Curriculum Coherence – Year 3 Science

Term 1

PRIOR LEARNING/STARTING POINT:

Some links with materials and comparing materials based on physical properties.

Year 1

- 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

Year 2

- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses

INTENT

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.

VOCABULARY

Fair test, solubility, particles, soil, marble, granite, slate, chalk, pumise, quartz, limestone, clay, sample, observation, recording, classifying.

SKILLS

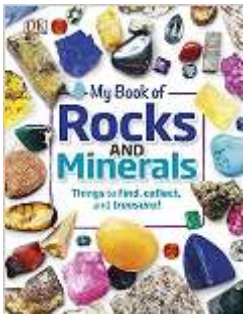
- asking relevant questions and using different types of scientific enquiries to answer them.
- setting up simple practical enquiries, comparative and fair tests.
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- 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, keys, bar charts, and tables

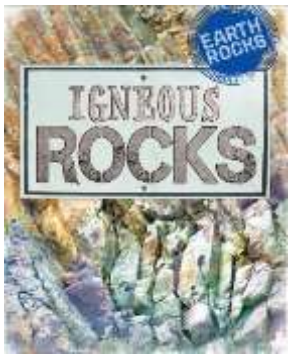
IMPLEMENTATION

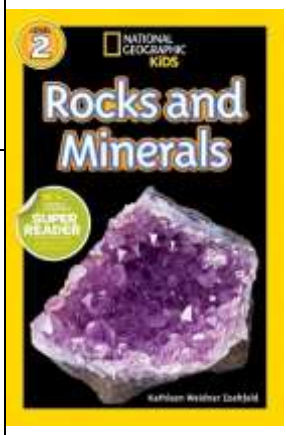
ACTIVITIES

Lesson 1 - Children to learn about the earth and the world around them. Children create a 3D diagram of the earth.
Lesson 2 – Observation of rocks, handling drawing and describing.
Lesson 3 – Lots of language building with fair tests and investigating. Testing different rocks solubility.
Lesson 4 – Touch test and categorizing with different soil samples.
Lesson 5 – fair testing involving separating the different ingredients in soil.

READING OPPORTUNITIES







IMPACT

OUTCOMES

I can give possible reasons why some materials are selected for building and comment on their structure.

I can conduct an investigation in a group and write a conclusion to explain my findings.

I can test and identify different soils.

I can say how soils were formed.

NEXT STEPS IN LEARNING

Year 4

- Links with materials, solids liquids and gases.

Year 5

- Links with comparing and grouping together everyday materials on the basis of their properties, including their hardness and solubility.
- Links with knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.

KS3 and beyond

Physical Processes - Geology and The Rock Cycle

Key Questions?

Are all rocks the same?

Why and how are they different?

How can rocks and fossils inform us about the past?

• reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings		

LINKS

English – iron man

History – Stone age/Bronze Age/Iron Age and Early Man

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Term 2

PRIOR LEARNING/STARTING POINT:

Some links with seasonal changes – shadows and light

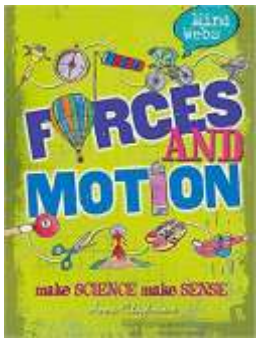
Year 1

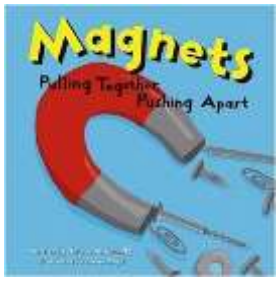
observe changes across the seasons

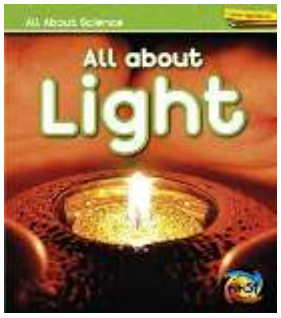
INTENT	IMPLEMENTATION	IMPACT
KNOWLEDGE • compare how things move on different surfaces • notice that some forces need contact between two objects, but magnetic forces can act at a distance • observe how magnets attract or repel each other and attract some materials and not others • compare and group 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. • 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	**ACTIVITIES** **Half term 1** **Lesson 1** – Drawings of push and pulls. **Lesson 2** – Creating a fair test to overcome friction – Thinking about how the Egyptians pulled huge blocks of rock up to make pyramids. **Lesson 3** – Carrying out fair test. **Lesson 4** – Exploring magnetic and non-magnetic materials around the classroom. **Lesson 5** – Children exploring a range of different types of magnets. **Lesson 6 –** Predicting an investigation with how many paper clips will be attracted to different magnets. **Lesson 7** – Conduct investigation and record findings and conclusions. **Half term 2** **Lesson 1** - Children design their own investigation involving magnets. **Lesson 2 –** Recognising and investigating light sources. **Lesson 3** – Investigating how light travels and how it can be reflected. **Lesson 4** – Full investigation into how shadows are formed. **Lesson 5** – Investigating how shadows change throughout the day and why this is. **Lesson 6** – Continuing investigation taking the learning outside.	**OUTCOMES** **I understand what friction is and what conditions mean there is more or less friction.** **I can use my scientific understanding and knowledge to design an experiment.** **I can say which kinds of metals are magnetic and which are non-magnetic.** **I can recognize different light sources.** **I can understand how light travels.** **I can explain how shadows are formed.** **I can understand that shadows of objects change throughout the day.**
VOCABULARY Fair test, positive, negative, poles, magnetic, non-magnetic, light, shadow, measure, record, investigate, predict, conclusion.	**READING OPPORTUNITIES**	**NEXT STEPS IN LEARNING** **Year 5** • Links with comparing and grouping together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity

