The Gen X Series

SCIENCE OLYMPIAD 2

Useful for Science Olympiads Conducted at School, National & International Levels

Authors

Shikha Gupta

Shikha Nautiyal

Peer Reviewer

Sonal Jain

Strictly According to the Latest Syllabus of Science Olympiad

V&S PUBLISHERS

Published by:



V&S PUBLISHERS

F-2/16, Ansari road, Daryaganj, New Delhi-110002
☎ 23240026, 23240027 • *Fax:* 011-23240028
Email: info@vspublishers.com • *Website:* www.vspublishers.com
Online Brandstore: ***amazon.in/vspublishers***

Regional Office : Hyderabad
5-1-707/1, Brij Bhawan (Beside Central Bank of India
Lane) Bank Street, Koti, Hyderabad - 500 095
☎ 040-24737290
E-mail: vspublishershyd@gmail.com

Branch Office : Mumbai
Jaywant Industrial Estate, 1st Floor–108, Tardeo Road
Opposite Sobo Central Mall, Mumbai – 400 034
☎ 022-23510736
E-mail: vspublishersmum@gmail.com

BUY OUR BOOKS FROM: AMAZON FLIPKART

© Copyright: V&S PUBLISHERS

ISBN 978-93-505797-4-9
New Edition

DISCLAIMER

While every attempt has been made to provide accurate and timely information in this book, neither the author nor the publisher assumes any responsibility for errors, unintended omissions or commissions detected therein. The author and publisher makes no representation or warranty with respect to the comprehensiveness or completeness of the contents provided.

All matters included have been simplified under professional guidance for general information only, without any warranty for applicability on an individual. Any mention of an organization or a website in the book, by way of citation or as a source of additional information, doesn't imply the endorsement of the content either by the author or the publisher. It is possible that websites cited may have changed or removed between the time of editing and publishing the book.

Results from using the expert opinion in this book will be totally dependent on individual circumstances and factors beyond the control of the author and the publisher.

It makes sense to elicit advice from well informed sources before implementing the ideas given in the book. The reader assumes full responsibility for the consequences arising out from reading this book.

For proper guidance, it is advisable to read the book under the watchful eyes of parents/guardian. The buyer of this book assumes all responsibility for the use of given materials and information.

The copyright of the entire content of this book rests with the author/publisher. Any infringement/transmission of the cover design, text or illustrations, in any form, by any means, by any entity will invite legal action and be responsible for consequences thereon.

Printed at : Param Offsetters, Okhla, New Delhi–110020

Publisher's Note

The current decade has firmly established V&S Publishers as one of the Leading Publishers of General Trade Mass Appeal Books across popular genres along with Academic Books for school children. Having been in publishing trade for over 40 years we understand the need of the hour when it comes to Books. After successfully publishing over 600 titles in a rather short time span of 5 years and establishing a pan India network of booksellers & distributors including ecommerce platforms viz – Amazon, Flipkart etc; an extensive market research lead us to publishing our Bestselling Series ever – OLYMPIAD BOOKS.

The Olympiad Series launched 4 years back under our GEN X SERIES Imprint gained widespread popularity amongst students and teachers immediately owing to its rich, high quality content and unique presentation. Published for Classes 1–10 across subjects English, Maths, Science & Computers, these books are holistic in nature and unlike run of the mill workbooks in the market, which are mere replicas of one another, these books deal with the content in a much comprehensive manner. Recourse to the 'Principles of Applied Psychology of Student Learning' has been utilised to upgrade levels of conceptual understanding in all designated subjects among class 1 to 10 students.

Encouraged by this huge acceptability of our Olympiad Series among parents and students and after revolutionising the way Olympiad books were written and published, we at V&S Publishers decided to take this to the next level.

We present to you Brand New Edition of our book – **SCIENCE OLYMPIAD CLASS 2.**

Each book originally written by Subject Matter Expert, is now further Peer Reviewed by top School Teachers and HODs to eliminate the slightest of errors that were present earlier. Furthermore to ensure authenticity and accuracy of content the book is now completely revised and reformatted as per the guidelines of the examining body. The New and Revised Olympiad Book is now suited to Olympiad examinations conducted at School Level, National Level or International Level by any and all organisations/companies.

