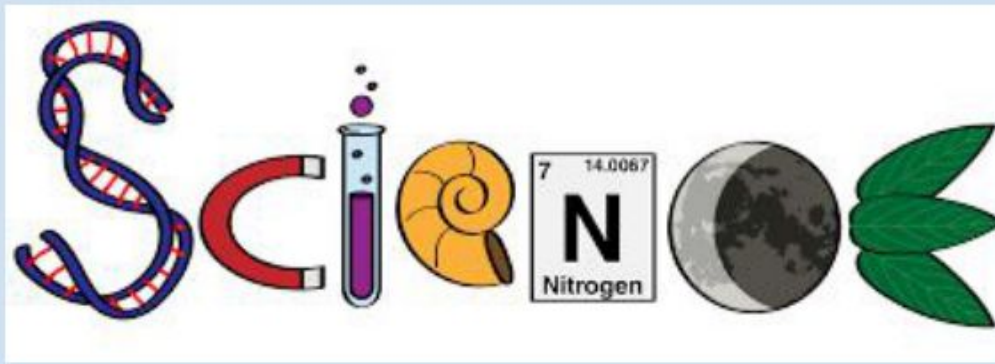




Year 1

Year 1 • Everyday Materials

Unit overview

KEY KNOWLEDGE

Describe the materials that a range of objects are made from. Describe simple physical properties of a variety of everyday materials. Compare and group everyday materials using their physical properties. Link object → material → property → application.

KEY VOCABULARY

object, material, wood, metal, plastic, wool, cotton, nylon, paper, cork, glass, rock, fabric, ceramic, rope, concrete, brick, rubber, sponge, elastic, foil, ice, property, rigid, flexible, hard, soft, waterproof, absorbent, warm, cold, rough, smooth, dull, shiny, opaque, transparent, sort, group, classify, criteria

PRIOR LEARNING

Builds from EYFS exploration of materials, textures, similarities/differences and choosing materials for making.

DISCIPLINARY KNOWLEDGE & SKILLS

Use and remember science words; add labels to diagrams. • Remember simple science facts and vocabulary. • Use senses appropriately to identify properties; link material to property. • Group by difference, similarity or change. • Link properties of materials to an application. • Apply remembered science facts and explain choices using properties.

ENQUIRY TYPES

Classification; comparative/fair testing; problem solving

SCIENTISTS / STEM LINKS

Charles Macintosh - waterproof materials; contemporary materials scientists and engineers.

WHY THIS? WHY NOW?

Builds on EYFS exploration of textures, materials and making. Pupils now name materials, describe observable properties and use these to explain why a material suits a purpose. This foundation is needed before Year 2 compares materials more systematically and explores how solids can be changed.

CAREERS LINK

Materials scientist • Product designer • Civil engineer • Builder
Gatsby: BM4 — link material properties to real jobs; BM5 — invite a construction/design professional; BM6 — explore materials used in a local workplace.

Year 1 • Everyday Materials

Learning sequence • knowledge, disciplinary skills and enquiry

Learning objectives / key knowledge	Disciplinary knowledge / skills	Enquiry opportunities	Enquiry type
What are objects made from? Link objects to the material(s) they are made from; identify mixed-material objects.	Use and remember science words; add labels to diagrams.	Explore and sort a wide range of familiar objects by material.	Classification; comparative/fair testing; problem solving
Can you name everyday materials? Recognise a wider range of everyday and less familiar materials.	Remember simple science facts and vocabulary.	Sort and compare materials; discuss similarities and differences.	
What are the properties of materials? Describe properties using comparative language.	Use senses appropriately to identify properties; link material to property.	Simple tests for rough/smooth, hard/soft, waterproof/absorbent, opaque/transparent.	
Can you compare properties of materials? Classify and begin to test materials for properties.	Group by difference, similarity or change.	Design simple ways to compare materials and rank them for a property.	
Which material is best for a job? Select materials by required properties and explain choices.	Link properties of materials to an application.	Comparative test linked to a practical application.	
Can you solve a materials problem? Select, test and refine material choices for a purposeful object.	Apply remembered science facts and explain choices using properties.	Problem-solving investigation: select and justify materials for a product.	

