



**Year 1**

**Plants**

- 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

**Animals Including Humans**

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

**Everyday Materials**

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

**Seasonal Changes**

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

**Lesson Examples:**

**Plants:**

- Go on a walk around school environment, identifying different trees (by their leaves), common wild plants and garden plants.
- Collage of the basic structure of a plant
- Grow cress heads, writing a diary to explain what it needs to grow.

**Animals including humans:**

- Draw around a member of the class in groups and label basic body parts.
- Explored the different senses and built vocabulary to describe the properties – taste test, smelling essential oils, blindfolded listening walk, bananas toasted on the bonfire at forest school, feely bags
- A day in the life of a farmer – writing questions to interview a local farmer, creating posters to display their information about the different animals.
- Sorting pictures of animals into different groups based on either their diet habits or the type of animals.

Everyday materials:

- Explored objects around the classroom, completing a table, to identify different materials
- Build a Gruffalo home out of different materials, ensuring it is waterproof.

Seasonal changes:

- Writing Autumn sense poem
- Each child taking it in turns to be the daily weather reporter, recognising weather symbols.

Evidence:

<https://twitter.com/danesfieldy1/status/1392104475150663681?s=21>

<https://youtu.be/1gaDFmUshMk>

<https://twitter.com/danesfieldy1/status/1384483149342666758?s=21>

<https://twitter.com/danesfieldy1/status/1318264576316723201?s=21>

<https://twitter.com/danesfieldy1/status/1319579305651863553?s=21>

<https://twitter.com/danesfieldy1/status/1310818476999802880?s=21>

<https://twitter.com/danesfieldy1/status/1310628110036017164?s=21>

<https://twitter.com/danesfieldy1/status/1305934995626905602?s=21>

## Year 2

### Living things and their Habitats

- 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 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

### Plants

- 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

#### **Animals Including Humans**

- notice that animals, including humans, have offspring which grow into adults
- find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene

#### **Uses of Everyday Materials**

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

Lesson examples:

#### **Living things and their Habitats**

- Go on a walk around the school environment, identifying different plants and trees.
- Look at different habitats, and micro-habitats, within the school grounds and identify animals living in these habitats.
- Categorise animals into whether they are carnivores, herbivores or omnivores and how they depend on each other for survival.

#### **Plants**

- Grow sunflowers and keep a diary to record its growth.
- Conduct a variety of investigations to find out whether plants really need light, warmth, air, soil or water to grow and survive.
- Plant life cycles and ways of seed dispersal.

#### **Animals Including Humans**

- Identification of ourselves as babies from photographs and discussed how we have changed in appearance and what we have learnt to do.
- Writing messages to put in a bottle asking for essentials for survival as we were stranded on a desert island.
- Keep a food diary for a week and analyse its contents to see if we are consuming a balanced diet.
- Comparing our pulse before and after exercise using a finger pulse monitor.
- We covered our hands in glitter and tried various ways to remove the glitter to demonstrate the importance of washing our hands properly.

#### **Uses of Everyday Materials**

- Labelled classroom items according to material and properties, and discussed the suitability for purpose.
- Investigations to find the most suitable paper to wrap a Christmas present and the strongest paper to build a bridge to hold a car.
- Making slime to understand how chemical reactions can change the state of certain ingredients.
- Investigation to find which materials are conductors or insulators of electricity within a simple circuit.

Evidence: (Twitter links)

<https://twitter.com/DanesfieldY2/status/1392539342703407104?s=20>

<https://twitter.com/DanesfieldY2/status/1372189363610787843?s=20>

<https://twitter.com/DanesfieldY2/status/1356992297498476544?s=20>  
<https://twitter.com/DanesfieldY2/status/1349452956853264387?s=20>  
<https://twitter.com/DanesfieldY2/status/1339175138047221765?s=20>  
<https://twitter.com/DanesfieldY2/status/1324041330025205760?s=20>  
<https://twitter.com/DanesfieldY2/status/1199759253155827714?s=20>

### Year 3

#### Plants

- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant
- investigate the way in which water is transported within plants
- explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal

#### Animals, including Humans

- identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
- identify that humans and some other animals have skeletons and muscles for support, protection and movement

#### Rocks

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

#### Light

- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light source is blocked by an opaque object
- find patterns in the way that the size of shadows change