The New Edition of this Science Olympiad Class 2 is written in a Guide like pattern with images and illustrations at every step & is divided into different sections. Each chapter comes with Basic Theory and Solved Examples. Multiple Choice Questions with their Answer Keys and Solutions are liberally included. In order to help students become aware of and to simulate the actual exam conditions, a bunch of OMR Sheets have been enclosed with the book as well.

Amalgamation of Technology with Content has always been at the forefront for V&S Publishers and our new Student Portal for Olympiad Practice–**www.vsexamprep.com** is further testimony to that. We recommend students logging in and using it to their benefit.

P.S. While every care has been taken to ensure correctness of content, if you come across any error, howsoever minor, anywhere in the book, do not hesitate to discuss with your teachers while pointing that out to us in no uncertain terms.

We wish you All The Best!

Contents

SECTION 1: SCIENCE

1. Plants 9
2. Animals 20
3. Human Body 29
4. Food 37
5. Housing and Clothing 42
6. Family and Festivals, Occupations 48
7. Transport and Communication 55
8. Air, Water and Rocks 63
9. Earth and Universe 69

SECTION 2: LOGICAL REASONING

1. Analogy 75
2. Series Completion 79
3. Classification 82
4. Odd One Out 84
5. Coding and Decoding 87
6. Ranking Test 91
7. Patterns 95
8. Problems Based on Figures 99
9. Measurement 104
10. Geometrical Shapes 109

SECTION 3: ACHIEVERS' SECTION

Higher Order Thinking Skills (HOTS) 116
SHORT ANSWER QUESTIONS 119
MODEL TEST PAPER – 1 124
MODEL TEST PAPER – 2 130
HINTS AND SOLUTIONS 135

SECTION 1
SCIENCE

Plants

1

Learning Objectives

After reading this chapter, students will be able to:

- ☞ explain different types of plants and their habitats
- ☞ discuss the parts of a plant
- ☞ explain the uses of plants

We see different types of plants around us. Some plants are big and some are small. Some have flowers and some are completely green.

Types of Plants

Depending on their size, plants are of three types: Trees, shrubs, and herbs.

Trees

Big and tall plants are called trees. They have thick, strong, and woody stem. This stem is called the **trunk**. Trees have a long life and live for many years. For example: mango, banyan, peepal, and bamboo.







Fig. 1: *Big and Tall Trees*



Fig. 2: *Delicious and Evergreen Trees*

Some trees like neem and peepal shed their leaves every year. They are called **deciduous trees**. Some trees like mango ad banyan remain green throughout the year. They are called **evergreen trees**.

Shrubs

Shrubs are smaller than trees. They have thick stems, but they are not as thick as the stems of trees. Shrubs are also called **bushes**. They are generally low in height and only live for a few years. China Rose (hibiscus), rose, cotton, and tulsi (basil) are examples of shrubs.



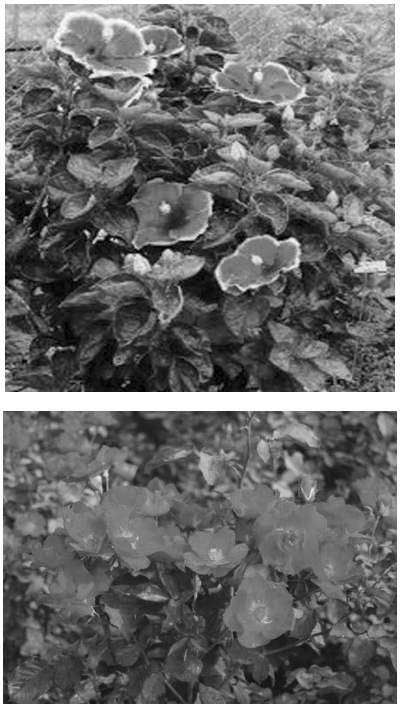


Fig. 3: *Shrubs*

Herbs

Herbs are very small plants as compared to trees and shrubs. They have green and soft stems. Coriander, mustard, spinach, and mint are some example of herbs. Many herbs live for a year or only a couple of months.



