

Science Progression Map

“Somewhere something incredible is waiting to be known.”

Carl Sagan



Science Curriculum Map



Animals



Habitats



Materials



Plants



Seasonal changes



Working scientifically

Plants

Habitats

Super scientists



Animals

Materials

Y2

Seasonal changes

Senses

Plants



Scientists

Materials

Animals

Y1

Weather

Garden Creatures

EYFS



Giving Garden

What do scientists do

Objective

To compare different weathers and seasons.

Enquiry

What is the weather?



Substantive Knowledge (Content)

- To know that there are different kinds of weather
- To know that weather changes across the year
- To know that the weather has an impact on the things we do
- To know that weather has an impact on the world around them
- To know that there are different types of cloud
- To know that rain comes from water droplets in clouds
- To know that rain is important for living things
- To know that there are four seasons: autumn, winter, spring, summer
- To know that summer is when it is most warm and winter is when it is most cold
- To know that sunshine brings warmth
- To know that when it is very cold, water can freeze and become ice, frost, hail and snow
- To know that wind is caused by air around them moving

Prior Learning

EYFS

This is an ongoing unit, moving through the different weathers with the seasons. We will explore rain and wind in terms 1-3, frost, ice and snow in terms 2 and 3 and clouds and sunshine in term 6.

Future Learning

EYFS

In the Term 5 unit ‘Places Around the World’ children will learn about weather in different countries.

Y1

Children will look at the climate in different countries and how day length can vary.

Y2

Children will learn about how the weather can change depending on seasons (in Geography).

Skills

Recognise	Name and point out who or what something is
Identify	Distinguish something or someone from others that may be similar
Describe	‘Say what you see’. Give an account in words of something or someone
Observe	Identify and distinguish with a degree of analysis some things that may potentially be more noteworthy or important than others
Compare and contrast	Find similarities and differences
Recall	Remember and recount something learned

Concepts

Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	models and laws, reactions between materials, observing processes
Process	The natural or human events and actions that maintain equilibrium or cause change.
Environment	The surroundings of a place in which a person, animal or plant lives and interacts.

Key vocabulary

air	The mixture of gasses that surrounds the earth and that we breathe
calm / still	Absence of wind
cloud	White mass in sky made of water droplets
droplet	A small drop of liquid
freeze / freezing / frozen	Temperature lower than 0°C, cold and often hard
frost / frosty	Thin, white layer of ice
hot/cold/warm/cool	temperatures
ice / icy / icicle	Water that has frozen and become solid
light / dark	Brightness that allows things to be seen / absence of
melt / melting	Turn from solid to liquid
morning / afternoon / evening / night / day	Times of day
plant / flower / grass	Living things growing in earth
puddle	Small pool of liquid on the ground from rain
rain	Drops of water from clouds
season - Autumn, Winter, Spring, Summer	One of the four periods of the year
shade / shadow	Slight darkness caused by blockage of light from sun
sky	The area above the earth in which clouds etc. can be seen
snow	Small, soft, white pieces of ice that fall from the sky
storm	Extreme weather condition
sun / sunny / sunshine	the star that gives light and heat to Earth
temperature	The measured amount of heat in a place
today / yesterday	The present day / the day before
water	Clear liquid necessary for plant and animal life
waterproof	Not allowing water to go through
weather	The conditions in the air above the earth.
wet / dry	Covered / not covered in water or other liquid
wind / breeze	Natural current of air strong enough to be felt

Assessment points

- **Recognise** features of different kinds of weather
- **Identify** different kinds of weather
- **Identify** seasons
- **Describe** the effect of weather on the environment and on the things we do
- **Observe** and record the weather
- **Observe** seasonal changes in their immediate environment
- **Compare and contrast** the weather at different times of the year
- **Recall** the names of the four seasons

EYFS coverage

- Explore the natural world around them, making observations and drawing pictures. *The Natural World ELG*
- 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 *The Natural World ELG*
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. *The Natural World ELG*

SEN/D minimum expectations

- **Recognise** features of different kinds of weather
- **Identify** different kinds of weather
- **Describe** the effect of weather on the environment and on the things we do

High prior attainment and extension opportunities

Look at examples of extreme weather and how it can damage the environment.



Objective

To know about features of flowers and how they grow

Enquiry

Why do people like to give and receive flowers?



Substantive Knowledge (Content)

- Flowering plants grow from bulbs and / or seeds
- Plants need soil, sunlight and water to grow
- Flowers have a stem, leaves and petals
- The names of some flowering plants
- Flowering plants look different at different times of year

Future Learning

Y1

The children will be learning about the difference between evergreen and deciduous plants including some of the plant names.

Y2

Children will develop their understanding of how plants change over time.

Skills

Recognise	Name and point out who or what something is
Identify	Distinguish something or someone from others that may be similar
Describe	'Say what you see'. Give an account in words of something or someone
Observe	Identify and distinguish with a degree of analysis some things that may potentially be more noteworthy or important than others
Compare and contrast	Find similarities and differences
Recall	Remember and recount something learned

Concepts

Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	models and laws, reactions between materials, observing processes
Process	The natural or human events and actions that maintain equilibrium or cause change.
Environment	The surroundings of a place in which a person, animal or plant lives and interacts.