Year 1 • Forces

Unit overview

KEY KNOWLEDGE

Recognise and name a push and a pull force in action. Know that a force is needed to move an object. Explore that a bigger force is needed to move an object further. Know that a bigger force is needed to move a heavier object. Know that forces can be bigger or smaller and move an object in a direction, linking to the Force Arrow Model used later in KS2.

KEY VOCABULARY

force, push force, pull force, move, bigger, smaller, more, less, harder, softer, heavier, lighter, direction, variable, cause, effect, prediction, method

PRIOR LEARNING

Builds from EYFS exploration of how objects and materials are affected by forces, talking about why things happen and how things work, and managing simple risks. Also links to Year 1 materials vocabulary such as rigid, flexible and elastic.

DISCIPLINARY KNOWLEDGE & SKILLS

Use and remember relevant science words; describe what is happening using words, actions and science. • Add science labels to diagrams. • Suggest what might happen and make a simple prediction. • Recognise that variables can change and begin to identify the cause variable. • Follow demonstrated, spoken and picture instructions in order.

ENQUIRY TYPES

Classification; finding patterns; fair testing

SCIENTISTS / STEM LINKS

Isaac Newton - English scientist associated with explaining gravity; Isambard Kingdom Brunel - English engineer known for railways, steamships, tunnels and bridges.

WHY THIS? WHY NOW?

Builds on EYFS pushing, pulling and movement. Pupils now name forces, compare force size and explore effects on distance, heavier objects and direction. The Force Arrow Model prepares for later work.

CAREERS LINK

Scientist • Engineer • Transport engineer. Gatsby: BM4 - connect forces to engineering/transport; BM5 - encounter an engineer or scientist; BM6 - notice forces in workplaces.

Year 1 • Forces

Learning objectives / key knowledge	Disciplinary knowledge / skills	Enquiry opportunities	Enquiry type
How do we move things? Recognise, name and describe push and pull forces; demonstrate both; know a force can change movement.	Use relevant science words; describe what is happening using words and actions.	Move familiar objects; push/pull assault course; sort pictures showing pushes and pulls.	Classification
How can we move things further? Know forces can be bigger or smaller and choose how much force is needed for a distance.	Suggest what might happen; make a simple prediction.	Putting/beanbag games; ruler launches; stomp rocket. Explore how push size affects distance.	Finding patterns; fair testing
How does a catapult work? Know a bigger pull can result in a bigger push so an object travels further/faster.	Begin to describe cause and effect; identify what is changed.	Explore catapult toys; change pull force; compare distance or speed; simple slingshot investigation.	Fair testing
How can we move heavy objects? Know a bigger force is needed to move a heavier object.	Use bigger/smaller push and pull accurately; follow an ordered method.	Move loaded/unloaded trolley or box; compare force needed; explore combining forces and wheels.	Fair testing; finding patterns
How can we move objects in different directions? Know an object moves in the direction of the force and can change direction when another force is applied.	Describe observations using science; use experience to suggest what might happen next.	Football/hockey slalom; keep-the-ball-up; speed-up and slow-down games.	Finding patterns
How do scientists show a force? Use force arrows to show the size and direction of a push or pull.	Add science labels and information to diagrams; recall and explain observations.	Demonstrate pushes/pulls; describe size and direction; represent them using drawn or cut-out force arrows.	Classification; application

YEAR 1 — FORCES

UNIT ASSESSMENT ENDPOINTS

WORKING TOWARDS

- Recognises and names a push and a pull force in simple situations.
- With support, understands that a force is needed to move an object.
- Describes how an object moves when pushed or pulled using simple words.

EXPECTED LEVEL

- Identifies and describes pushes and pulls and explains that a force is needed to move an object.
- Compares the size of forces and explains that a bigger force moves an object further.
- Explains that more force is needed to move a heavier object.
- Describes the direction of a push or pull and understands that forces can be bigger or smaller.
- Collects and uses simple evidence to answer questions about forces.