Fig. 4: *Herbs*

Climbers

A climber is a plant which has a weak stem. The stem coils around a support to grow straight. Money plant, bitter gourd, grape, and pea plant are a few examples of climbers. Climbers generally live for a few months, but some may live for years.







Fig. 5: *Climbers*

Creepers

A creeper is a plant which grows along the ground. It has weak and thin stems. Plants like cucumber, pumpkin, and watermelon are creepers.





Fig. 6: *Creepers*

Thorny Plants

Some plants bear thorns are called thorny plants. Cactus, acacia, and rose plants are all thorny plants.





Fig. 7: *Thorny Plants*

Plant Habitat

Plants can be found both on land and in water. Different plants live in different habitats.

Do You Know?

A habitat is a special place where a plant or animal lives.

Some plants grow on land, some in water, some in very hot regions, whereas some grow in very cold regions.

Do You Know?

Short grasses usually grow in cold, dry climates on high mountains. Their leaves are small and tough-bladed that keep the water in.

Plants can be classified in various categories:

Plants Grown on Land

- Plants that grow on mountains and hills: These plants are tall, sturdy, and coniferous. Examples: Cedar, Pine Spruce, conifers, fir.



Fig. 8: *Plant Grown on Mountains and Hills*

- Plants that grow in warm places or plains: These plants have many leaves and are shady. Most of the trees that grow in warm places or plains shed leaves in autumn. Example: Banyan, Mango, Papaya, Neem



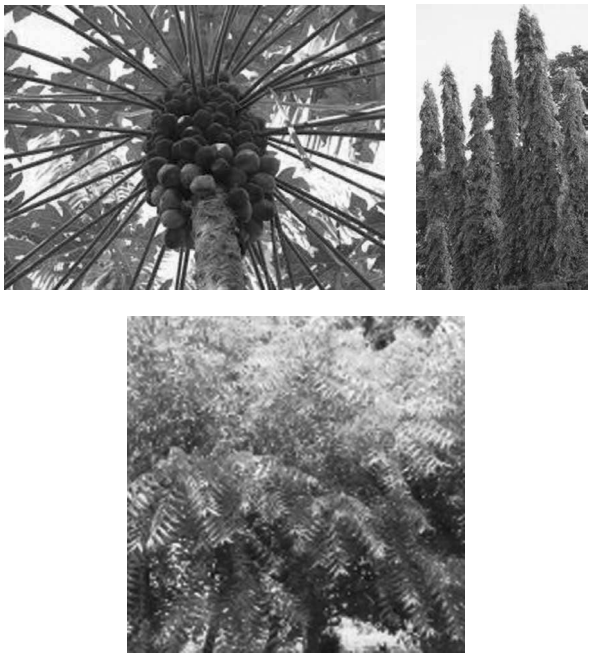


Fig. 9: *Plants Grown in Warm Places*

- Plants that grow in deserts or dry regions: These plants are adapted to living in hot and dry conditions. They have thick stems and spines all over their body. They lose very little water. Example: Saguaro, Prickly pear, Agave, Hedgehog



Fig. 10: Plants Grown in Deserts

Plants Grown in Water

Plants that grow in water are called **aquatic plants**. They possess specific characteristics to survive in water.

Test Your Skills

1. Which plant will dry sooner in summer?





2. Which of these plants needs the most water?





3. Which of these is a seasonal plant?





Parts of a Plant

A plant has many parts. The following are the various parts of a plant as discussed below:

1. **Root:** They grow under the ground. Roots collect water and minerals from the soil for the plant.
2. **Stem:** The stem grows above the ground. It is the main body of a plant. It transports food and water to all parts of the plant.
3. **Leaves:** They make food for the plant.

