

ARROW

# SCIENCE WORLD

BOOK - 2

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# PREFACE

**Science World** by Arrow Publications Pvt. Ltd. is a six-level series for classes UKG and I to V designed with the objective of making the learning of science a joyful experience for the young learners. The content addresses the learners directly to make it interactive and learner-centred and attempts to establish a warm and friendly relationship between the learners and their environment. The series takes the learners on a fascinating journey to the amazing world of science, arouses their natural curiosity and nurtures their creative instincts.

The series aims to develop in learners habits of observation and exploration, the ability to think logically and draw inferences. A serious and conscious attempt has been made to link all the basic principles and concepts of science to the immediate environment and experiences of the young learners so that learning becomes relevant and meaningful.

The key features that make the series unique are :

- Graded content presented in a simple and lucid style to facilitate easy understanding of the concepts
- Colourful and lively illustrations which make the books a visual delight for the young learners
- **Did You Know** section in each lesson which adds to the information given in the lesson
- **Recall** in each lesson to help learners summarise the content in the lesson
- **Check Your Progress** to recapitulate and reinforce the concepts learnt in each lesson
- **Fun Activity** to make learning fun-filled, lively and interesting
- **Project Work** to engage the learners in meaningful activity
- **Oral Work** and **Hots** to develop logic and thinking skills
- **Improve Your GK** to encourage learners to gather more information on a given topic
- **Practice Papers** to help in continuous assessment
- **Fascinating Facts** to expose the learners to some interesting information beyond the textbook.
- Interactive CD-Rom to make learning interesting and child-friendly
- Teacher's Handbook that serves as a guide to the teachers.

We hope this series will equip learners with the necessary skills and knowledge and also serve to fulfil the larger goal of fostering a scientific attitude and a spirit of scientific inquiry in them.

Happy teaching and happy learning!

We are grateful to Mrs Padmini Sameeran for her valuable suggestions and guidance during the making of this series.

– *Publishers*

# SCIENCE TEACHING IN THE CLASSROOM

The word 'Science' comes from the Latin word 'Scientia', meaning 'knowledge'. So, it is basically the pursuit and application of knowledge and understanding of the natural and social world following a systematic methodology based on evidence. Science is based on fact, not opinion or preferences. It is knowledge accumulated through discoveries about all the things in the universe.

At the primary level, the main objectives of teaching science are:

**Knowledge** - students should acquire the knowledge of:

- fundamental principles and concepts useful in daily life
- plant life and animal life
- interdependence and relationship between living and non-living
- natural phenomena
- general rules of health and hygiene

**Skills** - students should acquire skills of:

- experimentation
- observation
- drawing
- reflective thinking

**Abilities** - students should develop ability to:

- analyse and interpret
- generalise and draw inferences
- engage in discussions
- use scientific terminology

**Attitude** - students should develop:

- a scientific approach
- open mindedness
- curiosity to know answers to whats, whys and hows of things
- an objective approach

**Appreciation** - students should learn to:

- appreciate natural beauty
- develop interest in knowing about scientific literature
- develop scientific hobbies
- keep in touch with the new inventions and discoveries in science

**Training for Better Living** - students should know:

- the ways to maintain good health
- the ways to prevent diseases
- the ways to adjust with the social environment

# INSIDE THIS BOOK

## Green Pages

Creates awareness of the surroundings

## Keywords

Introduces new terms in science

## Recall

Summarises the lesson in clear and easy-to-understand points

## Check Your Progress

Tests understanding of the concepts learnt in each lesson

## Project Work

Develops observation and experimentation skills

## Hots

Develops reasoning skills

## Improve Your GK

Adds to the knowledge of the learners

## Fun Activity

Creates interest in the young learners

## Revision and Assessment Papers

Assesses progress of learners periodically

## GREEN PAGES

Life skills are more essential for today's kids as they are the future citizens. Give more emphasis to reduce pollution and usage of plastic as they may ruin the planet earth. Utilize renewable resources like the sun, water and air to the maximum extent.

### *Turn trash to treasure:*



Reuse the materials that are generally thrown after using to make decorative items. For e.g., egg shells, broken bottles etc can be decorated.

### *Never waste food*

Do not waste food as there are so many people in the world who are starving. Only put as much as you can eat in your plate.



### *Save fuel*



Ask your dad to switch off the engine at traffic signals or when stuck in a traffic jam. Fuel if burnt excessively cannot be got back. It is a non – renewable resource.

## Healthy living



Eat more of fruits and vegetables. Cut down on junk foods as it may cause harm to your health. Drink at least 2 glasses of milk and plenty of water. Do not sit idle watching the television, instead play outdoor games.

## Plant as medicine



Every part of the neem plant like fruits, seeds, oil, leaves, roots and bark has been used in the Indian Ayurvedic and Unani systems of medicine. Neem bark is a cool, bitter, astringent and refrigerant. It is useful to treat tiredness, cough, fever, loss of appetite, worm infestation. It also heals wounds and vitiated conditions of vomiting, skin diseases, excessive thirst and diabetes.

