

Kaushal Bodh

Vocational Education Activity Book for Grade 8



0885

विद्यया ऽ मृतमश्नुते



एन सी ई आर टी
NCERT

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

0885 – KAUSHAL BODH

Vocational Education Activity Book for Grade 8

ISBN 978-93-5729-429-4

First Edition

June 2025 Jyestha 1947

PD 700T HK

© **National Council of Educational
Research and Training, 2025**

₹ **65.00**

*Printed on 80 GSM paper with
NCERT watermark*

Published at the Publication Division
by the Secretary, National Council
of Educational Research and
Training, Sri Aurobindo Marg,
New Delhi 110016 and printed at
Kalyan Enterprises D-20 Sect. B-3
Tronica City Industrial Area, Loni,
Ghaziabad (UP)

ALL RIGHTS RESERVED

- ❑ No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the permission of the publisher.
- ❑ This book is sold subject to the condition that it shall not, by way of trade be lent, re-sold, hired out or otherwise disposed of without the publisher's consent, in any form of binding or cover other than that in which it is published.
- ❑ The correct price of this publication is the price printed on this page. Any revised price indicated by a rubber stamp or a sticker or any other means is incorrect and should be unacceptable.

OFFICES OF THE PUBLICATION

DIVISION, NCERT

NCERT Campus
Sri Aurobindo Marg
New Delhi 110 016 Phone : 011-26562708

108, 100 Feet Road
Hosdakere Halli Extension
Banashankari III Stage
Bengaluru 560 085 Phone : 080-26725740

Navjivan Trust Building
P.O. Navjivan
Ahmedabad 380 014 Phone : 079-27541446

CWC Campus
Opp. Dhankal Bus Stop
Panihati
Kolkata 700 114 Phone : 033-25530454

CWC Complex
Maligaon
Guwahati 781 021 Phone : 0361-2674869

Publication Team

Head, Publication Division : *M.V. Srinivasan*

Chief Editor : *Bijnan Sutar*

Chief Production Officer
(In charge) : *Jahan Lal*

Chief Business Manager : *Amitabh Kumar*

Editor : *Hemant Kumar*

Production Officer : *Deepak Jaiswal*

Cover Design

Fatma Nasir

Layout

*DTP Cell, Publication Division,
NCERT*

Illustrations

Kaumudi Sahasrabudhe and Srinidhi Gurunath

FOREWORD

The National Education Policy 2020 envisages a system of education in the country that is rooted in Indian ethos and its civilisational accomplishments in all domains of human endeavour and knowledge, while at the same time preparing the students to constructively engage with the prospects and challenges of the twenty-first century. The basis for this aspirational vision has been well laid out by the National Curriculum Framework for School Education (NCF-SE) 2023 across curricular areas at all stages. Having nurtured the students' inherent abilities and touching upon all the five planes of human existence, the *pañchakośhas*, in the foundational and the preparatory stages have paved the way for the progression of their learning further at the middle stage. Thus, the middle stage acts as a bridge between the preparatory and the secondary stages, spanning three years from Grade 6 to 8.

The NCF-SE 2023, at the middle stage, aims to equip students with the skills that are needed to grow, as they advance in their lives. It endeavours to enhance their analytical, descriptive, and narrative capabilities and to prepare them for the challenges and opportunities that await them. A diverse curriculum, covering nine subjects ranging from three languages, including at least two languages native to India, science, mathematics, social science, art education, physical education and well-being, and vocational education, promotes their holistic development.

Such a transformative learning culture requires certain essential conditions. One of them is to have appropriate textbooks in different curricular areas as these textbooks will play a central role in mediating between content and pedagogy—a role that will strike a judicious balance between direct instruction and opportunities for exploration and inquiry. Among the other conditions, classroom arrangement and teacher preparation are crucial to establishing conceptual connections both within and across curricular areas. The National Council of Educational Research and Training (NCERT), on its part, is committed to providing students with such high-quality textbooks. Various Curricular Area Groups, which have been constituted for this purpose, comprising notable subject experts, pedagogues, and practising

teachers as their members, have made all possible efforts to develop such textbooks.

Kaushal Bodh, the activity book of vocational education for Grade 8, is one of these. Its content comprises projects related to three work forms— life forms, machines and materials, and human services. The projects will help students to develop knowledge, skills, attitude and values alongside ecological sensitivity, gender sensitivity, digital skills, and life skills. For all practical purposes, it has, to my mind, succeeded in its curricular goals: first, to foster natural curiosity among students through a proper selection of project; and second, develop among them the core competencies, such as communication, creativity, critical thinking, and green skill and vocational skills, such as application of tools, and procedures for design and developing products by intelligently designing various activities, thereby seamlessly integrating content and pedagogy within meaningful contexts. However, in addition to this textbook, students at this stage should also be encouraged to explore various other learning resources. School libraries, laboratories and workshops play a crucial role in making such resources available. Besides, the role of parents and teachers will also be invaluable in guiding and encouraging students to do so. With this, I express my gratitude to all those who have been involved in the development of this activity book and hope that it will meet the expectations of all stakeholders. At the same time, I also invite suggestions and feedback from all its users for further improvement in the coming years.

