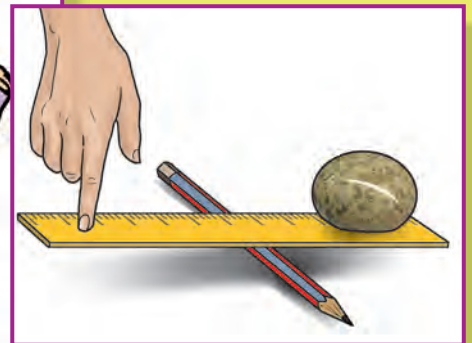
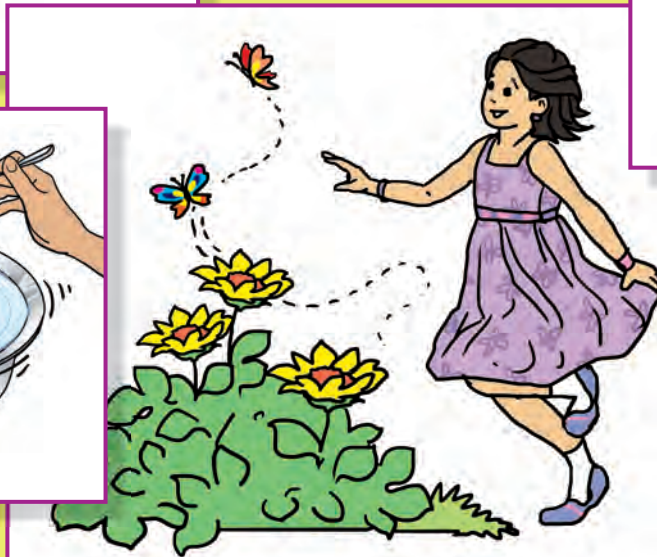
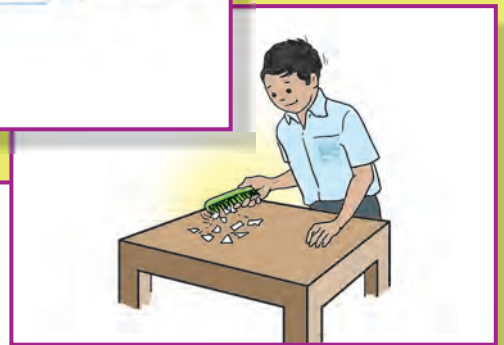
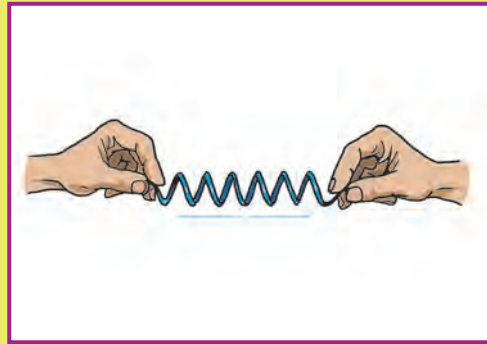
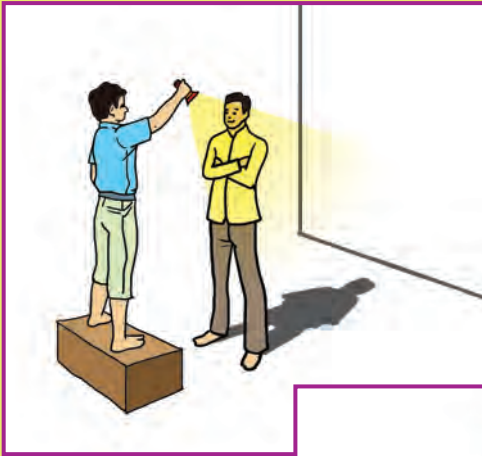


