. Most of the plant's nutrients comes from the soil
stigma	This is usually sticky and receives pollen
anther	The stamen has a pollen producing structure at the end which is called the anther





Prior Knowledge–

Long-term overview for Science

YEAR 5

Biology: Human Body

- This follows on from the two previous human body units in Y1 and Y2. It also prepares pupils for the Y4 unit on the digestive system.

Why do humans have skeletons and muscles?

What are the names of the body parts associated with the skeleton?

What are the muscles and how do they work?

What are joints and how do they work?

Why is it important to have a balanced diet and why exercise is important?

Science Knowledge

- Know about the importance of a nutritious, balanced diet
- Know how nutrients, water and oxygen are transported within animals and humans
- Know about the skeletal and muscular system of a human

Working Scientifically

Experimenting and Investigating

- Find out how muscles work using balloons
- Carry out an investigation about exercise

Research

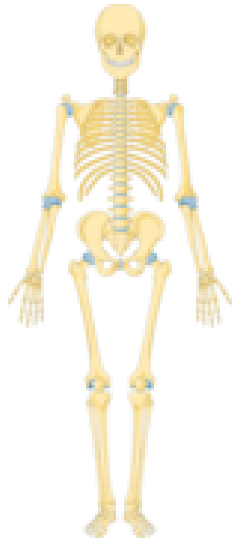
- Find out about names of joints
- Find names of parts of skeleton

Science Year 5 Knowledge Organiser

Main Learning: Human body – Skeletons and Muscles

Key knowledge
Know that humans have skeletons and muscles for support, protection and movement
Know the names of the body parts associated with skeleton and muscles
Know that the body parts have special functions
Know what the function of muscles are
Know what joints are and how they work
Compare the diets of different groups of animals, including humans

Vocabulary	
skeleton	Is made of bone and grows as we grow. Our skull protects our brain and our ribs protect our heart and lungs
muscles	These are attached to bones by tendons and help them to move
joint	Allow the body to make movements. The body has many bones and are connected through the joints
cartilage	Is a connective tissue found in many areas of the body including joints between bones e.g. the elbows
tendon	Muscles are attached to the bone by tendons and work in pairs to allow for smooth movement.
spine	Also known as your backbone, it is a strong, flexible column of ring-like bones that runs from your skull to your pelvis.



Prior Knowledge–

Long-term overview for Science

YEAR 6

What is electricity and why it so important in our lives?

- How does electricity work?
- How can we construct a simple series electrical circuit?
- What is renewable energy and is it better than fossil fuels?
- How important is electricity at home?
- What are conductors and what are insulators?

Working Scientifically (Disciplinary)

Fair testing

- Determine which materials are electrical conductors or insulators
- Predict and test whether a lamp will light within a circuit

Grouping and classifying

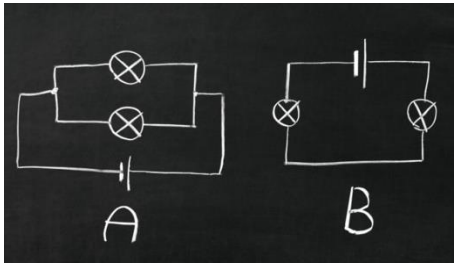
- Classify/ group materials into electrical conductors or insulators

Science Year 6 Knowledge Organiser

Main Learning: Electricity

Key knowledge
Know what electricity is and why it so important in our lives
Know about common appliances that run on electricity
Know how to construct a simple series electrical circuit
Identify and name the basic parts of the circuit, including cells, wires, bulbs, switches and buzzers
Know that a switch opens and closes a circuit
Know about some common conductors and insulators

Vocabulary	
circuit	Is a completed path through which an electrical current flows
conductor	Is an object or type of material that allows the flow of an electrical current in one or more directions
insulator	Is a material whose internal electric charges do not flow freely
battery	Is a device that stores chemical energy and makes it available in an electrical form
cells	An electrical cell is a device that is used to generate electricity
appliance	Is a device that uses electricity to perform a function



Prior Knowledge–

Long-term overview for Science

YEAR 6

Biology: Human Body

- This continues the human body theme and focuses on the food we eat before moving on in Y5 to changes as we grow and then to The circulatory system in Y6.

What happens to the food we eat?

What are the parts of the digestive system called?

What is the function of each organ within the digestive system?

What are the names and function of the different types of teeth in humans?

How can the digestive system be recreated in a classroom?

What are food chains and how we use them to identify producers, predators and prey

Science Knowledge	Working Scientifically
• Identify and name the parts of the human digestive system • Know the functions of the organs in the human digestive system • Identify and know the different types of human teeth • Know the functions of different human teeth • Use and construct food chains to identify producers, predators and prey	**Research** • Research the different body parts involved in digestion **Grouping and classifying** • Classify plants/ animals into either producer, consumer or predator **Investigation** • Recreating a digestive system in class

Science Year 6 Knowledge Organiser

Main Learning: Digestive System

Key knowledge
Know exactly what happens to the food we eat
Know and name the parts of the digestive system
Know about the function of each organ of the digestive system
Know and identify the different types of teeth in humans
Know the function of different human teeth
Construct and use food chains to identify producers, predators and prey

Vocabulary	
oesophagus	This is like a stretchy tube that moves food from the back of the throat to the stomach
pancreas	This produces juices called enzymes which help the body digest food
organ	The skin is the biggest organ of your body. Other organs include your brain, lungs, heart, liver, stomach, intestines, pancreas, and kidneys, all called internal organs
intestine	The small intestine absorbs nutrients and minerals from food. The large intestine absorbs water from the remaining indigestible food
molars	These are teeth that are used for chewing and grinding our food
canine	These are teeth used for ripping and tearing our food. We have two located at the top of our mouth and two at the bottom

Prior Knowledge –

- **Names and functions of the bones, joints and muscles in the human body**

Long-term overview for Science

YEAR 6

Physics

- This is the only full unit on sound in the primary science curriculum. However, there are links to music at different levels.

