

Identify and classifying

Year 1

How can we sort the leaves that we collected on our walk?

How can we organise all the zoo animals?

What are the names for all the parts of our bodies?

How would you group these things based on which season you are most likely to see them in?

We need to choose a material to make an umbrella. Which materials are waterproof?

Which materials will float and which will sink?

Year 2

How can we identify the trees that we observed on our tree hunt?

Which offspring belongs to which animal?

How would you group these plants and animals based on what habitat you would find them in?

How would you group things to show which are living, dead, or have never been alive?

Which materials are shiny and which are dull?

Which materials will let electricity go through them, and which will not?

Year 3

How many different ways can you group our seed collection?

How do the skeletons of different animals compare?

Can you use the identification key to find out the name of each of the rocks in your collection?

How would you organise these light sources into natural and artificial sources?

How can we group the food that we eat?

Which materials are magnetic?

Year 4

What are the names for all the organs involved in the digestive system?

How can we organise teeth into groups?

Can you group these materials and objects into solids, liquids, and gases?

Can we use the classification keys to identify all the animals that we caught pond dipping?

How would you group these electrical devices based on where the electricity comes from?

How would you sort these objects/materials based on their temperature?

Year 5

Can you identify all the stages in the human life cycle?

Compare this collection of animals based on similarities and differences in their lifecycle.

Can you group these materials based on whether they are transparent or not?

How could you organise all the objects in the solar system into groups?

Can you label and name all the forces acting on the objects in each of these situations?

Can you observe and identify all the phases in the cycle of the Moon?

Year 6

How would you make a classification key for vertebrates/invertebrates or microorganisms?

Which organs of the body make up the circulation system, and where are they found?

Compare the skeletons of apes, humans, and Neanderthals – how are they similar, and how are they different?

Can you classify these observations into evidence for the idea of evolution, and evidence against?

Can you identify all the colours of light that make white light when mixed together? What colours do you get if you mix different colours of light together?

How would you group electrical components and appliances based on what electricity makes them do?

Pattern Seeking

Year 1

Do trees with bigger leaves lose their leaves first in autumn?

Is there a pattern in where we find moss growing in the school grounds?

Do you get better at smelling as you get older?

Does the wind always blow the same way?

Is there a pattern in the types of materials that are used to make objects in a school?

Year 2

Do bigger seeds grow into bigger plants?

What conditions do woodlice prefer to live in?

Which age group of children wash their hands the most in a day?

Which habitat do worms prefer – where can we find the most worms?

Do magnetic materials always conduct electricity?

Year 3

What colour flowers do pollinating insects prefer?

Do male humans have larger skulls than female humans?

Is there a pattern in where we find volcanoes on planet Earth?

Are you more likely to have bad eye sight and to wear glasses if you are older?

Does the size and shape of a magnet affect how strong it is?

Year 4

How has the use of insecticides affected bee population?

Are foods that are high in energy always high in sugar?

Is there a pattern in how long it takes different sized ice lollies to melt?

Is there a link between how loud it is in school and the time of day? If there is a pattern, is it the same in every area of the school?

Which room has the most electrical sockets in a house?

Year 5

Is there a relationship between a mammal's size and its gestation period?

Are the oldest children in our school the tallest?

Do all stretchy materials stretch in the same way?

Is there a pattern between the size of a planet and the time it takes to travel around the Sun?

Do all objects fall through water in the same way?

Year 6

Do larger flowers have more petals?

Is there a pattern between what we eat for breakfast and how fast we can run?

Is there a pattern between the size and shape of a bird's beak and the food it will eat?

Is there a pattern to how bright it is in school over the day? And, if there is a pattern, is it the same in every classroom?

Does the temperature of a light bulb go up the longer it is on?

Observation over time

Year 1

How does a daffodil bulb change over the year?

How does my sunflower change each week?

How does the oak tree change over the year?

How does my height change over the year?

What happens to materials over time if we bury them in the ground?

What happens to shaving foam over time?

How does the colour of a UV bead change over the day?

Year 2

What happens to my bean after I have planted it?

How does a tadpole change over time?

How does the school pond change over the year?

How much food and drink do I have over a week?

How long do bubble bath bubbles last for?

What will happen to our snowman?

Would a paper boat float forever?

Year 3

What happens to celery when it is left in a glass of coloured water?

How do flowers in a vase change over time?

How does tumbling change a rock over time?

What happens when water keeps dripping on a sandcastle?

If we magnetise a pin, how long does it stay magnetised for?

When is our classroom darkest?

Is the Sun the same brightness all day?

Year 4

How does the variety of invertebrates on the school field change over the year?

How does an egg shell change when it is left in cola?

Which material is best for keeping our hot chocolate warm?

How does the level of water in a glass change when left on the windowsill?

How does the mass of an ice cube change over time?

How long does a battery light a torch for?

When is our classroom the quietest?

Year 5

How do brine shrimp change over their lifetime?

How does a bean change as it germinates?

How does our compost heap change over time?

How does a container of salt water change over time?

How does a sugar cube change as it is put in a glass of water?

How does a nail in salt water change over time?

