



Science: Year 1

Teachers: Effective instruction in science requires hands-on experience and observation. In the words of the Association for Science Education: 'A good primary science education:

- Acknowledges that children come to science education with ideas, observations and questions about the world around them and use these as the foundations for their learning.
- Nurtures children's curiosity and inspires them, in a rich learning environment, to discover more and to develop positive attitudes and an appreciation of the nature of science.
- Challenges children to develop and use scientific skills; acquire and apply scientific knowledge, understanding and language; investigate through playing, exploring and experimenting; communicate and collaborate effectively with others; challenge scientific evidence.
- Enables children to make connections between scientific ideas and to see how they are developed and applied in other disciplines and beyond the classroom.'

While experience counts for much, learning from books is also important, for it helps bring coherence and order to a child's scientific knowledge. Only when topics are presented systematically and clearly can children make steady and secure progress in their scientific learning. The child's development of scientific knowledge and understanding is in some ways a very disorderly and complex process, different for each child. However, a systematic approach to the exploration of science, one that combines experience with book learning, can help provide essential building blocks for deeper understanding at a later time.

I. PLANTS AND PLANT GROWTH

Teachers: Reading aloud, observation and activities such as growing plants from seed in varying conditions are useful ways to explore the following topics with children.

- Understand what plants need to grow: sufficient warmth, light and water.
- Recognise basic parts of plants: seeds, roots, stems, branches and leaves.
- Understand that plants make their own food.
- Recognise the importance of flowers and seeds. For example, seeds such as rice, nuts, wheat and corn are food for plants and animals.
- Know that there are two kinds of plants: deciduous and evergreen.
- Become aware of key aspects of farming.
 - How some food comes from farms as crops
 - How farmers must take special care to protect their crops from weeds and pests
 - How crops are harvested, kept fresh, packaged and transported for people to buy and consume

II. ANIMALS AND THEIR NEEDS

Teachers: Through reading aloud, observation and activities, explore with children the common characteristics and needs of animals.

- Make the connection that animals, like plants, need food, water and space to live and grow.
- Recognise that plants make their own food, but animals obtain food from eating plants or other living things.
- Understand that offspring are very much (but not exactly) like their parents.
- Understand that most animal babies need to be fed and cared for by their parents; human babies are especially in need of care when young.
- Recognise that pets have special needs and must be cared for by their owners.

III. THE HUMAN BODY: THE FIVE SENSES

- Identify the five senses and associated body parts:
 - Sight: eyes

- Hearing: ears
- Smell: nose
- Taste: tongue
- Touch: skin
- Review the importance of taking care of your body: exercise, cleanliness, healthy foods and rest.

IV. INTRODUCTION TO MAGNETISM

Teachers: Through reading aloud, observation and experiments with magnets, introduce children to the idea that there are forces we cannot see that act upon objects. [Cross-curricular connections with Year 3 Science]

- Identify familiar, everyday uses of magnets. For example: in toys, in cabinet locks, in refrigerator magnets, etc.
- Classify materials according to whether they are or are not attracted by a magnet.

V. SEASONS AND WEATHER

Teachers: The emphasis in Year 1 should be on observation and description; technical explanations of meteorological phenomena should be taken up in later years.

- Identify the four seasons.
- Be able to describe characteristic local weather patterns during the different seasons.
- Recognise the importance of the sun as a source of light and warmth.
- Understand daily weather changes.
 - Temperature: thermometers are used to measure temperature
 - Clouds: rainfall comes from clouds
 - Rainfall: how the condition of the ground varies with rainfall; rainbows
 - Thunderstorms: lightning, thunder, hail, safety during thunderstorms
 - Snow: snowflakes, blizzards

VI. TAKING CARE OF THE EARTH

- Identify the importance of conservation: some natural resources are limited, so people must be careful not to use too much of them. For example: logging and subsequent reforestation.
- Recognise practical measures for conserving energy and resources. For example: turn off unnecessary lights, tightly turn off taps, etc.
- Understand that some materials can be recycled. For example: aluminium, glass and paper.
- Become aware that pollution be harmful but, if people are careful, they can help reduce pollution. For example, littering, smog, water pollution.

VII. MATERIALS

Teachers: Children should use correct vocabulary to describe different materials and their properties. Sort materials into groups based on their properties. For example: soft, hard, bendy, ability to float, magnetic or non-magnetic.

- Recognise and name a variety of widely used materials. For example: wood, plastic, rock, paper, metal.
- Explain why materials are chosen for specific tasks based on their properties. For example wool for clothing, glass for windows, wood for tables, metal for bridges.
- Become aware that some materials are natural and some are man-made.

VIII. SCIENCE BIOGRAPHIES

- Joseph Banks (botanist)
- Jane Goodall (studied chimpanzees)
- Wilburn and Orville Wright (made first aeroplane)