## Save Wildlife



There are a lot of wonders in the world and among them are wildlife species. Most people think there are plenty of wildlife species. But the truth is that their number is going down and if we do nothing about it, many animals will disappear from the face of the earth. So, people must protect animals and take care of them.

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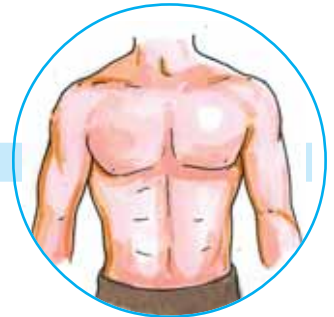


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## PLANTS AROUND YOU

Look around your home and school, in parks and gardens and in the fields. You see plants growing everywhere.

Some plants are so small that they are hard to see. Some are so big that they seem to touch the sky!

You can also see that plants come in all shapes and sizes.

Let us visit a garden and learn more about the plant world.



## TREES

Here are some plants. They are called **trees**. Trees are the biggest plants of all. They live for many, many years.



mango tree



neem tree



coconut tree

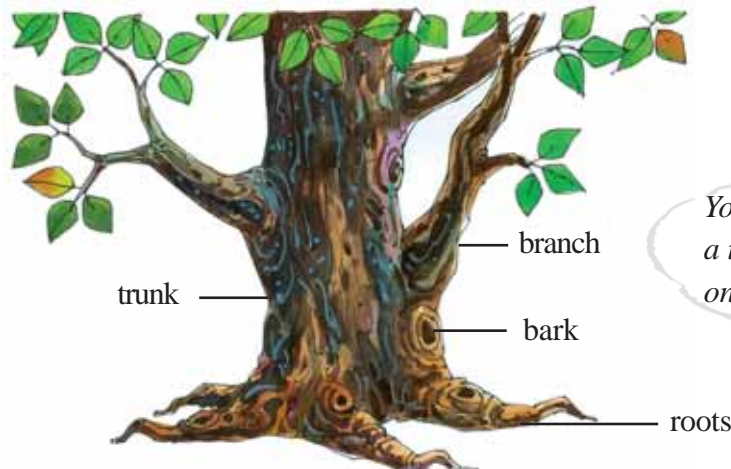
### Did you know?

Some trees live for 4,000 years!



banyan tree

A tree has a strong and woody stem called the **trunk**. The trunk is covered with **bark**. The bark protects the stem. The roots of a tree go very deep inside the ground to find water.



### Did you know?

You can tell the age of a tree by counting the rings on a tree stump.

A tree has many **branches**. The branches bear leaves, flowers and fruits. Some trees keep their leaves all year. They are evergreen. Some trees lose all their leaves in winter.

## SHRUBS

Now look at this plant. It is a small, woody plant having several stems arising from the base, with leafy branches growing close together.

Do you know what it is called? It is called a **shrub**.

Here are some more shrubs.



rose

Did you know?

Most shrubs have colourful flowers.



bougainvillea



hibiscus

Did you know?

A banana plant is not a tree. It is a herb.



jasmine

## HERBS

Let us now look at another plant.

It is the coriander plant.

It is a small plant with a soft and green stem.

The roots are very small. The plant lives only for one season. Such a plant is called a **herb**. Here are some more herbs.



coriander



rice



mint



spinach



wheat

## CLIMBERS

Here is a plant that you see around your home.

It is called the money plant. It grows on a support.

Do you know why?

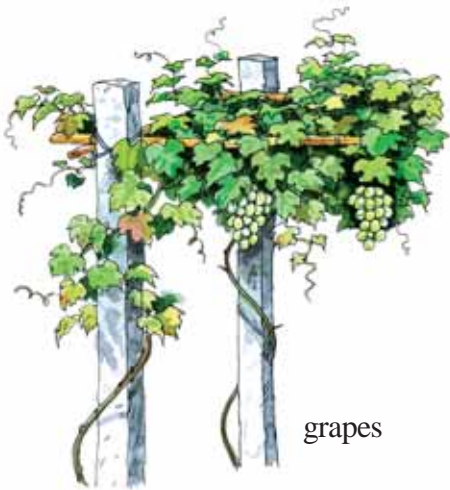
It is because the stem is very weak.

Plants with weak stems that need support to grow are called **climbers**.

There are many other climbers. Here are some of them.



money plant



grapes



peas

## CREEPERS

Here are some more plants. They grow and spread along the ground.

They have weak stems. They are called **creepers**.



watermelon



pumpkin

So, you have seen that plants are of so many types.

You will learn more about them in the next lesson.

## KEYWORDS

trees

leaves

herbs

trunk

stem

shrubs

bark

flowers

creepers

branches

fruit

climbers

## RECALL

- \* Trees are big and strong plants.
- \* A tree has a strong and woody stem called the trunk.
- \* The trunk is covered with bark.
- \* A tree has many branches.
- \* The branches bear leaves, flowers and fruits.
- \* Shrubs are small, woody plants having several stems with leafy branches.
- \* Herbs are very small plants having soft and green stems and small roots.
- \* Plants with weak stems that need support to grow are called climbers.
- \* Plants with weak stems that grow and spread along the ground are called creepers.