GREATER DEPTH

- Independently investigates how the size of push or pull affects distance and speed.
- Explains why heavier objects need more force, using accurate vocabulary.
- Describes and predicts the direction of movement using arrows to represent the size and direction of forces (early force arrow model).
- Draws conclusions from results and suggests reasons for any differences.
- Applies knowledge of forces to suggest solutions to simple practical problems.

Year 1 • Animals Including Humans

Unit overview

KEY KNOWLEDGE

Identify, name, describe features of and compare common vertebrates: fish, amphibians, reptiles, birds and mammals. Explore and identify animals in their habitats and know how to care for animals. Identify common carnivores, herbivores and omnivores. Identify, name, draw and label basic human body parts. Know the five senses and link them to body parts.

KEY VOCABULARY

animal, vertebrate, invertebrate, fish, amphibian, reptile, bird, mammal, scales, fins, gills, lungs, fur, carnivore, herbivore, omnivore, habitat, pet, head, ears, eyes, nose, mouth, tongue, teeth, neck, arm, elbow, shoulder, hands, fingers, leg, knee, ankle, feet, toes, sight, hearing, touch, taste, sort, classify, feature, spider key

PRIOR LEARNING

Builds from EYFS observations of animals, similarities/differences, life cycles, habitats and the natural world.

DISCIPLINARY KNOWLEDGE & SKILLS

Add science word labels to diagrams; describe observations. • Use science vocabulary during investigations. • Group by familiar features, similarities and differences. • Use simple yes/no statements and spider keys. • Observe carefully and classify by visible features. • Sort using agreed criteria; remember science facts.

ENQUIRY TYPES

Classification; researching; observing over time; finding patterns

IMPORTANT SCIENTISTS

Steve Backshall – British naturalist and wildlife presenter; Eugenie Clark – shark scientist and marine conservationist.

WHY THIS? WHY NOW?

Builds on EYFS observation of animals, bodies and the natural world. Pupils secure animal groups, diets, body parts and senses so they can classify using observable features. This prepares for Year 2 life cycles, survival, health and increasingly precise biological comparison.

CAREERS LINK

Vet • Zoologist • Wildlife ranger • Animal-care worker
Gatsby: BM4 – connect classification and animal care to careers; BM5 – encounter a vet/naturalist; BM6 – visit or virtually explore a zoo, farm or wildlife setting.

Year 1 • Animals Including Humans

Learning sequence • knowledge, disciplinary skills and enquiry

Learning objectives / key knowledge	Disciplinary knowledge / skills	Enquiry opportunities	Enquiry type
What are the parts of our body? Identify and name body parts and compare with other animals.	Add science word labels to diagrams; describe observations.	Body outline, labelling, movement and comparison activities.	Classification; researching; observing over time; finding patterns
What are our senses? Know the five senses and their receptors; explain how senses help us.	Use science vocabulary during investigations.	Senses walk; smell/taste/touch/hearing/sight investigations.	
Can you sort animals by their features? Use observable criteria to classify.	Group by familiar features, similarities and differences.	Sort models/photos; odd-one-out; develop criteria.	
What are the features of vertebrates? Know the five vertebrate groups and key criteria.	Use simple yes/no statements and spider keys.	Observe skeletons/photos; sort vertebrate groups.	
Can you name some invertebrates? Collect and identify common invertebrates safely.	Observe carefully and classify by visible features.	Habitat sampling with nets, pots, trays or pooters; use picture guides.	
Do animals feed in different ways? Define and identify herbivores, carnivores and omnivores.	Sort using agreed criteria; remember science facts.	Observe feeding; classify animals by diet; use Venn/Carroll diagrams.	

Year 1 • Light and Shadows

Unit overview

KEY KNOWLEDGE

Identify natural and man-made light sources, including the Sun, and know how to observe safely. Observe and compare brightness close to and further from a light source. Observe how materials behave with light: reflective/shiny/dull and transparent/opaque. Describe how a shadow forms when opaque materials block light. Observe the Sun's apparent movement and changes in day length. Know how to stay safe in bright sunlight and in the dark.

KEY VOCABULARY

light, dark, sun, day-length, brightness, intensity, source, eye, material, reflected, reflection, reflective, shiny, dull, transparent, opaque, blocked, shadow, sky, suncream, polaroid, table of results, record, tally, pictogram, block chart, axis, coordinate

PRIOR LEARNING

Builds from EYFS exploration of shadows, rainbows, the Earth/Sun/Moon, observation and discussion of why things happen.

