Scotholme Science

Year 2

Kate Hall

Subject- Science

Contents

Threshold Concepts and Milestones

Threshold Concept	Year 2	Content
WORK SCIENTIFICALLY This concept involves learning the methodologies of the discipline of science.	• 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.	Use these skills in all discussion and experiment sessions. Children to become used to sorting things using a range of criteria and giving reasons for their choice. Children to predict what they think will happen and give reasons for their answer, beginning to use prior learning. Children to record arrange of simple data and use it to draw basic conclusions. Use simple graphs and tables to organise data and to aid explanation Share findings with a group/the class/their friend. Get used to talking aloud and presenting ideas and findings. Video children's explanations.

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 and those classified as deciduous and evergreen. • Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers. • Observe and describe how seeds and bulbs grow into mature plants. • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	Planting a different variety of seeds and observing their growth **Seeds resources** Naming the plants that they grow. Naming trees that they are likely to see in the local area. Look at a collection of flowers. Recall learning from year 1 – what do we know already? Talk about their similarities and differences. Use senses to make arrange of observations. Cut up flowers/plants to investigate what is inside. Take photographs and talk about what you have found. What do you think is the function of each part of the flower? Draw and label pictures of flowers/plants, adding detail about the function of each part. **Labelling parts of a plant resource** Think about and discuss the life cycle of a plants flower, using observational evidence. **Life cycle of a plant resource** Learn the names of common flowers and plants. What can you recall from last year? **Plant bulbs – Bulbs resource** Observe trees and draw and label pictures of trees. Experiment with plants in the classroom to show that they need water/light and a suitable temperature. What happens when there is light/no light? Water/no water? Ambient temperature/extreme temperature? Hypothesise before and discuss the accuracy of the hypothesis after the experiment. How will you record your evidence? **Plant habitats resource**

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 carnivores, herbivores and omnivores. • Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, 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. • Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene.	**Grouping animals resource** **Active Wild website** Talk about features of different groups of animals – how do they vary? Why do they vary? Which animals are carnivores/herbivores/omnivores? How do we know? Use a selection of Planet Earth style clips to support learning. Possible visit to wildlife park Who has pets at home? Talk about pets and show photographs – what can we learn? How do we care for pets? Use Dogs' Trust resources from their website to support. What do animals need to stay healthy? Encourage discussion about a place to live, food, water etc **Human life cycle resource** Name parts of the human body and identify their function. Recall knowledge about the senses for year 1. **Human body word search resource** What do humans need? Class discussion about what children and adults need to survive. Recall from last year. Think about the different foods people eat. Fruit and vegetable tasting Which foods are healthy? Why do we exercise? How does exercise help the body? Experiment with exercise and observe what happens to the body **Exercise to be healthy resource**

BIOLOGY 3 **Investigate living things** This concept involves becoming familiar with a wider range of living things, including insects and understanding life processes.	• Identify and name a variety of plants and animals in their habitats, including micro-habitats. • 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.	**Animals' habitats resources** Recall animals' habitats. Use Planet Earth to talk about where animals live. Why? How does this change the way they look? Where do animals live in the UK? – find out about the variety of British wildlife – identify and name. Explore Australian wildlife and habitats: https://www.activewild.com/australian-animals-list/

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. • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard for particular uses.	Recall knowledge from year 1 Make a collection of materials and talk about what they are made from. Sort them into groups Talk about the physical properties of materials. Sort them into groups giving reasons for your choice. Think about melting/burning/squashing/hitting/cutting etc **Exploring the properties of materials resource** **Experiment with making a cup for Tatty – resource** Which is the best material? Why? What can you measure to prove your hypothesis? Experiment with using other materials for a purpose – before you test. Which ones do you think are best? Why? What did you measure? What did you find out? Reversible and irreversible change – experiment with changes – which ones can be reversed? Lighting a candle, cooking, melting chocolate, ice, burning etc Recall solid/liquid/gas. What can you tell us about them? Make a collection of solids, liquids and gases to support this. Observe using the senses. What can you say about each one? Present your findings to the class. **Investigating packaging resource**

PHYSICS 1 **Understand movement, forces and magnets** This concept involves understanding what causes motion.	• Notice and describe how things move, using simple comparisons such as faster and slower. • Compare how different things move.	In PE sessions, investigate movement. Investigate faster/slower and pushes and pulls. **Pushes and pulls resources** How do different things move? Think about rolling a hoop, throwing a ball etc. What makes them move? Experiment - How can we slow down a toy car moving down a ramp?
PHYSICS 2 **Understand light and seeing** This concept involves understanding how light and reflection affect sight.	• 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.	Recall light from Year 1. How many sources of light can you name? **Light blockers experiment - resource**

PHYSICS 3 **Investigate sound and hearing** This concept involves understanding how sound is produced, how it travels and how it is heard.	• Observe and name a variety of sources of sound, noticing that we hear with our ears.	Recall work from Year 1. 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. Play recorded sounds – what do you think they are? Give reasons. **Sound project resource**
PHYSICS 4 **Understand electrical circuits** This concept involves understanding circuits and their role in electrical applications.	• Identify common appliances that run on electricity. • Construct a simple series electrical circuit.	Talk about electricity – what is it? What uses it? What would happen if there was no electricity? **Electricity and safety resources** Build simple circuits using batteries and wires and other components. What happens? How do you make the components work? What happens if your circuit doesn't work? Why not? Record the circuits you make. Experiment with different materials in a circuit. Which ones conduct electricity?

PHYSICS 5 **Understand the Earth's movement in space** This concept involves understanding what causes seasonal changes, day and night.	• Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies. • Observe the apparent movement of the Sun during the day.	Record the seasons throughout the year. What can you see? What is the same and what is different? Take photos or video for a class display and add to it as the seasons change Name the seasons. Name and describe different types of weather. Use simple weather forecasts to decide what the weather will be today. Check during the day to see if the forecast is accurate. What is the weather like in different parts of the world? How can we find out? Record temperatures to show how they go up and down during a week and at different times of the year. Can we draw a class graph to show this? Look at the sky at different times of day throughout the year. What seems to happen to the sun? Why? Study the length of the day during the year. What happens? Make a chart for display to that everyone can see what happens to the daylight in each month of the year.