Key vocabulary

plant	To put a plant into the ground so that it will grow.
bulb	A round root from which some plants grow
sow	To put seeds in soil so they will grow
seed	The small, hard part of a plant from which a new plant grows.
trowel	Small tool used for digging in the garden
watering can	Container for water with a handle and long tube, used for pouring water onto garden plants
stem	The thin, upright part of the plant on which the flowers and leaves grow.
petal	The colourful, or white parts of the flower.
leaf, leaves	The part of the plants that is flat, thin and usually green, but may change colour in Autumn.
soil	The substance on the surface of the earth in which plants grow.
seedling	A young plant that has been grown from seed
sunlight	Light that comes from the sun
water	Clear liquid necessary for plant and animal life
sweet pea	Sweet scented climbing flowering plant
cosmos	Large daisy-shaped flower, often pink or white
cornflower	Plant with flowers that are often blue
calendula	Plant with orange or yellow daisy-shaped flowers
poppy	Plant with a large, delicate flower
lavender	Plant with sweet-smelling purple flowers

Assessment points

- **Recognise** different flowers
- **Identify** different flowers
- **Describe** different flowers – their features, colours, shape etc
- **Observe** the changes in plants as they grow from seed to seedling to full flowering plant
- **Compare and contrast** the Giving Garden at different times of the year
- **Compare and contrast** different flowers
- **Recall** the things that are necessary for plants to grow
- **Recall** the names of some flowers

EYFS coverage

- Explore the natural world around them, making observations and drawing pictures. *The Natural World ELG*
- 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 *The Natural World ELG*
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. *The Natural World ELG*

SEN/D minimum expectations

- **Recognise** different flowers
- **Identify** different flowers
- **Describe** different flowers – their features, colours, shape etc

High prior attainment and extension opportunities

Investigate the different seeds and seed pods for different flowers – poppy, sweet pea, calendula. Observe the change from flower with petals to seed / seed pods and discuss how seeds then self-sow to grow more flowers.



Objective

To know about invertebrates

Enquiry

What creatures can we find in the Giving Garden?



Substantive Knowledge (Content)

- Invertebrates are small animals that do not have a spine or a skeleton inside their body.
- Some have a hard shell (exoskeleton) outside their body (insects, spiders)
- Some have soft bodies (e.g. worms, slugs)
- Invertebrates have different numbers of legs and wings. Some have antennae.
- Invertebrates need shelter, food, water and air to survive.
- Some invertebrates go through a process of metamorphosis (caterpillars)

Future Learning

Y1

The children will be learning about different animal types.

Y2

Children will learn how animals grow, reproduce and what they need to survive.

Skills

Recognise	Name and point out who or what something is
Identify	Distinguish something or someone from others that may be similar
Describe	‘Say what you see’. Give an account in words of something or someone
Observe	Identify and distinguish with a degree of analysis some things that may potentially be more noteworthy or important than others
Classify	To divide things into groups according to their type
Compare and contrast	Find similarities and differences
Recall	Remember and recount something learned

Concepts

Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Process	The natural or human events and actions that maintain equilibrium or cause change.
Organization / structure and function	The way in which the parts of a system are arranged and their purposes

Key vocabulary

invertebrate	An animal with no spine
spine	The line of bones down the centre of the back that provides support for the body
skeleton	The frame of bones supporting a human or animal body
shell	A hard-outer covering
legs	Part of the human / animal body used for standing and walking
wings	The flat part of the body that an insect uses for flying
antennae	A pair of long, thin organs found on the head of some invertebrates, used to feel with
metamorphosis	The process by which the young form develops into the adult form
caterpillar	A small long invertebrate with many legs
chrysalis	A butterfly at the stage of development when it is covered by a hard case
cocoon	The silk casing that a moth caterpillar spins around itself before it transforms into a moth
butterfly	Insect with large, often brightly coloured and patterned wings
moth	Insect with wings similar to a butterfly
spider	Invertebrate with eight thin legs that catches insects in a web
ladybird	Small, red beetle that is round and has black spots
bee	Yellow and black flying insect that can sting
ant	Very small insect that lives under the ground
worm	invertebrate with long, narrow, soft body without legs or wings
snail	Invertebrate with a soft, wet body and a round shell that moves very slowly
slug	Invertebrate with a soft, wet body and no shell

Assessment points

- **Recognise** different invertebrates
- **Identify** different invertebrates
- **Describe** different invertebrates – their features, colours, shape etc
- **Observe** the process of metamorphosis from caterpillar to butterfly
- **Classify** invertebrates by features
- **Compare and contrast** different invertebrates
- **Recall** the names and features of some invertebrates

EYFS Coverage

- Explore the natural world around them, making observations and drawing pictures. *The Natural World ELG*
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. *The Natural World ELG*

SEN/D minimum expectations

- **Recognise** different invertebrates
- **Identify** different invertebrates
- **Describe** different invertebrates – their features, colours, shape etc
- **Observe** the process of metamorphosis from caterpillar to butterfly

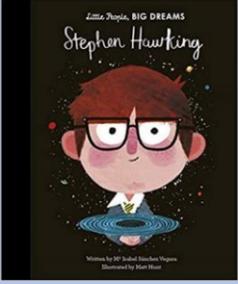
High prior attainment and extension opportunities

Choose an invertebrate to research in more detail.