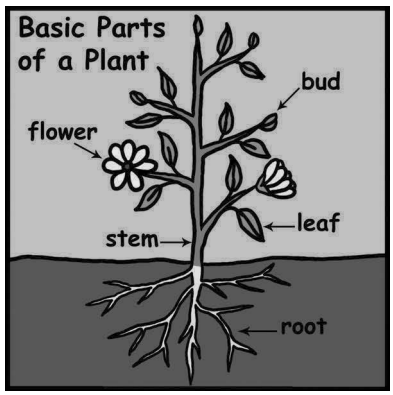


Fig. 11: *Parts of a Plant*

Do You Know?

Green plants are the only living things that can produce food. They are able to do so because of the presence of a substance called chlorophyll in their leaves. Chlorophyll is green in colour and also responsible for imparting green colour to the leaves.

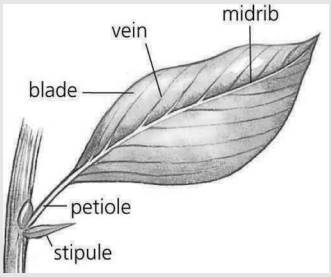


Fig. 12: *Parts of Leaf*

4. **Flowers:** They produce fruit.
5. **Fruits:** They have seeds in them. A baby plant grows from a seed. Plants need air, soil, water, and sunlight for their growth.

Test Your Skills

Define the functions of the following in one line:

1. Stem
2. Root
3. Leaves
4. Seed

Plants Give us Food

Most of our food comes from plants. Plants make their own food. Leaves are the food factories of the plants and the food is stored in different parts of the plant.

1. **Roots:** We eat the root of plants like radish, carrot, turnip, and beetroot.





Fig. 13: *Food from Roots*

2. **Stems:** We eat stems of plants like ginger, potato, and sugarcane.

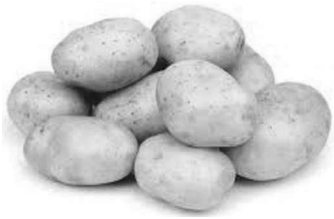




Fig. 14: *Food from Stems*

3. **Leaves:** Leaves of some plants are eaten as vegetables. For example: cabbage, spinach, fenugreek, and mint.





Fig. 15: *Food from Leaves*

4. **Flowers:** We eat flowers of plants like broccoli and cauliflower.



Fig. 16: *Food from Flowers*

5. **Seeds:** We eat seeds of many plants like gram, beans, corn, and peas. Food grains like cereals and pulses are also seeds of the plants.



Fig. 17: *Food from Seeds*

6. **Fruits:** Fruits of some plants are eaten as vegetables.

   We all enjoy eating juicy fruits like mangoes, grapes, apples, and oranges.



Fig. 18: *Food from Fruits*

Plants Give us Spices

Spices add taste and flavour to the food. Plants give us spices like chilies, peppercorns, cardamom, turmeric, and coriander seeds.



Fig. 19: *Different Types of Spices*

Plants Give us Oilseeds

We get oil from plants. Seeds containing oil are called oilseeds. This oil is used for various things, including cooking food and for applying on the body.





Fig. 20: *Oilseeds*

Plants Give us Tea, Coffee, Sugar, and Cocoa

We get tea from the leaves of a tea plant.

Coffee beans, from the coffee plant, are crushed to make coffee powder.

Sugarcane juice, from the sugarcane plant, is used to make sugar.

Seeds of cocoa tree are crushed to make cocoa powder.

Plants Give us:

(i) Plants give us oxygen. Trees and plants make the air fresh by giving out oxygen and taking in carbon dioxide.

(ii) Plants add beauty to our surroundings.

(iii) Plants provide shelter.

(iv) Green trees and plants are home to many animals like monkeys, squirrels, birds, and insects. Plants provide fodder for animals.

(v) Plants give fibers. We get fibers like cotton, jute, flax, and coir from the plants. Cotton fibers are used to make cotton clothes. Jute fiber is used to make bags and ropes.

(vi) Plants give us manure. Dry leaves are mixed with soil to make manure. Plants that grow in this soil are very healthy and strong.

(vii) Plants give wood and many other things like medicine, paper, gum, and rubber.