How is sound created and how does it travel?

How do our ears work?	What do we mean by 'pitch' and 'vibration' in relation to sound?
How do telephones work?	What happens to sound as it travels away from its source?

Science Knowledge

- Know how sound is made, associating some of them with vibrating
- Know how sound travels from a source to our ears
- Know the correlation between pitch and the object producing a sound
- Know the correlation between the volume of a sound and the strength of the vibrations that produced it
- Know what happens to a sound as it travels away from its source

Working Scientifically

Fair testing

- The affect of distance from the source on volume

Pattern seeking

- Compare how length and width of tubes affect pitch

Science Year 6 Knowledge Organiser

Main Learning: Sound

Key knowledge
Know how we get to hear things and how sound is created
Know how sound is made and what happens as sound travels away from its source
Know how sound travels from the source to the ears
Know to associate sound with vibration
Know the correlation between pitch and the object producing a sound
Know the correlation between the volume of a sound and the strength of the vibrations that produced it

Vocabulary	
pitch	A high sound has a high pitch and a low sound has a low pitch
volume	Is the perception of loudness from the intensity of a sound wave. The higher the intensity of a sound, the louder it is perceived in our ears
vibrating	Sound is caused by the vibration of a medium (usually air) and it travels in waves
frequency	This is measured as the number of wave cycles that occur in one second
vibrating	Sound is caused by the vibration of a medium (usually air) and it travels in waves
hammer	The ear has little bones called ossicles that help you hear. They are called the hammer (malleus), anvil (incus), and stirrup (stapes). They amplify the sound or make it louder

Prior Knowledge–

Long-term overview for Science

YEAR 6

Chemistry

- To a certain extent this unit links back to the materials learning in Y1 and Y2.
- However, it is an important link to the Y5 unit on reversible and irreversible changes

How do some solids, liquids and gases change state?

How can we classify solids, liquids and gases?

What do we mean by freezing and melting?

How can you separate sand, salt and water?

What is a water cycle?

What is meant by the terms: condensation, and evaporation?

Science Knowledge

- Know the temperature at which materials change state
- Know about and explore how some materials can change state
- Know the part played by evaporation and condensation in the water cycle

Working Scientifically

Observation over time

- Measure temperature changes in water over time

Research

- Research the water cycle and how it works

Grouping

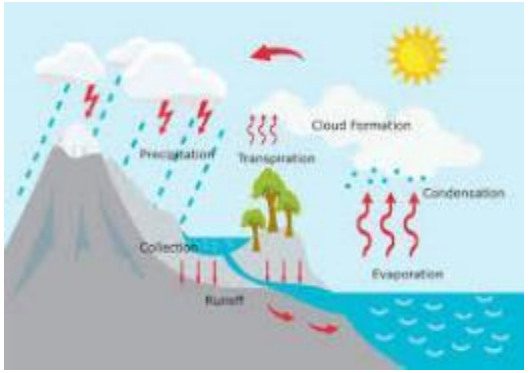
- Identify solids, liquids or gases

Science Year 6 Knowledge Organiser

Main Learning: States of matter

Key knowledge
Know that some solids, liquids and gases change states
Know that certain materials can change state
Know what the temperature of water is when it boils or freezes
Know which materials, other than water, changes state
Explain the differences between solids, liquids and gases
Know what is meant by the terms: condensation, and evaporation

Vocabulary	
evaporation	when a liquid changes to a gas
condensation	when a gas changes into a liquid
melting	when a solid becomes a liquid
solidifying	when a liquid becomes a solid
precipitation	rain, snow, sleet and hail
degrees - Celsius	the most common unit of temperature



Ice

Water

Steam

Prior Knowledge–

Long-term overview for Science

YEAR 6

Biology: Living things

- This follows on from the classifying that happened in Y1 and also to a certain extent the habitats learning in Y2

How are living things grouped?

How do we use classification keys to group living things?

How can we identify and group trees?

How can we group plants and animals?

How can environments change for good?

Science Knowledge

- Use classification keys to group, identify and name living things
- Know how changes to an environment could endanger living things
- Group materials based on their state of matter (solid, liquid or gas)

Working Scientifically

Research

- Research the effect of climate change on animals around the world

Grouping

- Classify plants/ animals into either producer, consumer or predator

Science Year 6 Knowledge Organiser

Main Learning: Living things and their habitats

Key knowledge
Know that living things can be grouped in a variety of ways
Explore and use classification keys to group living things
Know that plants can be grouped into flowering and non flowering plants
Know that animals can be grouped into amphibians, reptiles, birds, mammals and fish
Recognise that environments can change for good
Recognise that some changes to the environment can be a danger to living things

Vocabulary	
flowering plants	These plants produce seeds, fruits, and flowers. Most deciduous trees belong to this group
invertebrates	These do not have skeletons or backbones
insects	Small and often winged animals that are arthropods having six jointed legs and a body formed of a head, thorax, and abdomen
deforestation	The act of cutting down huge numbers of trees, such as is happening in many rainforests
pollution	Pollution happens when the environment is contaminated, or dirtied, by waste, chemicals, and other harmful substances
industrial waste	This is material which is created when making products – if they are disposed of carefully, it can be a danger to the environment

Prior Knowledge–