Objective
To know about the discipline of Science

Enquiry
What do scientists do?



Substantive Knowledge (Content)

- Scientists ask questions, conduct experiments, record observations, find things out, make predictions about what they think will happen, then test to see if they were right and what they can learn.
- There are lots of different kinds of scientists.
- Some famous scientists include Stephen Hawking and Jane Goodall.
- Some people in our school community (e.g. parents) are scientists.
- Matter can change in different ways – melting, freezing, solidifying, drying, evaporating...

Prior Learning

EYFS
Children have observed processes such as seasonal change and growth from baby to adult. Children have explored changing states of matter in their observation of weather e.g. snow and ice; clouds and rain; evaporation.

Future Learning

Y1
Children will perform simple tests in relation to their five senses.

Y2
Children will find out about Isaac Newton and Thomas Edison.

Skills

Predict	To say what you think will happen
Observe	Identify and distinguish with a degree of analysis some things that may potentially be more noteworthy or important than others
Recall	Remember and recount something learned
Reason / speculate	Try to understand and make judgments based on facts / to guess possible answers

Concepts

Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Process	The natural or human events and actions that maintain equilibrium or cause change.
Cause and consequence	models and laws, reactions between materials, observing processes

Key vocabulary

scientist	An expert who works in science
experiment	A test done in order to learn something
observe	To watch carefully
predict	To say what you think will happen
melt	To change from solid to liquid due to heating
freeze	To change from liquid to solid due to cold
evaporate	To change from liquid to gas, especially due to heating
solid	A substance that is hard or firm, keeping a clear shape
liquid	A substance that can be poured easily
gas	A substance in a form like air that is neither solid nor liquid

Assessment points

- **Predict** what might happen as a result of a process
- **Observe** changes in matter as a result of different processes
- **Recall** the names of some famous scientists
- **Reason / speculate** as to why different changes occur

EYFS Coverage

- Explore the natural world around them, making observations and drawing pictures. *The Natural World ELG*
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. *The Natural World ELG*

SEN/D minimum expectations

- **Observe** changes in matter as a result of different processes

High prior attainment and extension opportunities
Children to record their observations and experiments through drawing and writing.



Objective
To name a variety of plants and their parts

Enquiry
Is an oak tree deciduous?



Substantive Knowledge (Content)

- What deciduous and evergreen mean
- Name some deciduous and evergreen trees
- Why some trees are deciduous
- What the names of some common flowers are
- What main parts of trees and flowers are
- Where the main parts are
- Why plants need different parts

Prior Learning

EYFS
Children have planted bulbs and observed their growth from Autumn to Spring. Children have sown seeds and observed their growth across the year. Children have closely observed flowering plants in the Giving Garden.

Future Learning

Y1
Children will develop their identifying and classifying skills when looking at animal types.

Y2
The children will learn more about how plants grow and what they need to survive.

Skills

Ask and answer questions	Answering questions using data or information that they have not collected firsthand
Identify and classify	Identifying and naming materials/living things and organise them into groups
Observe	Observing or measuring how one variable changes over time
Data recording	Documenting facts and observations

Concepts

Responsibility	Working safely, how science can solve problems, climate change and sustainability
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	models and laws, reactions between materials, observing processes
Continuity and change	observing what changes and what stays the same
Significance	significant scientists, discoveries, laws, models and theories
Written and oral expression	Using scientific terminology, evaluation, drawing conclusions, objectivity, explaining processes, describing and explaining patterns, presenting and interpreting data

Key vocabulary

deciduous	A tree that loses its leaves every year
evergreen	A tree that keeps its leaves all year round
leaves	Help the plant to make its own food.
oak tree	A type of deciduous tree
pine tree	A type of evergreen tree
branches	Part of a tree that grows out from the trunk
daffodil	A common flower
daisy	A common flower
dandelion	A common flower
flower	Flowers attract insects and birds.
petal	Petals are the colourful, or white parts of the flower.
roots	Take in water keep the plant in the ground.
rose	A common flower
seed	Seeds grow into new plants.
stem	Holds the plant up and carries the nutrients to the leaves and flowers.
sunflower	A common flower
trunk	The main body of a tree

Assessment points

- **Recognise** the name of some common plants
- **Identify** deciduous and evergreen trees
- **Observe** the differences between evergreen and deciduous trees
- **Describe** the differences between deciduous and evergreen trees
- **Record** the different parts of a plant
- **Question** why some plants are deciduous
- **Explain** why some trees are deciduous

National Curriculum Coverage

- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees
- Identify and describe the basic structure of a variety of common flowering plants, including trees

Target Tracker statements

- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees
- Identify and describe the basic structure of a variety of common flowering plants, including trees
- Identify and classify (Year 1 focus)

SEN/D minimum expectations
Children to know the names of some common plants. With support, can identify their parts.

High prior attainment and extension opportunities
Children to think about, discuss and reason why it is harder to identify deciduous trees in the summer.



