



Scotholme Science

Year 1

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Subject- Science



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Threshold Concepts and Milestones

| Threshold Concept | Year 1 | Content |
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| <p><u>WORK SCIENTIFICALLY</u> This concept involves learning the methodologies of the discipline of science.</p> | <ul style="list-style-type: none"> • Ask simple questions. • Observe closely, using simple equipment. • Perform simple tests. • Identify and classify. • Use observations and ideas to suggest answers to questions. • Gather and record data to help in answering questions. | <p>Use these skills in all discussion and experiment sessions.</p> <p>Children to become used to sorting things and giving reasons for their choice.</p> <p>Children to predict what they think will happen and give reasons for their answer.</p> <p>Children to record simple data and use it to draw basic conclusions.</p> <p>Share findings with a group/the class/their friend. Get used to talking aloud and presenting ideas and findings.</p> <p>Video children's explanations.</p> |

BIOLOGY 1

Understand plants

This concept involves becoming familiar with different types of plants, their structure and reproduction.

- Identify and name a variety of common plants, including garden plants, wild plants and trees.
- Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers.
- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

Plant a variety of seeds and observe their growth

Name the plants that they grow.

Name trees that they are likely to see in the local area.

Leaf sorting resource

Look at a collection of flowers and talk about their similarities and differences. Use senses to make observations.

Cut up flowers to investigate what is inside. Take photographs and talk about what you have found.

Draw and label pictures of flowers

Learn the names of common flowers

Observe trees and draw and label pictures of trees.

Care for plants in the classroom and understand the conditions for growth

BIOLOGY 2

Understand animals and humans

This concept involves becoming familiar with different types of animals, humans and the life processes they share.

- Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates.
- Identify name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.
- Notice that animals, including humans, have offspring which grow into adults.
- Investigate and describe the basic needs of animals, including humans, for survival (water, food and air).

African animals resources

<https://www.activewild.com/african-animals-list/>

Variation in penguins resource - look for similarities and differences

<https://www.activewild.com/antarctic-animals-list/>

What do animals need to stay healthy? Encourage discussion about a place to live, food, water etc

Animals' habitats resource

Active Wild website

Parts of the body video clip:

<https://www.bbc.co.uk/bitesize/clips/zsjsbk7>

Senses booklet resource

Human life cycle resource

How humans change video clip resource:

<https://www.bbc.co.uk/bitesize/clips/z4tmhyc>

Explore the senses. Experiment with all 5, sharing observations.
For example: What does this taste like? What does it smell like?
Can you say which noise is loudest?

What do humans need? Class discussion about what children and adults need to survive. Collect and display pictures of the things humans need.

BIOLOGY 3

Investigate living things

This concept involves becoming familiar with a wider range of living things, including insects and understanding life processes.

- Explore and compare the differences between things that are living, that are dead and 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.

Nature spotting resources

Living and non-living things resource

Habitats resources

African animals resources

Birds resources

Read stories which illustrate animal habitats and what they need to survive - such as Lazy Lion and the Mwenye Hadithi African series and others

Where do animals live?

Around the playground, find mini beasts. Where do they live and why? Present findings to the class using photos and videos

Minibeasts clip:

<https://www.bbc.co.uk/bitesize/clips/z44g9j6>

Compare the allotment to the playground - which is the best habitat? Which mini beasts can we find at the allotment?

Describe their habitats.

CHEMISTRY

Investigate materials

This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.

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

Solids, liquids and gases experiment resource

Use collections of materials to stimulate a discussion.

Materials 2 resource:

Materials treasure hunt, tent for teddy and which material makes the best towel.

How to identify materials and their uses video link:

<https://www.bbc.co.uk/bitesize/topics/z4339j6/articles/zx8hhv4>

Use magnifying glasses and senses to explore materials and think about what they are used for. Sort materials by properties and give reasons for their choice.

Think about why we use materials for certain things linked to their properties.

Materials resource

What happens when they get hot/wet/cold/are bent/squashed/hit etc? **Experiment with hard and soft materials etc**

Investigate melting and freezing.

Ice melting experiment resource - what makes ice melt? What happens to it when it does melt? How do we make ice? Make ice lollies and eat them. How do they make your mouth feel?

Investigate what happens to chocolate when it melts. What makes it melt? How can we speed up the melting process? Make chocolate crispie cakes - talk about the scientific processes as they happen.

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| | | <p>Experiment with putting things in the freezer. What happens to them?</p> <p>Experiment with ice cubes. Place ice cubes in different places. Predict which one will melt first and say why. Time how long it takes them to melt. How do you know it is melting? Which one melts the quickest? Why?</p> <p>Let's build resource</p> |
| <p>PHYSICS 1 Understand movement, forces and magnets This concept involves understanding what causes motion.</p> | <ul style="list-style-type: none"> • Notice and describe how things move, using simple comparisons such as faster and slower. • Compare how different things move. | <p>In PE sessions, investigate movement. Investigate faster/slower and pushes and pulls How do different things move? Think about rolling a hoop, throwing a ball etc. What makes them move?</p> |
| <p>PHYSICS 2 Understand light and seeing This concept involves understanding how light and reflection affect sight.</p> | <ul style="list-style-type: none"> • Observe and name a variety of sources of light, including electric lights, flames and the Sun, explaining that we see things because light travels from them to our eyes. | <p>Investigate a range of torches resource - which ones are brightest etc? Categorise them by brightness. Where does light come from? Observe candles - what happens when one is lit?</p> |

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| <p>PHYSICS 3 Investigate sound and hearing This concept involves understanding how sound is produced, how it travels and how it is heard.</p> | <ul style="list-style-type: none"> • Observe and name a variety of sources of sound, noticing that we hear with our ears. | <p>What can you hear? Where does sound come from? Go on a sound walk around school and in the local area. Make a list of all the sounds you can hear. Talk about them. Sort the sounds using different criteria. Make a simple sound map of the school.</p> |
| <p>PHYSICS 4 Understand electrical circuits This concept involves understanding circuits and their role in electrical applications.</p> | <ul style="list-style-type: none"> • Identify common appliances that run on electricity. • Construct a simple series electrical circuit. | <p>Construct simple snap circuits and describe what happens. Experiment with circuits and share what has been discovered.</p> |
| <p>PHYSICS 5 Understand the Earth's movement in space This concept involves understanding what causes seasonal changes, day and night.</p> | <ul style="list-style-type: none"> • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies. | <p>Record the seasons throughout the year. What can you see? What is the same and what is different. Keep a class display and add to it as the seasons change Name the seasons. Name and describe different types of weather. Have a daily weather monitor to report the weather to the class Record temperatures to show how they go up and down during a week and at different times of the year. Seasons resources Weather resources</p> |