

# SCIENCE - II

Standard



Government of Kerala  
Department of Education

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*Prepared by*  
State Council of Educational Research and Training (SCERT)  
KERALA

2011

## The National Anthem

Jana-gana-mana adhinayaka, jaya he  
Bharatha-bhagya-vidhata.  
Punjab-Sindh-Gujarat-Maratha  
Dravida-Utkala-Banga  
Vindhya-Himachala-Yamuna-Ganga  
Uchchala-Jaladhi-taranga  
Tava subha name jage,  
Tava subha asisa mage,  
Gahe tava jaya gatha.  
Jana-gana-mangala-dayaka jaya he  
Bharatha-bhagya-vidhata.  
Jaya he, jaya he, jaya he,  
Jaya jaya jaya, jaya he!

## 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 respect to my parents, teachers and all elders and treat everyone with courtesy.

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

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Dear students,

We have already realised how learning can be made an enjoyable experience by observing and analysing changes around us. Science is an ever expanding branch of knowledge and the study of science, a continuous process.

The knowledge you construct through thinking, collecting data and sharing your experiences with friends takes the learning process ahead. A number of questions will arise in your mind when you indulge in the process of knowledge construction. You may not get answers for all of them. It is your own responsibility to engage in the exploration of new avenues of knowledge and formulate ways for finding answers to such questions. Your textbook and your teacher will be with you in this attempt.

Learning becomes enjoyable only when learning activities cease to be burdensome. Many such possibilities are available in this book. May your journey through science, along with your friends, make learning a blissful experience and a real celebration.

With love and regards,

**Prof. M.A. Khader**  
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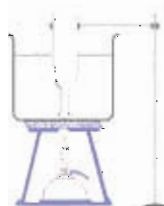
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# Contents



## PHYSICS

9. Optical Phenomena .....	119
10. Electronics .....	134
11. Our Universe .....	144
12. Energy Management .....	155



## CHEMISTRY

13. Some Compounds of Non-metals .....	169
14. Organic Compounds: Naming and Isomerism ...	183
15. Organic Compounds: Reactions .....	197
16. Chemistry in Everyday Life .....	206

# CONSTITUTION OF INDIA

Part IV A

## Fundamental Duties of Citizens

### ARTICLE 51 A

**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, wildlife 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 achievements.
- (k) who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between age of six and fourteen years.