Objective
To name and identify a variety of animal types

Enquiry
Is a dog an amphibian?



Substantive Knowledge (Content)

- What the different animal types are
- How to tell the difference between animal types
- What the names of some animals are and their type
- What carnivore, herbivore and omnivores are
- What the structure of animal types are

Prior Learning

EYFS
Children have identified, described and compared different invertebrates. Children have observed the process of change from caterpillar to butterfly and tadpole to frog (tadpole to frog is dependent on availability of tadpoles in school pond).

Y1
Children have begun to identify and classify plants.

Future Learning

Y1
Children will classify objects by material types

Y2
Children will develop their understanding of animals when looking at habitats and survival

Skills

Ask and answer questions	Answering questions using data or information that they have not collected firsthand
Identify and classify	Identifying and naming materials/living things and organise them into groups
Observe	Observing or measuring how one variable changes over time
Data recording	Documenting facts and observations

Concepts

Responsibility	Working safely, how science can solve problems, climate change and sustainability
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	models and laws, reactions between materials, observing processes
Continuity and change	observing what changes and what stays the same
Significance	significant scientists, discoveries, laws, models and theories
Written and oral expression	Using scientific terminology, evaluation, drawing conclusions, objectivity, explaining processes, describing and explaining patterns, presenting and interpreting data

Key vocabulary

amphibian	An animal type
bird	An animal type
fish	An animal type
mammal	An animal type
reptile	An animal type
carnivore	An animal that mostly eats meat
duck	An animal in the bird family
frog	An animal in the amphibian family
herbivore	An animal that mostly eats plants
human	An animal in the mammal family
lizard	An animal in the reptile family
omnivore	An animal that eats meat and plants
salmon	An animal in the fish family

Assessment points

- **Recognise** different animal types
- **Identify** some animals in each animal type
- **Describe** the difference between carnivores, herbivores and omnivores
- **Classify** animals into different groups
- **Record** a list of animals by type
- **Compare** the different animal types
- **Answer** questions about the features of animal types
- **Question** how to research what animal type an animal is

National Curriculum Coverage

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)

Target Tracker statements

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- Group animals according to what they eat
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)

SEN/D minimum expectations
Children to know the names of some animal types. With support, can identify some animals that belong to each type.

High prior attainment and extension opportunities
Children to think about and discuss the similarities and differences between animal types.



Objective
To name body parts and the 5 main senses

Enquiry
Where would you find a cochlea?



Substantive Knowledge (Content)

- What some body part names are
- Where in the body these parts can be found
- What the function of different body parts are
- What the five sense are
- Which body part is associated with each sense
- How different body parts help us
- What senses other living things have

Prior Learning

EYFS
Children have learnt about skeletons when learning about invertebrates and in PE. Children have learnt names of body parts and their functions in PE. Children have talked about the immediate effects of exercise on their bodies, thinking about the heart and breathing.

Y1
Children have learned the names of some body parts and their functions in PE.

Future Learning

Y1
Children will use their labelling skills when learning about the four seasons

Y2
Children will use their understanding of senses when conducting experiments about different senses

Skills

Ask and answer questions	Answering questions using data or information that they have not collected firsthand
Use equipment	Understand and demonstrate how different scientific tools can be used
Perform tests	Conducting an experiment
Identify and classify	Identifying and naming materials/living things and organise them into groups
Observe	Observing or measuring how one variable changes over time
Data recording	Documenting facts and observations

Concepts

Responsibility	Working safely, how science can solve problems, climate change and sustainability
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	models and laws, reactions between materials, observing processes
Continuity and change	observing what changes and what stays the same
Significance	significant scientists, discoveries, laws, models and theories
Written and oral expression	Using scientific terminology, evaluation, drawing conclusions, objectivity, explaining processes, describing and explaining patterns, presenting and interpreting data

Key vocabulary

hear	The sense associated with the ears
look	The sense associated with the eyes
smell	The sense associated with the nose
taste	The sense associated with the mouth
touch	The sense associated with the hands
ears	A part of the body that helps us hear
eyes	A part of the body that helps us see
femur	A large bone found in the upper part of the leg
hands	A part of the body that helps us touch
hip	A bone in the body
mouth	A part of the body that helps us taste
nose	A part of the body that helps us smell
senses	Send messages to the brain
skull	The bone in the head
spine	A group of bones runs through the middle of the body

Assessment points

- **Recognise** different body parts
- **Identify** where body parts can be found in the body
- **Describe** what sense are
- **Record** a list of the five senses
- **Answer** body parts associated with the five senses
- **Question** whether other living things have senses

National Curriculum Coverage

- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense

Target Tracker statements

- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense
- Perform simple tests (Year 1 focus)

SEN/D minimum expectations
Children to point to body parts and name some of them. With support, identify the body part associated with a sense.

High prior attainment and extension opportunities
Children to think about, discuss and reason whether other living things have senses.



Objective

To identify, name and compare a variety of everyday

Enquiry

What is in the box?



Substantive Knowledge (Content)

- What the names of different materials are
- What the difference is between an object and the material it is made from
- Which materials have been used to make an object
- What some of the properties are for different materials
- How to compare and group different materials

Prior Learning

EYFS

Children have explored the materials of properties through art and junk modelling experiences. Children have explored the concept of waterproofing in their investigation of weather. Children have explored transparency, translucency and opacity in their use of light as a loose part.