GENERAL SCIENCE

STANDARD SIX



The Constitution of India

Chapter IV A

Fundamental Duties

ARTICLE 51A

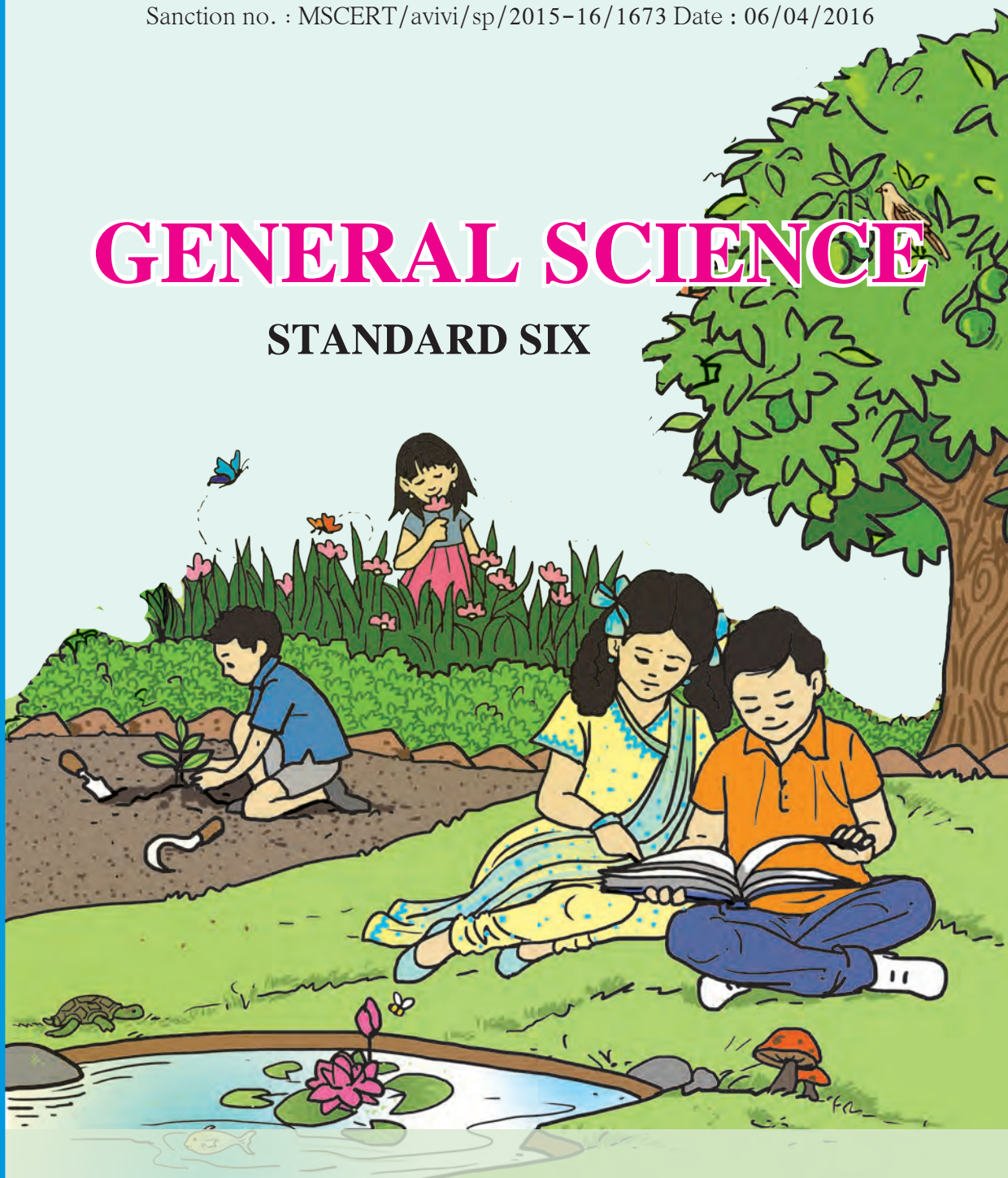
Fundamental Duties- It shall be the duty of every citizen of India—

- (a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
- (b) to cherish and follow the noble ideals which inspired our national struggle for freedom;
- (c) to uphold and protect the sovereignty, unity and integrity of India;
- (d) to defend the country and render national service when called upon to do so;
- (e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities, to renounce practices derogatory to the dignity of women;
- (f) to value and preserve the rich heritage of our composite culture;
- (g) to protect and improve the natural environment including forests, lakes, rivers and wild life and to have compassion for living creatures;
- (h) to develop the scientific temper, humanism and the spirit of inquiry and reform;
- (i) to safeguard public property and to abjure violence;
- (j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;
- (k) who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.

Sanction no. : MSCERT/avivi/sp/2015-16/1673 Date : 06/04/2016

GENERAL SCIENCE

STANDARD SIX



**Maharashtra State Bureau of Textbook Production and
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The digital textbook can be obtained through DIKSHA APP on a smartphone by using the Q. R. Code given on title page of the textbook and useful audio-visual teaching-learning material of the relevant lesson will be available through the Q. R. Code given in each lesson of this textbook.

