



# NEW SCIENCE AHEAD



2

New

# ScienceAhead

has been developed in accordance with

- the CBSE's educational initiatives for effective teaching and learning
- the guidelines laid down in the National Curriculum Framework
- tried and tested methodology in the teaching of science
- the needs of the teacher and the student



## Students' Book

- carefully graded text
- experiments and activities
- appealing images
- attractive layout

## Teachers' Resource Pack

- For each lesson:
    - lesson plan
    - question bank with answers
    - worksheet with answers
    - answers for exercises in the students' book
    - activities for assessment
  - Tests\* and Examination papers with answers
- \* for classes 3-8

## In the Students' Book

### Concept Development

#### Learning Objectives

- encourage students to evaluate their progress and take responsibility for their learning

#### Mind Opener

- draws students into the lesson
- prepares them for new learning

#### Lesson Text

- carefully graded
- enables understanding
- visually appealing

#### In-lesson Activities

- help students develop a scientific temperament

#### You Now Know

- summarises the lesson
- enables easy revision

### Reference

#### Did You Know?

- nuggets of interesting information

#### Be Inspired! Scientists and Values

- information on people who have expanded the world of science or made the world a better place

#### OUR HERITAGE

NEW!

- an exploration of India's rich heritage in science

#### Internet Links

- enable students to use IT to explore topics in greater depth

#### Glossary

- definitions of technical terms

NEW!





## Smart Book for Teachers

informative, interactive and exciting, with:

- animations
  - picture galleries
  - audio
  - interactive tasks
  - presentations
  - teachers' resources
- including
- extra questions
  - worksheets
  - concept maps
  - question-paper generator

## Students' App

NEW!

questions that help students  
review lessons  
for classes 3–8

## Web Support

a portal dedicated to the series  
with free access for teachers

## In the Students' Book

### Skill Development

#### Looking Back

- within-lesson questions
- immediate feedback for the teacher

#### Higher-order Thinking Skills

- questions to improve students' analytical and problem-solving skills

#### Exercises

- multiple choice questions (MCQs)
- true or false
- fill in the blanks
- diagram-based questions
- long-answer questions
- ...and more

#### Life Skills

- decision making
- problem solving
- critical thinking
- self management
- effective communication
- ...and more

#### Activities for Assessment

- science experiments
- written assignments
- simple projects
- presentations (IT)
- model making
- field trips
- ...and more

#### Fun Activities

- activities that make learning science joyful

### Testing

#### Tests

- short tests to assess students' understanding of concepts
- for classes 3–8

#### Examination Papers

- for examination practice

NEW!

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What are you made up of?			

**List of enrichment activities included in New ScienceAhead 2**

- Multiple choice questions: 9, 10, 35, 40–41, 62, 67, 72, 76, 81, 86, 91, 96, 101–102
- Written assignments: pages 5, 24, 30, 41, 87, 97, 103
- Research work on the computer (IT): Internet links at the end of every chapter
- Group work: pages 5, 63, 97
- Simple science experiments: pages 38, 43, 47, 58
- Collecting natural specimens: pages 24, 73, 77
- Show and tell/Interviews: pages 63, 97
- Simple projects and presentations: pages 5, 18, 52, 68, 77, 104
- Field tour: pages 5, 30, 102
- Class response: Mind openers at the beginning of each lesson; 'Looking Back' questions; higher-order thinking skills questions
- Crafts: pages 5, 24, 36, 42, 52, 63, 68, 82, 92
- Games, puzzles and quizzes: pages 4, 13, 17, 23, 24, 26, 35, 46, 63, 76–77, 102, 103, 104, 105, 106, 107

# Plant Life

1

## Mind Opener

You learnt about plants in class 1. Do you think all plants grow up to be tall and strong?

## Learning Objectives

By the end of the lesson, you will be able to:

- ☞ identify and name the different kinds of plants
- ☞ classify plants as trees, shrubs, herbs or climbers

## TREES

You can see different types of plants around you. They grow in different places.

**Trees** are the biggest plants. They are tall and strong. They are of different shapes and sizes.

Trees have a hard and thick stem called a **trunk**. They have many branches.

Trees live for many years.



Neem tree



Coconut tree



Mango tree



Fir trees

### Teacher's Note

Let the children take a nature walk and observe different types of plants. Let them classify these according to the classification in this lesson. Let them realise that some kinds of plants grow up to be trees, but others remain small.