How long does a pendulum swing for before it stops?

Year 6

What happens to a piece of bread if you leave it on the windowsill for two weeks?

How does my heart rate change over the day?

How do different animal embryos change?

How much exercise do I do in a week?

Does the temperature of a light bulb go up the longer it is on?

How would you group electrical components and appliances based on what electricity makes them do?

How does my shadow change over the day?

Fair Testing

Year 3

How does the length of the carnation stem affect how long it takes for the food colouring to dye the petals?

How does the angle that your elbow/knee is bent affect the circumference of your upper arm/thigh?

How does adding different amounts of sand to soil affect how quickly water drains through it?

How does the number of layers of transparent plastic affect how much light can pass through?

How does the mass of an object affect how much force is needed to make it move?

How does the distance between the shadow puppet and the screen affect the size of the shadow?

Year 4

Does the amount of light affect how many woodlice move around?

How does the mass of a block of ice affect how long it takes to melt?

How does the surface area of a container of water affect how long it takes to evaporate?

How does the volume of a drum change as you move further away from it?

How does the thickness of a conducting material affect how bright the lamp is?

How does the length of a guitar string/tuning fork affect the pitch of the sound?

Year 5

How does the level of salt affect how quickly brine shrimp hatch?

How does age affect a human's reaction time?

How does the temperature of tea affect how long it takes for a sugar cube to dissolve?

How does the angle of launch affect how far a paper rocket will go?

How does the surface area of a container affect the time it takes to sink?

How does the surface area of a parachute affect the time it takes to fall to the ground?

Year 6

How does the temperature affect how much gas is produced by yeast?

How does the length of time we exercise for affect our heart rate?

Can exercising regularly affect your lung capacity?

How does the angle that a light ray hits a plane mirror affect the angle at which it reflects off the surface?

How does the voltage of the batteries in a circuit affect the brightness of the lamp?

How does the voltage of the batteries in a circuit affect the volume of the buzzer?

Research

Year 1

What are the most common British plants and where can we find them?

How are the animals in Australia different to the ones that we find in Britain?

Do all animals have the same senses as humans?

Are there plants that are in flower in every season? What are they?

How are bricks made?

Which materials can be recycled?

Year 2

How does a cactus survive in a desert with no water?

What do you need to do to look after a pet dog/cat/lizard and keep it healthy?

What food do you need in a healthy diet and why?

How does the habitat of the Arctic compare with the habitat of the rainforest?

How have the materials we use changed over time?

How are plastics made?

Year 3

What are all the different ways that seeds disperse?

Why do different types of vitamins keep us healthy and which foods can we find them in?

Who was Mary Anning and what did she discover?

How does the Sun make light?

How have our ideas about forces changed over time?

How does a compass work?

Year 4

Why are people cutting down the rainforests and what effect does that have?

How do dentists fix broken teeth?

What are hurricanes, and why do they happen?

How has electricity changed the way we live?

How does a light bulb work?

Do all animals have the same hearing range?

Year 5

What are the differences between the life cycle of an insect and a mammal?

Why do people get grey/white hair when they get older?

What are microplastics and why are they harming the planet?

How have our ideas about the solar system changed over time?

What unusual objects did Jocelyn Bell Burnell discover?

How do submarines sink if they are full of air?

Year 6

What do different types of microorganisms do? Are they always harmful?

How have our ideas about disease and medicine changed over time?

What happened when Charles Darwin visited the Galapagos islands?

Why do some people need to wear glasses to see clearly?

How has our understanding of electricity changed over time?

How do astronomers know what stars are made of?

Comparative tests

Year 1

Which type of compost grows the tallest sunflower?

Which tree has the biggest leaves?

Is our sense of smell better when we can't see?

In which season does it rain the most?

Which materials are the most flexible?

Which materials are the most absorbent?

Year 2

Do cress seeds grow quicker inside or outside?

Do amphibians have more in common with reptiles or fish?

Do bananas make us run faster?

Is there the same level of light in the evergreen wood compared with the deciduous wood?

Which shapes make the strongest paper bridge?

Which material would be best for the roof of the little pig's house?

Year 3

Which conditions help seeds germinate faster?

How does the skull circumference of a girl compare with that of a boy?

Which soil absorbs the most water?

Which pair of sunglasses will be best at protecting our eyes?

Which magnet is strongest?

Which surface is best to stop you slipping?

Year 4

How does the average temperature of the pond water change in each season?

In our class, are omnivores taller than vegetarians?

Does seawater evaporate quicker than fresh water?

Which material is best to use for muffling sound in ear defenders?

Are two ears better than one?

Which metal is the best conductor of electricity?

Year 5

Which seed shape takes the longest time to fall?

Who grows the fastest, girls or boys?

Which type of sugar dissolves the fastest?

How does the length of daylight hours change in each season?

Which shoe is the most slippery?

Which shape parachute takes the longest to fall?

Year 6

Which is the most common invertebrate on our school playing field?

Which type of exercise has the greatest effect on our heart rate?

What is the most common eye colour in our class?

Which material is most reflective?

Which make of battery lasts the longest?

Which type of fruit makes the best fruity battery?