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## Earth & Life Science Series

# Plants

### *Science activities for 6-9 year olds*

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# Teacher Information

The Earth and Life Sciences Series is designed to provide teachers of children in the 6 - 9 age range with a set of materials that will give students a more rounded and scientific understanding of their world and their place in it.

Student activities are directed towards meeting the requirements related to Science education as set down in the UK National Curriculum document. This book, **Plants**, relates in particular to the concepts of **Life Processes and Living Things (Sc2)**, at Key Stage 1 and 2 level as indicated in the programme of study. In addition, the activities in the book enable children to utilise some cognitive processes which are incorporated in the **Scientific Enquiry** section of the curriculum.

These include:

## ***Ideas and evidence in science***

- collecting evidence by making observations;

## ***Investigative skills***

- exploring using the senses of sight, sound, hearing, smell, touch and taste and make and record observations and measurements;
- communicating what happened in a variety of ways, including using ICT;

## ***Considering evidence and evaluating***

- making simple comparisons and identifies simple patterns.

## **LIFE PROCESSES AND LIVING THINGS**

### **KNOWLEDGE, SKILLS AND UNDERSTANDING**

#### ***Life Processes***

Students will:

- relate life processes to animals and plants found in the local environment; **(KS 1 - 1. c)**
- understand that life processes common to plants include growth, nutrition and reproduction; **(KS 2 - 1. b)**
- make links between life processes in familiar animals and plants and the environments in which they are found. **(KS 2 - 1. c)**

#### ***Green Plants***

Students will:

- recognise that plants need light and water to grow; **(KS 1 - 3. a)**
- recognise and name the leaf, flower, stem and root of flowering plants; **(KS 1 - 3. b)**
- understand that seeds grow into flowering plants; **(KS 1 - 3. c)**
- learn about the effect of light, air, water and temperature on plant growth; **(KS 2 - 3. a)**
- understand the role of the leaf in producing new material for growth; **(KS 2 - 3. b)**
- realise that the root anchors the plant and that water and minerals are taken in through the root and transported through the stem to other parts of the plant. **(KS 2 - 3. c)**

#### ***Reproduction:***

- recognise the parts of a flower and their role in the life cycle of flowering plants, including pollination, seed formation, seed dispersal and germination. **(KS 2 - 3. d)**

#### ***Living Things in Their Environment***

Students will:

- find out about the different kinds of plants and animals in the local environment; **(KS 1 - 5. a)**
- learn ways in which living things and the environment need protection; **(KS 2 - 5. a)**
- understand that nearly all food chains start with a green plant. **(KS 2 - 5. e)**

## STRUCTURE OF THIS BOOK

Books in this series are divided into two sections - the section which includes the **“Using Information”** activity pages and that containing **“General Activity”** pages.

Both sections include **Teachers’ Notes** which focus on aspects of subsequent activity pages such as:

- learning outcomes of the relevant pages;
- materials required to complete the activity page;
- teaching suggestions for each page in the section.

## “USING INFORMATION” SECTION

All student activity pages in this section are preceded by an **“Information Page”** - a set of notes that provides background knowledge to the activities presented on the worksheet. It is intended that these sheets are also photocopied for students and used by them as they attempt the activity page. It is envisaged that this approach will allow teachers to relate the class Science program to the Language program, through using these Information Pages as opportunities for Reading and Writing activities. They are ideal for these purposes in that they require students to restate meanings and make simple interpretations for the purposes of completing the accompanying worksheets.

The text in these pages may be at a slightly more difficult level than that presented on the worksheets and further assistance is given by defining some key words or phrases. These are underlined and link to the **Explanations** section at the base of the page, which contains further definitive statements and explanations about the text.

It should be noted that not all the information that is required to complete worksheets is contained in these notes. In fact, children will benefit greatly from introductory discussions and idea sharing sessions about the worksheet in conjunction with the use of the Information Page.

## GENERAL ACTIVITIES SECTION

The activity pages in this section (headed ACTIVITY PAGE) utilize traditional print related reference materials for children to complete the set tasks on the sheets. It would be useful for a collection of appropriate books and materials to be assembled before commencing the unit so these can be accessed and used with as little disruption as possible. It is imperative, too, that these sheets are discussed thoroughly before children are set to work.

# Lesson Notes

Pages 7 to 14

## CONTENT AREA(S):

- life science

## ATTAINMENT TARGETS:

In this section students:

- identify the importance of plants.
- understand that plants need sunlight, water and air in order to survive.
- identify different sorts of plants.
- understand that most plants start life as a seed.
- label plant parts on a diagram.