## SHRUBS

**Shrubs** are small plants. They are also called bushes. They are smaller than trees.

Shrubs have hard and thin stems. They have many branches. The branches grow close to the ground.

Like trees, shrubs live for many years.



Rose bush



Cotton plant



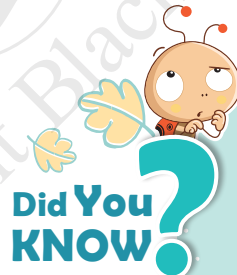
Bougainvillea shrub

## HERBS

**Herbs** are small plants. Their stems are soft and usually green.

Unlike trees and shrubs, most herbs live for a short time.

They live only for a few years or months, depending on the kind of herb.



**Did You Know?**

The banana 'tree' is not a tree at all! It is a herb. It is the biggest herb. It has a soft and green stem.



Mint



Wheat



Coriander





## Looking Back



Fill in the blanks.

Kamal went around the garden and found different types of plants. Some were big, strong and tall.

Those were the \_\_\_\_\_.

Some were bushy, and they had hard and thin stems.

Those were the \_\_\_\_\_.

Some plants had soft and green stems.

Those were the \_\_\_\_\_.



## CLIMBERS

Look at the stem of a money plant or a grapevine. What do you notice?

These plants cannot stand straight because they have thin and weak stems. They need the support of a wall, stick or another plant to climb up.

Such plants are called **climbers**.



Beanstalk



Money plant



Grapevine

## Looking Back



Your mother is growing a plant in a pot. She fixes a stick in the pot as support for the plant. What kind of plant is she growing?



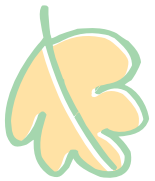
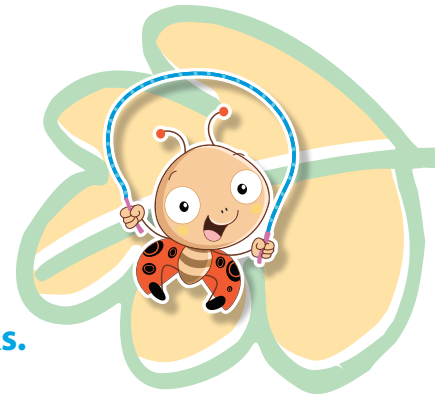
## You Now Know...



- 🍃 Trees are tall and strong plants with thick stems called trunks.
- 🍃 Shrubs are short and bushy plants with thin and strong stems.
- 🍃 Herbs are small plants with soft stems that are usually green.
- 🍃 Climbers have weak stems. They need support to climb up.



## Exercises



### A. Unscramble the letters to form words. Then, fill in the blanks.

1. A tall and strong plant: \_\_\_\_\_ (ETRE)
2. A bushy plant: \_\_\_\_\_ (BSHUR)
3. A small plant with a soft, green stem: \_\_\_\_\_ (EBHR)
4. A plant that cannot stand on its own: \_\_\_\_\_ (CLMIEBR)

### B. Match the words in the two columns.

#### Column A

1. neem
2. rose
3. bean plant
4. mint

#### Column B

- a. tree
- b. herb
- c. shrub
- d. climber

### C. Answer the following questions.

1. What types of plants have hard and thin stems?
2. Why do climbers need support to climb up?





## Higher-order Thinking Skills

Is a small mango plant a herb?



## Life Skills

Just like us, plants live and grow. We should not do things that hurt them, like plucking leaves and breaking stems.



## Enrichment Activities

### 1. Nature walk

Go on a nature walk in a garden or park.

Observe the different plants you see. Find out their names. Find out if they are herbs, shrubs or trees. How many different kinds of plants did you find?

### 2. Make "Save our Trees" posters

**You will need:** chart paper, crayons, coloured pencils or sketch pens

Work in groups. Take a large sheet of chart paper. Write 'SAVE OUR TREES' in large letters on it. Draw and colour a picture that shows how you can save trees.

## Internet Links

<https://www.youtube.com/watch?v=LW0jUbKcn1I>

## OUR HERITAGE

### Sandalwood

We get sandalwood (*chandan*) from the sandalwood tree. It is a special wood that has a good smell. We make powder, incense (*agarbatti*), oil and decorative objects from sandalwood.