Y1

Children have begun to record data and information when labelling parts of the body. Also knowing there is a difference between body parts and senses will link to the difference between objects and what they are made from.

Future Learning

Y1

Children will develop their observations on how things can change when looking at the four seasons

Y2

Children will enhance their knowledge of materials including suitability

Skills

Ask and answer questions	Answering questions using data or information that they have not collected firsthand
Use equipment	Understand and demonstrate how different scientific tools can be used
Perform tests	Conducting an experiment
Identify and classify	Identifying and naming materials/living things and organise them into groups
Observe	Observing or measuring how one variable changes over time
Data recording	Documenting facts and observations

Concepts

Responsibility	Working safely, how science can solve problems, climate change and sustainability
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	models and laws, reactions between materials, observing processes
Continuity and change	observing what changes and what stays the same
Significance	significant scientists, discoveries, laws, models and theories
Written and oral expression	Using scientific terminology, evaluation, drawing conclusions, objectivity, explaining processes, describing and explaining patterns, presenting and interpreting data

Key vocabulary

glass	A material
metal	A material
plastic	A material
rock	A material
wood	A material
delicate	Something that breaks easily
hard	Something that is hard to break or bend
materials	What an object is made from
object	A thing that can be used
properties	Important things about an object
soft	Something that is easy to change the shape of
transparent	Transparent objects can be seen through.
waterproof	Keeps things dry

Assessment points

- **Recognise** different materials
- **Identify** objects and the materials they are made from
- **Perform tests** on the properties of materials
- **Observe** the properties of different materials
- **Record** the properties of materials through testing
- **Describe** the properties of materials
- **Compare** the similarities and differences between materials

National Curriculum Coverage

- 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.

Target Tracker statements

- 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.

SEN/D minimum expectations

Children to know that objects are made of materials and can separate the two things. With support, can describe some of the properties of materials.

High prior attainment and extension opportunities

Children will begin to think about and discuss the similarities and differences between materials.



Objective
To observe and describe seasonal changes

Enquiry
Should I have a picnic in January?



Substantive Knowledge (Content)

- When do the different seasons occur
- How the seasons can differ
- What weather is associated with different seasons
- How day length can vary

Prior Learning

EYFS
Children have learnt the names of the four seasons and explored how the natural world around them changes (and stays the same) in each season.

Y1
Children have looked at deciduous trees and know they look different in winter. They also will have had some experience of weather types.

Future Learning

Y2
Children will learn about why some habitats are better suited to animals than other habitats

KS2
Children will develop their understanding of how things can change over time

Skills

Ask and answer questions	Answering questions using data or information that they have not collected firsthand
Identify and classify	Identifying and naming materials/living things and organise them into groups
Observe	Observing or measuring how one variable changes over time
Data recording	Documenting facts and observations

Concepts

Responsibility	Working safely, how science can solve problems, climate change and sustainability
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	models and laws, reactions between materials, observing processes
Continuity and change	observing what changes and what stays the same
Significance	significant scientists, discoveries, laws, models and theories
Written and oral expression	Using scientific terminology, evaluation, drawing conclusions, objectivity, explaining processes, describing and explaining patterns, presenting and interpreting data

Key vocabulary

season	A period of time throughout the year
Autumn	A season
Spring	A season
Summer	A season
Winter	A season
day length	How many hours of sunlight
month	January, February, March, etc
temperature	How hot or cold something is
weather	What is going on outside

Assessment points

- **Recognise** the different seasons
- **Identify** the different seasons
- **Observe** the differences between seasons
- **Describe** some of the differences between seasons
- **Recall** when each season happens throughout the year
- **Record** how trees may look in different seasons
- **Compare** day length across the seasons
- **Answer** questions about the weather associated with each season

National Curriculum Coverage

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

Target Tracker statements

- Observe changes across the four seasons
- Observe and describe weather associated with the seasons and how day length varies.
- Gather and record data to help in answering questions (Year 1 focus)
- Use simple equipment to observe closely (Year 1 focus)
- Use his/her observations and ideas to suggest answers to questions (Year 1 focus)
- Ask simple questions and recognise that they can be answered in different ways (Year 1 focus)

SEN/D minimum expectations
Children to name the four seasons and some differences between them. With support, can talk about the weather associated with the seasons.

High prior attainment and extension opportunities
Children to think about, discuss and reason why the clothes we wear often look different throughout the year.



Motcombe School
Flying high together

Objective
To conduct a scientific test

Enquiry
What skills do scientists need to have?



Substantive Knowledge (Content)

- What skills scientists need
- How to conduct an experiment
- Why scientists conduct tests
- Who some famous scientists are

Prior Learning

EYFS
Children will have conducted some simple tests with support and the names of some scientists.

Y1
Children will have used many of the skills scientists need in isolation.

Future Learning

Y2
Children will conduct scientific tests and use a wider range of scientific vocabulary.