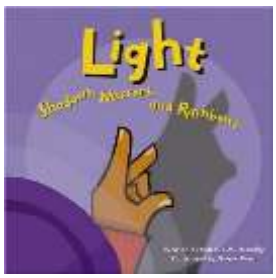
(electrical and thermal), and response to magnets.
- Links with learning around objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- identifying the effects of air resistance, water resistance and friction, that act between moving surfaces
- recognising that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect

Year 6
- 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.









SKILLS
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- setting up simple practical enquiries, comparative and fair tests.
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- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
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- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings

Key Questions

How can forces help us reach our goals?

How have forces been used throughout history?

How do magnets work?

Why do some items attract, and some repel?

How can you change the length of a shadow?

LINKS

History – Egyptians – Forces
English – Terry Deary texts
Newspaper article – Howard Carter
Lots of opportunities for outdoor learning

Curriculum Coherence – Year 3 Science

Term 3

PRIOR LEARNING/STARTING POINT:

Year 1

- 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

Year 2

- 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

INTENT	IMPLEMENTATION	IMPACT

KNOWLEDGE

- 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.
- 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.

ACTIVITIES

Half term 1

Lesson 1 – Sorting different food into food groups.
Lesson 2 – create a food pyramid chart
Lesson 3 – linked with PE identifying how food is transported within animals.
Lesson 4 – Investigating skeletons – key functions of a skeleton in humans and other animals.
Lesson 5 – Investigating real bones and joints – chicken, fish, lamb
Lesson 6 – investigating muscles, starting with their own.
Lesson 7 – Links with PE, recording and measuring heart beat during exercise.

Half Term 2

Lesson 1 – Observing plants - Digging for roots experiment.
Lesson 2 – Children design their own plants experiment involving different variables.
Lesson 3 – conduct experiment, results and conclusions.
Lesson 4 – Whole class discussion on nutrients and what plants need to grow.
Lesson 5 – Book investigation – how do scientists present information?
Lesson 6 – Children to take apart a daffodil looking at its various parts and their functions.
Lesson 7 – Take children outside/ forest school to observe seeds and how they travel.
Lesson 8 – Children to conduct an investigation to see how far seeds had traveled. Present results in a graph.

OUTCOMES

I can explain how the traffic light system helps us to eat a balanced diet.

I can explain how food is transported around the body and what happens to waste products.

I can name various bones and explain their purpose.

I can explain how certain animals' skeletons are suited to their habitats.

I can identify different joint movements.

I can explain the benefits of exercise and how it affects our body.

I can describe the functions of all parts of plants

I can name some of the nutrients plants need and what they do.

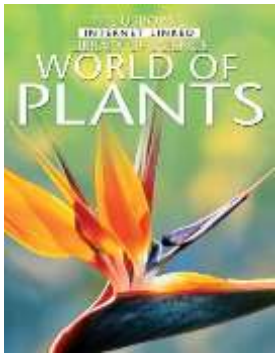
I can label the parts of a plant.

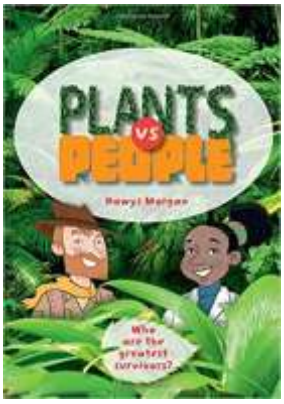
I can explain why it is important for seeds to be dispersed.

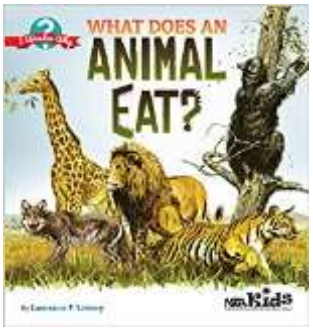
VOCABULARY

Stigma, style, ovary, anther, filament, muscles, joints, bones

READING OPPORTUNITIES







NEXT STEPS IN LEARNING

Year 4

- recognise that living things can be grouped in a variety of ways
- describe the simple functions of the basic parts of the digestive system in human

Year 5

- 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.

SKILLS

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Key Questions

How do plants pollinate?

How do our bodies work?

What is inside a plant?

What happens to our food once we've eaten it?

What do animals and humans need to survive, and can they survive without these?

• using straightforward scientific evidence to answer questions or to support their findings		

LINKS

Forest school – plants and animals

Around the world topic – animals and plants in different countries.

Life learning – nutrition

PE – healthy living.