A sandalwood fan







# Domestic Animals

## Mind Opener

Do you, or does your friend, have a pet at home? Is it friendly? Name some other animals you can see around your home or on a farm. In what ways are these animals useful to us?

## Learning Objectives

By the end of the lesson, you will be able to:

- define and give examples of domestic animals
- explain that animals give us food and other things
- say how we should take care of domestic animals

Some animals can be easily tamed.<sup>1</sup> They are called **domestic animals**. We keep them in our homes or on farms.

## ANIMALS GIVE US FOOD

We get **milk** from some animals, like cows and buffaloes.



Cow



Buffalo



Milk

<sup>1</sup> tame to make an animal used to being close to people



We make butter, *ghee*, cheese, *paneer*, ice-cream, sweets and other things from milk.



Butter



Ice-cream



Chocolate

We get **eggs** from birds like chickens and ducks.



Chicken



Duck



Eggs

Some of us eat the **flesh** of some animals, like fish, chickens and goats.



Fish



Goat



**Looking Back**

What did you eat for breakfast? What part of your breakfast came from animals?



## ANIMALS GIVE US OTHER THINGS

We get **leather** from animals to make shoes, jackets, bags and suitcases.

Leather is made from the skins of animals like cattle and camels.



Leather items

We get **fibres** such as wool and silk from animals.



Sheep give us wool.



Silkworms give us silk.





## ANIMALS WORK FOR US

Some animals carry heavy loads.  
We use some animals to plough<sup>2</sup> fields.



A camel pulling a cart



Oxen ploughing a field

## PET ANIMALS

An animal you keep at home and look after is your pet.

How many of you have a dog, cat or another animal as a pet?



Pets are friendly and make us feel happy. Dogs can be very faithful<sup>3</sup> and clever. They can guard<sup>4</sup> our house.

## LOOKING AFTER DOMESTIC ANIMALS

We should look after domestic animals well. We should be kind to them and give them proper food. We should keep their homes and bodies clean. We should take them to the animal doctor when they are not well.



<sup>2</sup> plough to loosen and turn over soil before planting seeds in it

<sup>3</sup> faithful a faithful person is someone who is always there to help or support you, and whom you can trust

<sup>4</sup> guard to protect someone or something from harm



## Looking Back



How are domestic animals different from wild animals?



## You Now Know...



- 🍃 We keep domestic animals in our homes and on farms.
- 🍃 They help us in many ways.
- 🍃 They give us milk, meat, leather and fibres.
- 🍃 They work on farms, carry heavy loads and guard us.
- 🍃 We keep pet animals at home.
- 🍃 We should look after domestic animals.



## Exercises

### A. Choose the correct answer. Then, fill in the blanks.

1. Animals that can be tamed are (domestic / wild) \_\_\_\_\_ animals.
2. The (cow / cat) \_\_\_\_\_ gives us milk.
3. Leather comes from the (skin / hair) \_\_\_\_\_ of animals.
4. We get wool and silk from (plants / animals) \_\_\_\_\_.
5. (Dogs / Cats) \_\_\_\_\_ guard our house.

### B. Fill in the missing letters to name the animals.

1. We get eggs from this animal: D \_ \_ \_
2. We get wool from this animal: S \_ \_ \_ P
3. We get silk from this animal: S \_ \_ K \_ O \_ M
4. It is big and can carry heavy loads: C \_ \_ \_ L
5. This is a pet animal: C \_ \_



### C. Answer the following questions.

1. Why should we be kind to animals?
2. How should you look after your pet?



### Higher-order Thinking Skills

Will you be able to keep a tiger or a lion as a pet? Why, or why not?



### Life Skills

What will you do if you see a stray animal that is seriously injured?

- a) Inform an adult and ask him/her to call the animal doctor (veterinarian).
- b) Let it take care of itself.