Skills

Ask and answer questions	Answering questions using data or information that they have not collected firsthand
Identify and classify	Identifying and naming materials/living things and organise them into groups
Observe	Observing or measuring how one variable changes over time
Data recording	Documenting facts and observations

Concepts

Responsibility	Working safely, how science can solve problems, climate change and sustainability
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	models and laws, reactions between materials, observing processes
Continuity and change	observing what changes and what stays the same
Significance	significant scientists, discoveries, laws, models and theories
Written and oral expression	Using scientific terminology, evaluation, drawing conclusions, objectivity, explaining processes, describing and explaining patterns, presenting and interpreting data

Key vocabulary

classify	Put things into groups
gather	To collect
identify	Knowing what something is
observe	Looking closely at something
record	A way of remembering what happened
experiment	A science test to find something out
Ole Kirk Christiansen	Inventor of Lego
test	An activity

Assessment points

- **Recognise** that scientists need specific skills
- **Identify** some of the skills scientists need
- **Observe** what happens during a scientific test
- **Describe** what you observed during the test
- **Recall** the names of some famous scientists
- **Record** findings of a test
- **Compare** results with other tests
- **Answer** questions about why scientists need specific skills

National Curriculum Coverage

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

Target Tracker statements

- Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum
- Use simple equipment to observe closely including changes over time
- Communicate his/her ideas, what he/she does and what he/she finds out in a variety of ways
- Perform simple comparative tests
- Identify, group and classify
- Use his/her observations and ideas to suggest answers to questions noticing similarities, differences and patterns
- Gather and record data to help in answering questions including from secondary sources of information

SEN/D minimum expectations
Children will use equipment designed to help perform a simple test. With support, can perform a simple test and explain what happened.

High prior attainment and extension opportunities
Children to think about and discuss some ideas for other simple experiments, including how to plan and conduct it.



Objective
To know about how plants grow

Enquiry
What do farmers need to make bread?



Substantive Knowledge (Content)

- When seeds grow into plants
- What bulbs are
- How seeds are dispersed
- What seeds need to germinate and grow
- How plants change over time

Prior Learning

EYFS
Children have planted bulbs and observed their growth from Autumn to Spring. Children have sown seeds and observed their growth across the year. Children have closely observed flowering plants in the Giving Garden.

Y1
Children have begun to learn about the main parts of plants

Future Learning

Y2
Children will develop their understanding living things including needs for survival

KS2
Children will explore the function of plant parts using increasing scientific vocabulary

Skills

Ask and answer questions	Answering questions using data or information that they have not collected firsthand
Use equipment	Understand and demonstrate how different scientific tools can be used
Perform tests	Conducting an experiment
Identify and classify	Identifying and naming materials/living things and organise them into groups
Observe	Observing or measuring how one variable changes over time
Data recording	Documenting facts and observations

Concepts

Responsibility	Working safely, how science can solve problems, climate change and sustainability
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	models and laws, reactions between materials, observing processes
Continuity and change	observing what changes and what stays the same
Significance	significant scientists, discoveries, laws, models and theories
Written and oral expression	Using scientific terminology, evaluation, drawing conclusions, objectivity, explaining processes, describing and explaining patterns, presenting and interpreting data

Key vocabulary

disperse	When seeds move away from the parent plant.
germination	When the conditions are right, the seed soaks up water and swells, and the tiny new plant bursts out of its shell.
sunlight	Light that comes from the sun.
temperature	How warm or cold something is.
water	A liquid needed to helps plants grow.
seed	A seed contains a miniature plant.
shoot	A shoot grows upwards from the seed or plant to find sunlight.

Assessment points

- **Recognise** seeds and bulbs
- **Identify** some differences between bulbs and seeds
- **Perform** a simple test involving seeds
- **Observe** how seeds and plants change over time
- **Recall** what disperse means
- **Record** how plants change over time
- **Describe** how seeds and bulbs change over time
- **Compare** the growth of seeds under various conditions
- **Explain** the best time to plant seeds and bulbs

National Curriculum Coverage

- Observe and describe how seeds and bulbs grow into mature plants
- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy

Target Tracker statements

- Observe and describe how seeds and bulbs grow into mature plants
- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy

SEN/D minimum expectations
Children to identify differences between seeds grown in different conditions. With support, can explain how plants grow.

High prior attainment and extension opportunities
Children to think about, discuss and reason when is the best time to plant seeds and bulbs.



Objective
To know how animals grow and survive

Enquiry
What is a cygnet?



Substantive Knowledge (Content)

- What offspring are
- How animals reproduce
- How animals grow
- What animals need to survive
- How habitats help animals to survive
- What a healthy balanced diet is
- Why exercise is important

Prior Learning

EYFS
Children have identified, described and compared different invertebrates. Children have observed the process of change from caterpillar to butterfly and tadpole to frog (tadpole to frog is dependent on availability of tadpoles in school pond).

