Year group: 3 Topic: Rocks

What should I already know?
Children have not previously studied rocks.

What will I know by the end of the unit? (Substantive Knowledge)
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.

Key Vocabulary	
Criteria	Formation
Coarse	Crust
Layered	molten
Crystalline	Lava
Grainy	Erupt
Crystal	Solidify
Particle	Sediment
Permeable	Igneous
Impermeable	Sedimentary
Chalk	Metamorphic
Limestone	Organic matter
Basalt	Fossil
Marble	Mould
Mudstone	Prehistoric
Sandstone	Minerals
Slate	Deduce
Granite	Carnivore
Pumice	Herbivore

Common misconceptions
Children sometimes think that all rocks must be heavy. They often believe that soil must have always been in its present form.

Working Scientifically (Disciplinary Knowledge)
Ask relevant questions and using different types of scientific enquiries to answer them Set up simple practical enquiries, comparative and fair tests Make systematic and careful observations Gather, record, classify and present data in a variety of ways Identify differences, similarities or changes related to simple scientific ideas and processes . Use straightforward scientific evidence to answer questions or to support their findings.

Year group: 3 Topic: Light

What should I already know?

This is the first time that pupils have studied light.

What will I know by the end of the unit? (Substantive Knowledge)

state the difference between light sources and other shiny objects
name a number of light sources including the Sun
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 a solid object
find patterns in the way that the size of shadows change.

Working Scientifically (Disciplinary Knowledge)

simple practical enquiries, comparative and fair tests
making systematic and careful observations taking accurate measurements using standard units, using a range of equipment, including thermometers, data loggers recording findings
use scientific language, drawings, labelled diagrams, keys, bar charts, and tables
reporting on findings from enquiries, displays or presentations of results and conclusions
using results to draw simple conclusions Suggest improvements and raise further questions
Using straightforward scientific evidence to answer questions or to support their findings.

Key Vocabulary

light	Day
dark	Twilight
night	dim
day	daylight
light source	senses
Sun	reflect
Moon	eye
torch	eyelid
candle	eye lashes
lamp	pupil
glow	iris
shine	eye brow
reflect	Sunglasses
sparkle	Blink
reflected	Transparent
mirror	Opaque
light source	Translucent
danger	Block
Surface	Shadow
shiny	travelbright
dull	Sensor
reflective strip	data logger
Bright	data
fluorescent	

Common misconceptions

Children sometimes think of seeing as an active process, in other words we see an object because light comes out of our eyes (like superman) and travels to the object. Some may suggest that opening and closing the eye is similar to switching on a light in a room. When the eye is open light pours out from it.

Children can get very confused about shadows and reflections. For example they may think a shadow is a particular type of re-

Year group: 3 Topic: Forces and Magnets

What should I already know?

Pupils may have played with magnets before but have not learned about magnets.

What will I know by the end of the unit? (Substantive Knowledge)

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.

Common misconceptions

Children commonly believe that because friction hinders motion you always want to eliminate friction. They may think that all metals are attracted to a magnet or that any silver coloured metal is attracted to a magnet. They are likely to think that larger magnets are stronger than smaller magnets.

Key Vocabulary

Force	Table
Newton	Prediction
Twist	Fair test
Force meter	Conclusion
Direction	Evaluation
Compress	Magnet
Pull	Repel
Speed	Compass
Stretch	Attract
Push	Rotate
Distance	Variable
Shape	Strength
Mass	Evaluation
Results	

Working Scientifically (Disciplinary Knowledge)

Setting up simple practical enquiries, comparative and fair tests
Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
Recording findings using simple scientific language, drawings, labelled diagrams, bar charts, and tables
Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
Using results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests

Year group: 3 Topic: Animals including humans

What should I already know?

Identify and name a variety of common British animals that are birds, fish, amphibians, reptiles, mammals and invertebrates.

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.

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

What will I know by the end of the unit? (Substantive Knowledge)

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 animals have skeletons and muscles for support, protection and movement.

Common misconceptions

Some children think food doesn't provide material for growth - 90% of food is used as fuel and 10% for growth.

Key Vocabulary

Diet	Fuel
Invertebrate	Pelvis
Vertebrate	Skull
Carnivore	Ribs
Omnivore	Vertebra
Herbivore	Spine
Mammal	External
Plant	Internal
Carbohydrate	Movement
Protein	Joint
Fat	Muscles
Vitamin	Tendons
Mineral	Protect
Simple	Contract
Complex	Expand
Sweet	Involuntary muscle
Fatty	Cardiac muscle
Growth	Voluntary muscle
Repair	Bicep
Energy	Tricep

Working Scientifically (Disciplinary Knowledge)

Asking questions

Making systematic observations

Gathering, recording and classifying data

Reporting findings

Using results to draw simple conclusions

Identify similarities and differences

Using straightforward scientific evidence

Year group: 3 Topic: Plants

What should I already know?

Basic structure of a flowering plant—root, stem, leaf, flower.

How seeds and bulbs grow into mature plants.

How plants need water, light and a suitable temperature to grow and stay healthy.

What will I know by the end of the unit? (Substantive Knowledge)

Identify and describe the functions of different parts of flowering plants; roots, stem, 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 p in the life cycle of flowering plants, including pollination, seed for-

Common misconceptions

Children sometimes think that the nutrients that plants take in are their food.

Key Vocabulary

Seedling	Wilt
Conditions	Bark
Observations	Tap root
Variable	Fibrous root
Prediction	Wind dispersal
Filter	Animal dispersal
Structure	Scatter
Function	Seed pod
Nutrient	Life cycle
Dispersal	Germination

Working Scientifically (Disciplinary Knowledge)

Set up simple practical enquiries, comparative and fair tests.

Make systematic and careful observations and take accurate measurements using standard units using a range of equipment, including thermometers and data loggers.

Record findings using drawings, labelled diagrams, keys, bar charts and tables.

Report on findings from enquiries, written explanations or presentations of results and conclusions.