## MATERIALS REQUIRED:

- Information pages; activity sheets
- pencil or pen

## TIME:

- approximately 20-35 minutes.

## TEACHING SUGGESTIONS:

### Page 8: How We Use Plants

- Discuss objects that have plant origins such as paper, flour, food, medicine.
- Make a class terrarium using a large soft drink container or the glass from an unused fish tank/bowl. Add soil to the base and then plant some seeds. Cover the container with a lid or plastic film.
- Draw a class graph to measure the growth of the seeds over two weeks.

### Page 10: Plants Are Living Things and Page 12: What Do Plants Need?

- Explore the way that plants move. Place a leafy plant on a sunny window sill in the classroom. Watch how the leaves move towards the sun. Turn the plant around and watch how the plant moves towards the sunlight. Find out how long this takes.
- Ask students to observe the way that flowers in their garden close up in the evening.
- Introduce students to the microscope. If possible arrange for them to view some living plant cells under a microscope.

### Page 14: All About Seeds

- Grow some different kinds of seeds on moist cotton wool on a window ledge and compare their growth. Alfalfa, bean and sunflowers seeds can be used.
- Discuss seeds that students are familiar with, e.g. sunflower seeds, grains in bread.

## Information Page: How We Use Plants

Most people like to have flowers or green plants around them. Plants can be grown in gardens, pots, window boxes, hanging baskets, parks, greenhouses or in terrariums. Flowers and plants are often given as gifts, or to cheer somebody up who is sick.

All over the world, flowers are used as decoration on many different occasions like weddings, carnivals and parades. There are many other reasons that plants and flowers are grown. Many plants are grown because we can get food from them.

Cereals, vegetables, fruit and sugar cane all provide humans with an important source of food. Even chocolate comes from a plant!

Drinks like tea, juices and coffee all come from plants. Some plants, called herbs, are grown because they can be used as medicines. Other plants are used in cosmetics, perfumes, shampoos and soaps. Materials like cotton, flax and hemp (all of which come from plants) are used to make clothes, rope, carpets and sailcloth.

Rubber, which is used to make bouncy balls, elastic bands and car tyres, comes from rubber trees that are grown in large forests.

Wood and paper come from plants and have many uses. Wood is used for furniture, housing and making many simple everyday things like pencils. Without paper, we would not have books, newspaper, wrapping paper or cardboard.

### EXPLANATIONS

Cereals: Cereal crops are the most important group of food plant there is because they give us food like bread, breakfast cereals, cakes, rice and popcorn. Cereals are a type of grass and include wheat, oats, barley and rice.

Cosmetics: Powder, make-up, lipstick, nail polish, moisturiser and many other things that people use on their bodies are cosmetics.

Flax: Flax is a plant that has tough stalks that can be dried to make very strong threads.

Hemp: Hemp is coarser than flax and is used to make carpets.

Herbs: Herbs are plants that have healing properties. They have been used for thousands of years to make cures for many different illnesses. Herbs such as ginger, basil and oregano are used in cooking.

Terrariums: A terrarium is a garden that grows in a large glass jar or bottle. If you choose the plants that are put into the terrarium carefully you can keep it inside or on your windowsill.



# How We Use Plants

Use the Information Page on How We Use Plants to help you complete this page.

We use plants for many different things. Write down five things that come from plants.

- 1. ....
- 2. ....
- 3. ....
- 4. ....
- 5. ....



Sample

What plants do we eat? .....

What plants do we use in medicines? .....

What plants can we make clothes from? .....

What do we get from rubber plants? .....

Draw a terrarium in this space.

## Information Page: Plants Are Living Things

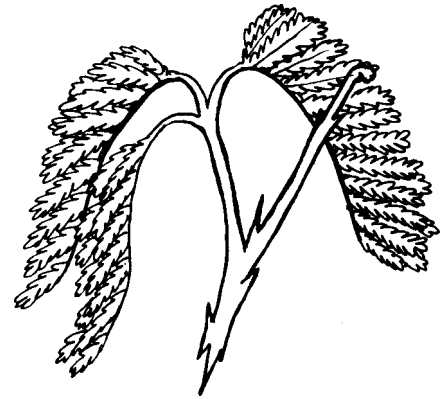
Plants are living things that grow, move, climb, swim and even catch insects!

### HOW DO PLANTS GROW?

All living things are made up of tiny cells which can only be seen with a microscope. The cells in plants grow by becoming larger and multiplying. When this happens, the stem tip is pushed upwards and the root tip is pushed downwards. This makes the plant grow at the tip of the stem as well as the bottom of the root.