Y1
Children began to learn about animal types including the names of some animals

Future Learning

Y2
Children will continue to look at animals in relation to habitats

KS2
Children will develop their knowledge of nutrition in relation to specific animals

Skills

Ask and answer questions	Answering questions using data or information that they have not collected firsthand
Identify and classify	Identifying and naming materials/living things and organise them into groups
Observe	Observing or measuring how one variable changes over time
Data recording	Documenting facts and observations

Concepts

Responsibility	Working safely, how science can solve problems, climate change and sustainability
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	models and laws, reactions between materials, observing processes
Continuity and change	observing what changes and what stays the same
Significance	significant scientists, discoveries, laws, models and theories
Written and oral expression	Using scientific terminology, evaluation, drawing conclusions, objectivity, explaining processes, describing and explaining patterns, presenting and interpreting data

Key vocabulary

adult	A fully-grown animal or plant
young	Offspring that has not reached adulthood
life cycle	The changes living things go through to become an adult
offspring	The child of an animal
survival	Staying alive
air	What we need to breathe
develop	To grow bigger and become stronger
diet	The food and water that animals need
exercise	A physical activity to keep your body fit
food	Something you eat
water	Something you drink

Assessment points

- **Recognise** offspring and their adults
- **Identify** some things animals need to survive
- **Record** a life cycle for an animal
- **Describe** how animals change in a life cycle
- **Compare** different types of food
- **Explain** why exercise is important

National Curriculum Coverage

- 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.

Target Tracker statements

- Understand that animals, including humans, have offspring which grow into adults
- 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

SEN/D minimum expectations
Children to understand what a life cycle is. With support, can explain what animals need to help them grow and survive.

High prior attainment and extension opportunities
Children to think about, discuss and reason why humans shouldn't eat too much unhealthy food.



Objective

To identify and name habitats and their properties

Enquiry

Why do many snakes live in grass?



Substantive Knowledge (Content)

- What things are living, dead and have never been alive
- Why living things need suitable habitats
- What different habitats there are
- What a micro-habitat is
- What a food chain is
- Why food chains are important

Prior Learning

EYFS

Children have identified, described and compared different invertebrates. Children have observed the process of change from caterpillar to butterfly and tadpole to frog (tadpole to frog is dependent on availability of tadpoles in school pond). Children have explored the world around them and compared their immediate environment to environments in different parts of the world.

Y1

Children have developed their classifying skills

Y2

Children have learned the names of some animals and survival needs

Future Learning

Y2

Children will continue to look at properties when exploring materials in more depth

KS2

Children will begin to understand that changes in environment can have an impact on living things

Skills

Ask and answer questions	Answering questions using data or information that they have not collected firsthand
Identify and classify	Identifying and naming materials/living things and organise them into groups
Observe	Observing or measuring how one variable changes over time
Data recording	Documenting facts and observations

Concepts

Responsibility	Working safely, how science can solve problems, climate change and sustainability
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	models and laws, reactions between materials, observing processes
Continuity and change	observing what changes and what stays the same
Significance	significant scientists, discoveries, laws, models and theories
Written and oral expression	Using scientific terminology, evaluation, drawing conclusions, objectivity, explaining processes, describing and explaining patterns, presenting and interpreting data

Key vocabulary

habitat	The place where something lives
micro-habitat	A very small habitat, such as under a rock
food chain	A sequence of different things that eat each other
desert	A type of habitat
rainforest	A type of habitat
Arctic	A type of habitat
coastal	A type of habitat
dead	Something that is no longer living
food source	The place a living thing's food comes from
Living	Alive
never living	Something that has never been alive
ocean	A type of habitat
urban	A type of habitat
woodland	A type of habitat

Assessment points

- **Recognise** different habitats
- **Identify** animals that live in habitats
- **Observe** how habitats differ
- **Recall** what a food chain is
- **Record** a food chain
- **Describe** why living things need suitable habitats
- **Compare** things that are alive, dead and have never been alive
- **Explain** what a habitat is

National Curriculum Coverage

- Explore and compare the differences between things that are living, dead, and things that have never been alive
- Identify 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 and plants, and how they depend on each other
- Identify and name a variety of plants and animals in their habitats, including microhabitats
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Target Tracker statements

- Explore and compare the differences between things that are living, dead, and things that have never been alive
- Identify 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 and plants
- Identify and name a variety of plants and animals in their habitats, including micro-habitats
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food

SEN/D minimum expectations

Children to name some different habitats. With support, children can explain what a habitat is.

High prior attainment and extension opportunities

Children to think about, discuss and reason what would happen if a species of animal left a habitat.



Objective

To identify and compare the suitability of materials

Enquiry

Where is the best place to keep a muddy bike?



Substantive Knowledge (Content)

- What are some different types of material
- How materials can be sorted
- Which materials are man-made and which are natural
- What different ways materials can change shape
- Why some materials are more suitable than others
- What different products can be made from materials

Prior Learning

EYFS

Children have explored the materials of properties through art and junk modelling experiences. Children have explored the concept of waterproofing in their investigation of weather. Children have explored transparency, translucency and opacity in their use of light as a loose part.