DISCIPLINARY KNOWLEDGE & SKILLS

Describe what is happening using science; remember vocabulary. • Measure using non-standard and labelled units; record results. • Use tables and simple pictograms/block charts. • Predict what might happen; describe observations. • Observe over time and record changes. • Use science facts to explain safe choices.

ENQUIRY TYPES

Observing over time; comparative/fair testing; classification; research

SCIENTISTS / STEM LINKS

Thomas Edison – development of electric lighting; Joseph Swan – English scientist and pioneer of incandescent lighting, with strong North East links.

WHY THIS? WHY NOW?

Builds on EYFS experiences of light, dark and shadows. Pupils move from noticing effects to identifying sources, comparing brightness, exploring reflection/transparency and explaining simple shadow formation. This prepares for Year 3 Light, where pupils investigate reflection, shadow variables and how we see.

CAREERS LINK

Lighting engineer • Optometrist • Photographer • Theatre technician
Gatsby: BM4 – connect light properties to creative/STEM work; BM5 – encounter an optometrist or technician; BM6 – explore lighting in a theatre, studio or workplace.

Year 1 • Light and Shadows

Learning sequence • knowledge, disciplinary skills and enquiry

Learning objectives / key knowledge	Disciplinary knowledge / skills	Enquiry opportunities	Enquiry type
Where does light come from? Identify and sort natural and man-made light sources.	Describe what is happening using science; remember vocabulary.	Explore classroom sources; make a dark place; sort sources.	Observing over time; comparative/fair testing; classification; research
Can brightness change? Compare direct/reflected light and distance from a source.	Measure using non-standard and labelled units; record results.	Compare torch brightness at different distances; order sources by brightness.	
How do materials behave with light? Explore reflection and transparency/opacity.	Use tables and simple pictograms/block charts.	Sort and test reflective, dull, transparent and opaque materials.	
What is a shadow? Explain that opaque materials block light and explore shadow size/shape.	Predict what might happen; describe observations.	Shadow hunt; change size/shape/darkness using objects and light sources.	
What happens to the Sun during the day? Observe apparent movement and day length safely.	Observe over time and record changes.	Sundial/stick shadow observations; compare sunny/cloudy days and day length.	
How can we stay safe in the Sun and dark? Identify risks and protective actions.	Use science facts to explain safe choices.	Compare sunglasses/suncream/reflective materials; research safety.	

Year 1 • Plants

Unit overview

KEY KNOWLEDGE

Identify and describe the basic structure of flowering plants. Identify, name and observe common garden plants, wild plants, vegetables and trees in their habitats. Identify deciduous and evergreen trees and connect their features to the yearly cycle. Observe plant growth and seasonal change.

KEY VOCABULARY

plant, leaf, stem, trunk, branch, root, flower, petals, bud, fruit, seed, bulb, grow, evergreen, deciduous, spring, summer, autumn, winter, chlorophyll, sort, group, classify, feature, spider key

PRIOR LEARNING

Builds from EYFS planting seeds, caring for plants, observing growth and decay, drawing plants and caring for the natural environment.

DISCIPLINARY KNOWLEDGE & SKILLS

Add science word labels; describe observations. • Observe over time; record simple changes. • Classify by visible features; use simple keys. • Find patterns and changes over time. • Compare groups by difference/similarity. • Use remembered science facts to explain observations.

ENQUIRY TYPES

Classification; observing over time; finding patterns; researching

SCIENTISTS / STEM LINKS

Beatrix Potter – naturalist and mycology illustrator; botanists and horticultural scientists.

WHY THIS? WHY NOW?

Builds on EYFS planting, growth and seasonal observation. Pupils learn plant structures and identify common plants and trees, establishing the vocabulary and classification knowledge needed for Year 2 growth, germination and plant requirements.

CAREERS LINK

Botanist • Horticulturist • Gardener • Ecologist
Gatsby: BM4 – link plant knowledge to environmental careers; BM5 – meet a gardener/ecologist; BM6 – fieldwork in a garden, park or local habitat.