## CHECK YOUR PROGRESS

### *1. Answer the following questions.*

1. What are trees? Name two trees.

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2. What are shrubs? Name two shrubs.

---

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3. What are herbs? Name two herbs.

---

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4. Why do climbers need support to grow?

---

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5. Where do creepers grow?

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**II. Match the following.**



Shrubs

Herbs

Climbers

Creepers

Trees



**III. Choose the right answer.**

1. Big and strong plants are called [     ]  
a. shrubs            b. herbs            c. trees
2. The trunk of a tree is covered with [     ]  
a. fibre            b. bark            c. wood
3. Plants with weak stems that grow along the ground are called [     ]  
a. herbs            b. creepers            c. climbers
4. Plants which have several stems with leafy branches are called [     ]  
a. shrubs            b. herbs            c. trees
5. These plants live only for one season [     ]  
a. shrubs            b. herbs            c. creepers

**IV. Say 'Yes' or 'No'.**

1. Money plant is a climber. [     ]
2. Herbs have very hard stems. [     ]

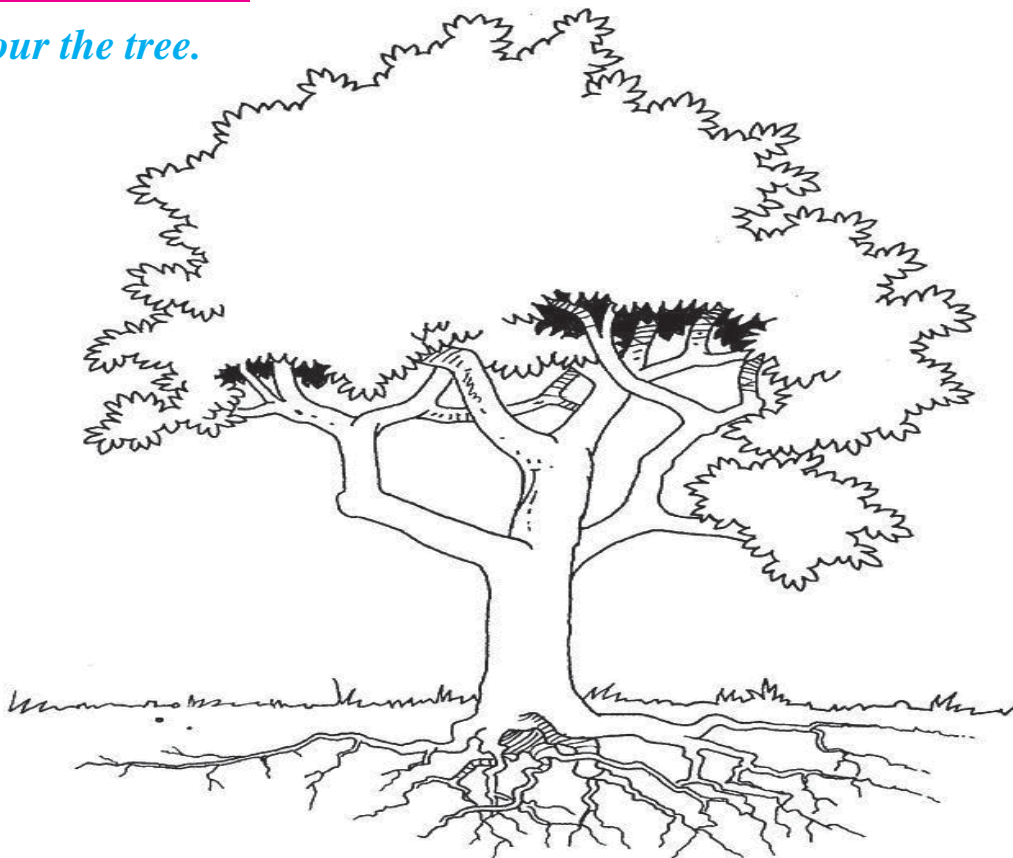
- 3. Pumpkin is a creeper. [       ]
- 4. A rose plant is a small, woody plant. [       ]
- 5. A climber grows and spreads along the ground. [       ]

**V. Join the pictures.**



**FUNACTIVITY**

*Colour the tree.*



## PROJECT WORK

- \* *Collect pictures of herbs, shrubs, climbers and creepers from newspapers and magazines and paste them in your scrap book.*
- \* *Visit a garden or a park to find some plants. Learn the names of any 5 plants and note them down. Collect leaves and paste them to form a tree.*

## ORAL WORK

1. *Why don't trees like banyan and coconut need support to grow? (Hint: strong stem)*
2. *If a tree were your friend, how would you treat it? Say a few words. (Hint: talking to it, watering etc)*

## IMPROVE YOUR GK

- \* Cactus is a plant that grows in the desert.



cactus