### HOW DO PLANTS MOVE?

Plants are moving all the time. Sunlight can make plants move. Some plants will turn their head so that they follow the sun as it moves across the sky. Some flowers will move their petals by opening them when the sun comes out and closing them again at night. If you touch some plants, like the mimosa plant, their leaves will suddenly droop, as in the picture.



### HOW DO PLANTS CLIMB?

If a tall plant that grows very quickly has a very thin stem it will fall over. Plants like this will find things to cling to as they grow. They might cling to a house, a wall, a fence or even other plants. These types of plants are called climbing plants.

### HOW DO PLANTS SWIM?

Microscopic plants that live in water are called algae. They swim by wiggling their small threads and pushing themselves along.

### HOW DO PLANTS CATCH INSECTS?

Some plants, like the Venus flytrap, catch insects as food. This plant has only two large leaves which are covered in long hairs. When the insect touches the hairs, the two leaves quickly shut. The insect is trapped inside because the long hairs lock together and the insect cannot get out. This insect is the plant's food. It can stay closed after catching the insect for as long as twenty or thirty days. When the fly trap is about to reopen it can take a while to become fully open.

### EXPLANATIONS

Algae: Algae are known as plants and not animals because they make their own food using sunlight, just as all other plants do.

Microscopic: Some plants are so tiny they can only be seen using a powerful microscope. These plants are so small that they may only be made of one cell. Other microscopic plants include plankton and some types of fungi.

Multiplying: Multiplying means growing by making more cells.

Petals: Petals are the parts of a flower that are often large and colourful. Their job is to attract insects to the plant so that the plant can reproduce.

Sunlight: All plants need sunlight to grow. Sunlight comes through the leaves of a plant and helps the cells grow and multiply.



# Plants Are Living Things

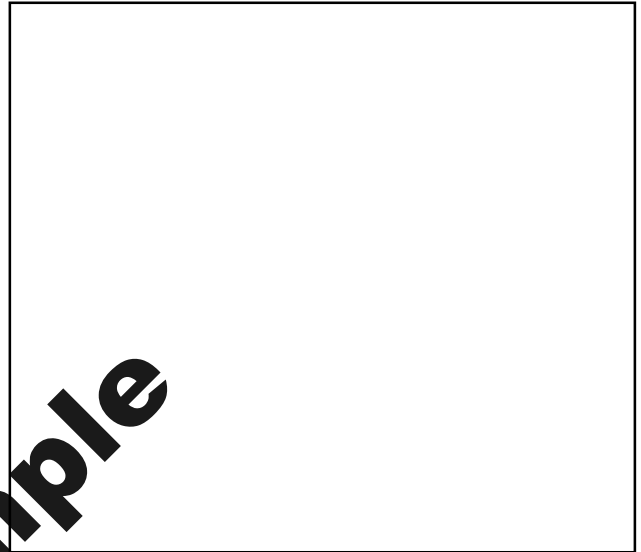
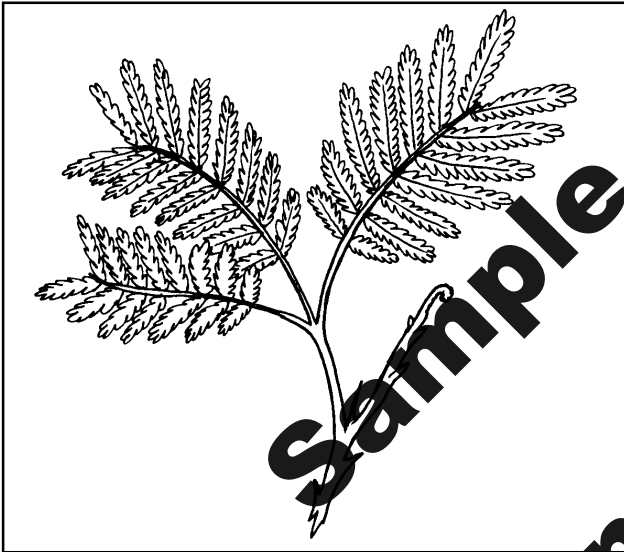
Use the Information Page on Plants Are Living Things to help you complete this page.

Plants are all around us. They are living things that grow, move and change. We can care for plants to make sure they stay healthy.

Use the Information Page to learn more about plants.

- 1. The mimosa plant, shown below, moves if you touch it.

Draw the plant after it has been touched.



- 2. Describe what happens to the leaves of the mimosa plant.

.....  
.....

- 3. How do some other plants move?

.....  
.....

## THE VENUS FLYTRAP

- 4. How does this plant catch flies?

.....  
.....  
.....  
.....