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The Constitution of India

Preamble

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC and to secure to all its citizens :

JUSTICE, social, economic and political;
LIBERTY of thought, expression, belief, faith and worship ;

EQUALITY of status and of opportunity;
and to promote among them all

FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation ;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.

NATIONAL ANTHEM

Jana-gana-mana-adhināyaka jaya hē
Bhārata-bhāgya-vidhātā,

Panjāba-Sindhu-Gujarāta-Marāthā
Drāvida-Utkala-Banga

Vindhya-Himāchala-Yamunā-Gangā
uchchala-jaladhi-taranga

Tava subha nāmē jāgē, tava subha āsisa māgē,
gāhē tava jaya-gāthā,

Jana-gana-mangala-dāyaka jaya hē
Bhārata-bhāgya-vidhātā,

Jaya hē, Jaya hē, Jaya hē,
Jaya jaya jaya, jaya hē.

PLEDGE

India is my country. All Indians
are my brothers and sisters.

I love my country, and I am proud
of its rich and varied heritage. I shall
always strive to be worthy of it.

I shall give my parents, teachers
and all elders respect, and treat
everyone with courtesy.

To my country and my people,
I pledge my devotion. In their
well-being and prosperity alone lies
my happiness.

Preface

The '**Primary Education Curriculum - 2012**' was prepared in the State of Maharashtra following the '**Right of Children to Free and Compulsory Education Act, 2009**' and the '**National Curriculum Framework - 2005**'. This syllabus approved by the State Government is being implemented serially from the academic year 2013-2014. In the syllabus as well as in the textbooks for Std III to V, General Science is included in 'Environmental Studies'. However, Std VI onwards, it is included separately. Accordingly, the Textbook Bureau has prepared this textbook of General Science for Std VI. We are happy to place it in your hands.

Our approach while designing this textbook was that the entire teaching-learning process should be child-centred, the emphasis should be on self-learning and the process of education should become enjoyable and interesting. During the teaching-learning process, there should be clarity about the specific competencies that children are expected to achieve at the various stages of primary education. That is why, the expected competencies regarding General Science have been given in the textbook. In keeping with these competencies, the content included in the textbook has been presented in an innovative way. The content, activities and projects have been given under specific headings in each chapter to get the children to observe things carefully, to learn by actually doing something, to compile information, to classify this information or data, to draw conclusions from it, and so on. The supplementary information given in the textbook will help to make children's learning more effective. At several places, projects have been given to help make teaching as activity-oriented as possible. The main objective of this textbook is to inculcate a scientific attitude among the children. Along with science, an introduction to the use of technology in the surroundings and an emphasis on environmental and social awareness are the important features of this textbook.

This book was scrutinized by teachers, educationists, and experts from all parts of the State, to make it as flawless and useful as possible. Their comments and suggestions have been duly considered by the Science Subject Committee while finalizing the book. The Science Subject Committee and the Study Group of the Textbook Bureau and the artists have taken great pains to prepare this book. The Bureau is thankful to all of them.

We hope that this book will receive a warm welcome from students, teachers and parents.



(Dr Sunil Magar)

Director

Maharashtra State Bureau of
Textbook Production and
Curriculum Research, Pune.

Pune

Date : 9 May 2016,
Akshay Tritiya,
Indian Solar Year :
Vaishakh 19, 1938

For Teachers

- We learn many new facts while studying science. So, young children with a lot of curiosity find the subject enjoyable. However, the real objective of learning science is to learn to think about the world and all the events that take place in it, in an objective and rational manner so as to lead a happy confident life. Through the study of science we also expect children to develop social consciousness, awareness about conservation of the environment and adeptness in handling technology.
- We need to have adequate factual information and understanding about our world. However, in a rapidly changing world, the knowledge gained today may not suffice tomorrow. Hence, the skills required for obtaining knowledge must be learnt. These are the very skills that are learnt in the process of studying science.
- Many topics in science are more easily learnt by direct observation than by reading about them. Some abstract phenomena become visible through the effects they have. Hence, we do experiments related to them. They help to learn the skills of inference and verification. While learning science, these skills are learnt and internalized. This is an important objective of learning science.
- That we should be able to articulate what we have learnt, explain it to others, use it for further studies and finally bring about proper changes in our behavior is also an expectation from the learning of science. That is why, it is important to ensure that along with the content of the subject, these skills are also developed.
- **Can you recall?** is a section for reviewing the related topics already learnt, while the purpose of **Can you tell?** is introducing a topic by bringing together what the children might already know about a topic through their own reading or experience. **Try this** is meant to give some specific experience while **Let's try this** are the parts that teachers must demonstrate to the class. **Use your brain power!** makes children apply the knowledge gained. **Always remember...** gives some important instructions or values. The sections **Find out**, **Do you know?** and **Science watch** are to create an awareness of the vast information that cannot be included in the textbook and to inculcate the habit of doing reference work independently.
- Teachers can see for themselves that this textbook is not meant for reading and explaining but for guiding students to gain knowledge by carrying out the given activities. Reading the textbook **after** the children have carried out the activities and discussed them in the class will make it easy and will also help to bring together and reinforce what they have already learnt. The attractive pictures will support their efforts to learn.
- Teachers should prepare well for discussions under Can you tell?, Use your brain power! etc. and for the various activities and experiments. They should maintain an informal atmosphere during such discussions and activities, encourage everyone to participate and make efforts to organize Science Days, presentations in the class, etc.