Y1

Children began to look at materials

Y2

Children have used their observing and recording skills

Future Learning

Y2

Children will continue to refine the way they perform tests, including finding ways to answer and ask questions

KS2

Children will explore the idea of solids, liquids and gases and how they are related to different materials

Skills

Ask and answer questions	Answering questions using data or information that they have not collected firsthand
Use equipment	Understand and demonstrate how different scientific tools can be used
Perform tests	Conducting an experiment
Identify and classify	Identifying and naming materials/living things and organise them into groups
Observe	Observing or measuring how one variable changes over time
Data recording	Documenting facts and observations

Concepts

Responsibility	Working safely, how science can solve problems, climate change and sustainability
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	models and laws, reactions between materials, observing processes
Continuity and change	observing what changes and what stays the same
Significance	significant scientists, discoveries, laws, models and theories
Written and oral expression	Using scientific terminology, evaluation, drawing conclusions, objectivity, explaining processes, describing and explaining patterns, presenting and interpreting data

Key vocabulary

man-made material	A material made by people such as glass
natural material	A material made by nature such as wood
properties	What a material is like and how it behaves
durable	Strong and lasts a long time
suitability	Having the properties that are right for a specific purpose
bend	A way to change the shape of a material
cardboard	A type of material
fabric	A type of material
glass	A type of material
material	What an object is made of
metal	A type of material
paper	A type of material
plastic	A type of material
rubber	A type of material
squash	A way to change the shape of a material
stretch	A way to change the shape of a material
twist	A way to change the shape of a material
wood	A type of material

Assessment points

- **Recognise** different materials
- **Identify** the materials used to make products
- **Record** a list of materials used to make specific products
- **Classify** things based on their materials
- **Observe** how materials can change shape
- **Recall** some of the properties of materials
- **Describe** what suitability means
- **Compare** the suitability of materials
- **Explain** why some materials are better than others for making products

National Curriculum Coverage

- 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.

Target Tracker statements

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

SEN/D minimum expectations

Children to identify some of the materials used to make an object. With support, can say some of the ways materials can change shape.

High prior attainment and extension opportunities

Children to think about, discuss and reason what the most durable material is and what it could be used for.



Objective
To conduct an investigation

Enquiry
What makes a good scientist?



- Substantive Knowledge (Content)**
- What gravity is
 - How gravity affects everyday objects
 - What happens when light passes through an object
 - Perform simple tests involving senses and reflexes
 - How germs are transmitted
 - What a circuit is
 - How to make a lightbulb light up
 - Who Isaac Newton and Thomas Edison were
 - Why Newton and Edison were famous

Prior Learning

EYFS
Children have learnt about what scientists do. They have learnt about the scientists Stephen Hawking and Jane Goodall. They have explored some changing states of matter, such as melting, freezing, solidifying and evaporating. Children have observed processes such as seasonal change and growth from baby to adult. Children have explored changing states of matter in their observation of weather e.g. snow and ice; clouds and rain; evaporation.

Y1
The children began to answer questions about what they had learned

Y2
Children performed simple tests when exploring materials

Future Learning

KS2
The children will continue to enhance the ability to work scientifically using a wider range of equipment.

Skills

Ask and answer questions	Answering questions using data or information that they have not collected firsthand
Use equipment	Understand and demonstrate how different scientific tools can be used
Perform tests	Conducting an experiment
Identify and classify	Identifying and naming materials/living things and organise them into groups
Observe	Observing or measuring how one variable changes over time
Data recording	Documenting facts and observations

Concepts

Responsibility	Working safely, how science can solve problems, climate change and sustainability
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	models and laws, reactions between materials, observing processes
Continuity and change	observing what changes and what stays the same
Significance	significant scientists, discoveries, laws, models and theories
Written and oral expression	Using scientific terminology, evaluation, drawing conclusions, objectivity, explaining processes, describing and explaining patterns, presenting and interpreting data

Key vocabulary

electricity	A form of energy
gravity	A form of energy
transmitted	Travel from one place to another
Isaac Newton	A famous scientist who discovered gravity
Thomas Edison	A famous scientist who discovered electricity
equipment	Something we can use
germs	A tiny thing than can cause disease
light	A form of energy our eyes can detect
observe	Looking at something
prediction	What might happen
senses	See, hear, touch, taste and smell
sound	A form of energy our ears can detect

- Assessment points**
- Use equipment to perform a simple test
 - Perform a simple test
 - Observe what happens during and after a test
 - Record what happened during a simple test
 - Answer question about what they have learned
 - Ask questions about what they could find out next
 - Predict what might happen in a simple test with reasoning
 - Explain who Isaac Newton and Thomas Edison were

- National Curriculum Coverage**
- Asking simple questions and recognising that they can be answered in different ways
 - Observing closely, using simple equipment
 - Performing simple tests
 - Identifying and classifying
 - Using their observations and ideas to suggest answers to questions
 - Gathering and recording data to help in answering questions.

- Target Tracker statements**
- Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum
 - Use simple equipment to observe closely including changes over time
 - Communicate his/her ideas, what he/she does and what he/she finds out in a variety of ways
 - Perform simple comparative tests
 - Identify, group and classify
 - Use his/her observations and ideas to suggest answers to questions noticing similarities, differences and patterns
 - Gather and record data to help in answering questions including from secondary sources of information

SEN/D minimum expectations
Children will use equipment designed to help perform a simple test. With support, can perform a simple test and explain what happened.

High prior attainment and extension opportunities
Children to think about and discuss some ideas for other simple experiments, including how to plan and conduct it.