Year 1 • Plants

Learning sequence • knowledge, disciplinary skills and enquiry

Learning objectives / key knowledge	Disciplinary knowledge / skills	Enquiry opportunities	Enquiry type
What are the main parts of a plant? Identify root, stem, leaf, bud, flower, fruit, seed and bulb.	Add science word labels; describe observations.	Build and label a plant model; compare structures across plants.	Classification; observing over time; finding patterns; researching
What happens to a plant as it grows? Observe and describe growth and change.	Observe over time; record simple changes.	Grow beans/plants and create a simple sequence of growth.	
Can you name different types of plant? Identify common local trees, garden and wild plants.	Classify by visible features; use simple keys.	Plant/tree hunt; leaf identification; create a local plant record.	
What happens to deciduous trees? Know they lose leaves and link this to seasons.	Find patterns and changes over time.	Collect, sort and compare leaves; observe leaf fall and regrowth.	
What happens to evergreen trees? Know they retain leaves and recognise cones/seeds.	Compare groups by difference/similarity.	Identify local evergreens; compare leaf shapes; examine cones.	
What is so special about plants? Recognise that plants provide food, shelter and oxygen and are important in habitats.	Use remembered science facts to explain observations.	Explore a local habitat and identify how plants support animals.	

Year 1 • Seasonal Changes

Unit overview

KEY KNOWLEDGE

Observe and describe changes across the four seasons, including day length. Observe, describe, measure and record weather across the seasons. Use and make simple weather gauges and represent findings in tables and charts.

KEY VOCABULARY

season, sun, sky, autumn, winter, spring, summer, day, week, month, year, weather, hot, warm, cool, cold, sunny, cloudy, snowy, rainy, dry, windy, still, light, dark, senses, temperature, day-length, table of results, record, tally, pictogram, block chart, axis, coordinate

PRIOR LEARNING

Builds directly from EYFS understanding of changing seasons, outdoor observations and describing what children see, hear and feel.

DISCIPLINARY KNOWLEDGE & SKILLS

Describe what is happening using science words. • Record in words and numbers; add to charts. • Remember science facts and vocabulary. • Describe patterns and changes using science. • Use tables, pictograms and block charts. • Find simple patterns using observations and secondary sources.

ENQUIRY TYPES

Observing over time; finding patterns; researching; data handling

SCIENTISTS / STEM LINKS

Luke Howard – pioneer of cloud classification; meteorologists and weather forecasters.

WHY THIS? WHY NOW?

Builds directly on EYFS observations of weather and seasons. Pupils now observe over time, measure simple weather features and identify seasonal patterns including day length. This develops the longitudinal observation and data-handling skills used throughout later science.

CAREERS LINK

Meteorologist • Weather presenter • Climate scientist • Environmental officer
Gatsby: BM4 – connect weather data to careers; BM5 – encounter a weather/environment professional; BM6 – use a weather station or local environmental setting.

Year 1 • Seasonal Changes

Learning sequence • knowledge, disciplinary skills and enquiry

Learning objectives / key knowledge	Disciplinary knowledge / skills	Enquiry opportunities	Enquiry type
How can we describe the weather? Use direct observations and comparative language.	Describe what is happening using science words.	Daily weather observations, symbols, photographs and discussion.	Observing over time; finding patterns; researching; data handling
How can we measure the weather? Use simple equipment and numerical/visual scales.	Record in words and numbers; add to charts.	Make/use rain and wind gauges; maintain a class weather board.	
What are seasons? Name and order the four seasons and recognise characteristic features.	Remember science facts and vocabulary.	Calendar work, season matching, clothing and weather sorting.	
How are the seasons different? Link seasonal conditions to safety and everyday life.	Describe patterns and changes using science.	Ongoing observations; compare seasonal clothing, daylight and weather.	
How can data help us compare seasons? Use collected data to compare months/seasons.	Use tables, pictograms and block charts.	Compare temperature, rainfall, day length and weather records.	
Is weather the same everywhere? Recognise weather varies over time and across the world.	Find simple patterns using observations and secondary sources.	Compare local observations with images/data from other places.	