#### Forces and Magnets

- compare how things move on different surfaces
- notice that some forces need contact between two objects, but magnetic forces can act at a distance
- observe how magnets attract or repel each other and attract some materials and not others
- compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
- describe magnets as having two poles

- predict whether two magnets will attract or repel each other, depending on which poles are facing

Lesson examples:

Light: (Done in remote learning)

- Children make their own light quiz for Kahoot on what they have learned.
- Children design their own bag for school based on reflective materials.
- Children investigate how light bounces off of certain materials.
- Children create posters based on what they have learned about sun safety

Plants:

- Dissect daffodils in groups. Label the parts on flipchart paper.
- Plant seeds in different conditions to see what they need to grow.
- Children learn about pollination.
- Children put a flower into dyed water to show how water travels.

Rocks:

- Collect soils from different parts of the playground and mix with water in glass jars. Write about the layers in the soil.
- Look at different types of rocks. Classify them according to what type of rock they are.
- Write a diary entry in the character of Mary Anning.

Forces and magnets:

- Use a toy car to go down ramps of different materials to investigate how friction affects the speed.
- Using magnets to identify magnetic materials

Animals including humans:

- Children become personal nutritionists and use food diaries to make graphs charting sugar intake and fruit and veg intake.
- Children make an Eatwell Plate. Showing the main food groups and the proportions needed for a well-balanced diet.

Evidence: (Twitter links):

**Plastic Pollution/ The environment**

Investigation over time of what happens to rubbish in landfill - before <https://twitter.com/DanesfieldY3/status/1391465304027435011> after - <https://twitter.com/DanesfieldY3/status/1406599871013007365>

Understanding more sustainable ways to process our waste with EFW on teams - <https://twitter.com/DanesfieldY3/status/1386711691145191424>

**Plants**

Seeing new innovations in technology at aerofarms - <https://twitter.com/DanesfieldY3/status/1384437460839636995>

Investigating the effects of friction upon gravity with toy cars <https://twitter.com/DanesfieldY3/status/1337793993376227328>

**Rocks/Fossils/Soil**

Investigating the soil type and layers at Danesfield <https://twitter.com/DanesfieldY3/status/1324814378127007746>

**Light**

Kahoot quiz on reflective materials. <https://twitter.com/DanesfieldY3/status/1355962436491366401>

## Year 4

### **Living Things and their Habitats**

- recognise that living things can be grouped in a variety of ways
- explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
- recognise that environments can change and that this can sometimes pose dangers to living things

### **Animals, including Humans**

- describe the simple functions of the basic parts of the digestive system in humans
- identify the different types of teeth in humans and their simple functions
- construct and interpret a variety of food chains, identifying producers, predators and prey

### **States of Matter**

- compare and group materials together, according to whether they are solids, liquids or gases
- observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)
- identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

### **Sound**

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

### **Electricity**

- identify common appliances that run on electricity
- construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
- recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- recognise some common conductors and insulators, and associate metals with being good conductors

Lesson examples:

**Living Things and their Habitats**

- Greta Thunberg inspired speeches about saving our planet using FlipGrid to record
- Designing our own technology to help farmers today using PowerPoint to share our inventions

**Animals Including Humans**

- Comparing different real-life reptiles (toads and newts) and looking at the life cycle
- Using different fizzy drinks to investigate the effect they have on our teeth using a hard-boiled egg

**States of Matter**

- Melting chocolate to investigate the effect of water temperature on melting
- Illustrating the water cycle on plastic food bags filled with water and food colouring and observing changes over time
- Investigating different amounts of carbon dioxide in our favourite fizzy drinks using scales

**Sound**

- Making telephones using cups and string
- Musical instruments to explore sound, investigating pitch and volume

**Electricity**

- Investigating what different types of fruit will complete a circuit
- Making own game of 'Operation' to design own buzzers.