English General Science - Standard VI - Learning Outcomes

Suggested Pedagogical Processes	Learning Outcomes
<p>The learner is to be provided with opportunities in pairs/groups/individually in an inclusive setup and encouraged to -</p> <ul style="list-style-type: none"> • Explore surroundings, natural processes, phenomena using senses viz. watching, touching, tasting, smelling, hearing. • Pose questions and find answers through reflection, discussion, designing and performing appropriate activities, role plays, debates, use of ICT etc. • Record the observations during the activity, experiments, surveys, field trips/visits, etc. • Analyse recorded data, interpret results and draw inference/make generalisations and share findings with peers and adults. • Exhibit creativity presenting novel ideas, new designs/patterns, improvisation etc. • Internalise, acquire and appreciate, values such as cooperation, collaboration, honest, reporting, judicious use of resources, etc. • Observe the Universe and different facts and different events occurring in the universe. 	<p>The learner —</p> <p>06.72.01 Identifies materials and organisms such as plant fibres, flowers on the basis of observable features, i.e. appearance, texture, function, aroma, etc.</p> <p>06.72.02 Differentiates materials and organisms, such as, fibre and yarn; tap and fibrous roots; electrical conductors and insulators; on the basis of their properties, structure and functions.</p> <p>06.72.03 Classifies materials, organisms and processes based on observable properties, for example, materials as soluble, insoluble, transparent, translucent and opaque; changes as can be reversible and irreversible, plants as herbs, shrubs, trees, creeper, climbers, components of habitat as biotic and abiotic; motion as rectilinear, circular, periodic etc.</p> <p>06.72.04 Conducts simple investigations to seek answers to queries, for example, what are the food nutrients present in animal fodder? Can all physical changes be reversible? Does a freely suspended magnet align in a particular direction?</p> <p>06.72.05 Relates processes and phenomenon with causes, for example, diseases due to deficiency of diet/deficiency diseases; adaptations of animals and plants with their habitats, quality of air with pollutants etc.</p> <p>06.72.06 Explains processes and phenomenon for example, processing of plant fibres, movements in plants and animals, formation of shadows, reflection of light from plain mirror, variation in composition of air, preparation of vermi compost etc.</p> <p>06.72.07 Measures physical quantities and expresses in SI units, for example, length.</p> <p>06.72.08 Draw labelled diagrams/flow charts of organisms and processes, for example, parts of flowers, joints; filtration, water cycle, etc.</p> <p>06.72.09 Constructs models using materials from surroundings and explains their working, for example, pinhole camera, periscope, electric torch, etc.</p>

	<p>06.72.10 Applies learning to scientific concepts in day to day life, for example, selecting food items for a balanced diet, separating materials, selecting season appropriate fabrics, using compass needle for finding directions, suggesting ways to cope with heavy rain/drought etc.</p> <p>06.72.11 Makes efforts to protect environment, for example, minimising wastage of food, uses of water, uses of electricity, and generation of waste, spreading awareness to adopt rain water harvesting, care for plants (plantation) etc.</p> <p>06.72.12 Exhibits creativity in designing, making use of available resources, planning etc.</p> <p>06.72.13 Exhibits values of honesty, objectivity, cooperation, freedom from fear and prejudices.</p> <p>06.72.14 Comparative study of star, planet, satellite, Asteroid by observing them in the Universe.</p> <p>06.72.15 Collect information of different concepts, processes by using internet and different ICT technology.</p>
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