### Fun Activity

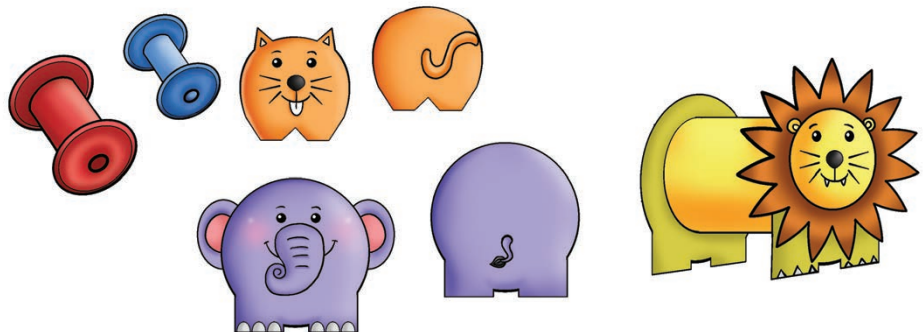
#### Make cotton reel animals

**You will need:** empty cotton reels, pieces of thin card, scissors, gum, colours

Draw the faces and backs of different animals on thin cards. The fronts and backs must be about the same size. Colour and cut them out.

Use a cotton reel for each body. Stick the front and the back of each animal to it, as shown.

You can make a mini zoo in your classroom!



### Internet Links

[http://www.kidinfo.com/science/domestic\\_animals.html](http://www.kidinfo.com/science/domestic_animals.html)



# NEW SCIENCEAHEAD

## CLASS 2



Orient BlackSwan

The National Education Policy (NEP) 2020 emphasises certain crucial parameters based on content and pedagogy. The New ScienceAhead series provides a rich range of exercises and activities for each of the parameters.

Here is a quick reference guide to some of the examples in this book.

The New ScienceAhead series is mapped perfectly to the National Education Policy 2020.

### 21<sup>st</sup> Century Skills

A broad set of skills, knowledge, work habits and character traits that are important for success in the 21<sup>st</sup> century

### Experiential/ Constructivist Approach

Learners construct their knowledge, based on what they already know, through experience or by doing and reflection

### Integrated Approach

An approach to teaching and learning that works by connecting knowledge and skills across the curriculum, by bringing real life examples to the classroom

The NEP parameters	Features	Page nos.
The 4Cs		
Collaboration	Enrichment Activities	97
Critical Thinking	Higher Order Thinking Skills	36
Critical Thinking	Higher Order Thinking Skills	51
Social and Emotional Learning	Life Skills	24
	Life Skills	30
	Life Skills	97
Multiple Intelligences	Enrichment Activities	30
	Enrichment Activities	63
	Fun Activity	106

The NEP parameters	Features	Page nos.
Experiential/Constructivist Approach	Activity	38
	Enrichment Activities	58
	Higher Order Thinking Skills	92

The NEP parameters	Features	Page nos.
Subject Integration	Did You Know? (General Awareness)	2
	Life Skills (General Awareness)	68
	Fun Activity (Language)	103
Art Integration	Enrichment Activities	25
	Exercises	67
	Fun Activity	92
Health and Wellness	Life Skills	47
	Enrichment Activities	52
	Text	93–95

The NEP parameters	Features	Page nos.
Values	Life Skills	11
	Text	34
Life Skills	Life Skills	36
	Life Skills	82

The NEP parameters	Features	Page nos.
Sustainable Development Goals	Higher Order Thinking Skills	17
	Life Skills	58
	Text	93–95

## Sustainable Development Goals

A framework of 17 global goals designed to be a blueprint to achieve a better and more sustainable future for all

The NEP parameters	Features	Page nos.
Know more about India	Our Heritage	5
	Our Heritage	18
	Our Heritage	58

## India Knowledge

A strong focus on ancient knowledge from India, traditional values, modern developments and future aspirations

## Digital Integration

The use of digital tools to enhance and support the teaching–learning process

### ICT/Digital resources

Teachers' Smart Book - Flipbook, Audio, Animations, Presentations, Picture Galleries, Interactive Activities, Embedded Questions, Worksheets with Answer Key, Games

### Teacher Empowerment

Teachers' Resource Pack - Lesson Plans with Enrichment Activities, Question Bank with Answer Key, Worksheets with Answer Key, Sample Papers for Assessment with Answer Key, Students' Book Answer Key

Teachers' Portal - Lesson Plans, Question Bank with Answer Key, Worksheets, Sample Assessment, Answer Key (for Exercises, Enrichment Activities and Assessment Papers in the Students' Book; Worksheets and Assessment Papers in the TRP)



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