Evidence: (Twitter links)

<https://twitter.com/DanesfieldY4/status/1396919087159287821?s=20>

<https://twitter.com/DanesfieldY4/status/1392467580221337602?s=20>

<https://twitter.com/DanesfieldY4/status/1390309072541388806?s=20>

<https://twitter.com/DanesfieldY4/status/1388013479425085440?s=20>

<https://twitter.com/DanesfieldY4/status/1388012762094313472?s=20>

<https://twitter.com/DanesfieldY4/status/1385676614550315020?s=20>

<https://twitter.com/DanesfieldY4/status/1385642604625375232?s=20>

<https://twitter.com/DanesfieldY4/status/1359431175438270468?s=20>

<https://twitter.com/DanesfieldY4/status/1353999717382774784?s=20>

## Year 5

### **Living Things and their Habitats**

- describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- describe the life process of reproduction in some plants and animals

### **Animals, including Humans**

- describe the changes as humans develop to old age

### **Properties and changes of Materials**

- compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- demonstrate that dissolving, mixing and changes of state are reversible changes
- explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

### **Earth and Space**

- describe the movement of the Earth, and other planets, relative to the Sun in the solar system
- describe the movement of the Moon relative to the Earth
- describe the Sun, Earth and Moon as approximately spherical bodies
- use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky

### **Forces**

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

#### Lesson Examples:

##### Living Things and their Habitats

- The life cycle of an insect: we observed caterpillars in our classrooms going through complete metamorphosis and then released them into the wild as butterflies.
- The life cycle of an amphibian: we went to the forest, where our school tadpoles live, to observe them in their natural habitat. We then had to find clue cards hidden around the forest that detailed the different stages of their incomplete metamorphosis.

##### Animals, including Humans

- Human life cycle: to start our topic we read a translation of Shakespeare's monologue 'The Seven Stages of Man' from *As You Like It*. We had to put it in order and then we watched it being performed.
- The start of the human life cycle: some of us brought in photographs of ourselves as babies and the rest of the class had to guess who was who. We discussed how similar (or not!) we looked and talked about inherited characteristics.

##### Earth and Space

- Phases of the moon: we used black card and chalk to create pieces of art that included each phase of the moon and labelled them with their scientific names.
- Day & night: we created a 3D model of the Sun and Earth to explain how we get day and night and narrated it for an informative video.
- The planets of the solar system: we researched, drafted, wrote and edited detailed reports about a planet in our solar system.
- Space: we had a Skype session with Space Dave from New Zealand to kick start our space topic. He is a space expert and taught us lots of fun facts.

##### Forces

- Water resistance: we worked in groups to build tin foil boats to investigate what shape created the most water resistance.
- Air resistance: we worked in groups to build and test parachutes to investigate what shape created the most air resistance.
- Friction: we worked in groups using ramps covered in different materials to investigate momentum, gravity and friction.

#### Evidence:

(Twitter links)

<https://twitter.com/DanesfieldY5/status/1339283918491676674?s=20>

<https://twitter.com/DanesfieldY5/status/1337411995914670080?s=20>

<https://twitter.com/DanesfieldY5/status/1333737168511053825?s=20>

<https://twitter.com/DanesfieldY5/status/1324072856913874948?s=20>

<https://twitter.com/DanesfieldY5/status/1311283801151205377?s=20>

## Year 6

### **Living Things and their Habitats**

- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- give reasons for classifying plants and animals based on specific characteristics

### **Animals, including Humans**

- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
- describe the ways in which nutrients and water are transported within animals, including humans

### **Evolution and Inheritance**

- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

### **Light**

- recognise that light appears to travel in straight lines
- use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
- explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

### **Electricity**

- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
- use recognised symbols when representing a simple circuit in a diagram

Lesson Examples:

Living things and their habitats:

- Mould investigation

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Animals including humans:

- Farmvention
- Bleep test heart rate investigation
- Heart human model

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Evolution and Inheritance:

- Toilet roll timeline
- Fossil making

Light:

- Making a periscope
- Refracting light with prisms

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Electricity:

- Burglar alarms
- Circuit challenge
- Making a board game

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Evidence:

(Twitter links)

<https://twitter.com/danesfieldy6/status/1389586774586970114?s=21> (Leadership box)

<https://twitter.com/danesfieldy6/status/1387131492128657410?s=21> (Burglar alarms STEM)

<https://twitter.com/danesfieldy6/status/1387101198931611648?s=21> (Classifying plants)

<https://twitter.com/danesfieldy6/status/1384960248402825216?s=21> (Electricity, science week)

<https://twitter.com/danesfieldy6/status/1372195126164983817?s=21> (Circuits)