New Delhi
June 2025

DINESH PRASAD SAKLANI
Director
National Council of Educational
Research and Training

ABOUT THE BOOK

Kaushal Bodh, the activity book of vocational education for Grade 8 is developed in alignment with the vision of the National Education Policy (NEP) 2020 and the National Curriculum Framework for School Education (NCF-SE) 2023.

In the NCF-SE 2023, work has been categorised under three broad forms: Work with Life Forms, Work with Machines and Materials, and Work in Human Services. The intent at this stage is to provide vocational exposure to the students through a wide range of activities categorised into three forms of work. To achieve this, students are expected to take up nine projects across Grade 6 to 8, i.e., three projects in each grade and one from each form of work.

Curricular goals, competencies, and learning outcomes have been the guiding principles while developing the Activity Book. The following Curricular Goals (CG) given in the Activity Book cover a range of competencies.

CG-1: Develops in-depth basic skills and allied knowledge of work and their associated materials or procedures;

CG-2: Understands the place and usefulness of vocational skills and vocations in the world of work;

CG-3: Develops essential values while working across areas; and

CG-4: Develops basic skills and allied knowledge to run and contribute to a home.

The activity book contains six illustrative projects, two for each form of work, intended to cover the above curricular goals. The choice of projects is left entirely to schools. One project may be taken up by students or preferably, the school can design other projects based on local considerations. The NCF-SE 2023, and indeed this activity book, encourages schools to select projects based on local considerations and availability of resources. Annexure 1 provides a template for designing a project other than those in the book.

The illustrative projects are described as follows:

Project 1 is on developing Hydroponics: Growing Plants without Soil. Students will engage in establishing and maintaining hydroponic units in school. They will draw on their learning in Science classrooms

about conditions for plant growth and extend this understanding to scientific alternatives. They will learn about environmentally friendly practices that can be used for plant propagation.

Project 2 is on Feeding and Caring for Farm Animals. Students will engage with animals to develop sensitivity towards their well-being. They will appreciate the diversity of domesticated animals that support human life. This project will enhance their observational skills related to animal behaviour and its interpretation. It will also instill a sense of care and the importance of preserving the well-being of animals.

Project 3 is on Working with Wood and Bamboo. In this project, students will explore various techniques used for working with wood and bamboo. They will learn to use tools and materials to create functional or artistic items, fostering creativity, problem-solving, and technical skills. This project will encourage innovation and creative thinking, preparing students for potential careers in design.

Project 4 is on Home Automation. It will introduce students to the fundamentals of electronics and programming. They will learn to automate simple systems in their surroundings. This project will enhance their technological proficiency, creativity, and logical thinking.

Project 5 is on Water Audit for Water Management. Students will engage with real-life data to learn how to draw conclusions and make simple predictions. They will collect primary data using estimations based on scientific principles. They will also engage with secondary data, learning how to acknowledge sources. This project will develop sensitivity towards the needs of all as well as a sense of environmental stewardship.

Project 6 is on Advertising for Small Businesses. In this project, students will reflect on the role of advertisements in our life. They will identify elements of advertisements to understand both the marketing and ethical dimensions. They will learn about small businesses and make advertisements for them using different media. This project will develop discernment to review advertisements and other media of communication for veracity.

As the culmination of the work done through the year related to vocational education, a *Kaushal Mela* will be held at the end of the year to both showcase the products students have created and the services they have learnt. It will also be an opportunity for students to share

their experiences and learnings. Community members and education functionaries may be invited to the *Kaushal Mela*. Planning, being an important outcome of vocational education, a section is devoted to helping students plan and design the *Kaushal Mela*.

Finally, annexures include a project planning template, competencies and learning outcomes to be achieved in Grade 8, **suggestive projects in each of the forms of work in some detail**, and mapping of learning outcomes with time required for each of the illustrative projects.

Cross-cutting themes, such as Indian Knowledge Systems, values, heritage, gender sensitivity, and inclusion have been integrated into all the projects. Reflective and thought-provoking questions included under different activities are engaging and they promote joyful learning along with assessment as and for learning. Students are provided opportunities to do different things, record small successes, take and give feedback, work with peers, try and re-try, answer-questions, reflect, in short, and experience the values related to work. Illustrations have been designed depicting the context to enhance learning. In-text questions are also included to assess comprehension of the activities. The end of the project questions given in 'Think and Answer' are designed to encourage critical thinking, reasoning, responding, and analysing.

Students can access the additional resources provided in the Quick Response (QR) code for each project.

We sincerely hope that the students will enjoy doing these projects and that these will help in developing the desired and intended competencies.

VINAY SWARUP MEHROTRA
Professor and Member-Convener
Curricular Area Group: Vocational Education
PSSCIVE, NCERT, Bhopal

NATIONAL SYLLABUS AND TEACHING–LEARNING MATERIAL COMMITTEE (NSTC)

1. M. C. Pant, *Chancellor*, National Institute of Educational Planning and Administration (NIEPA) (**Chairperson**)
2. Manjul Bhargava, *Professor*, Princeton University (**Co-Chairperson**)
3. Sudha Murty, *Acclaimed Writer and Educationist*
4. Bibek Debroy, *Chairperson*, Economic Advisory Council to the Prime Minister (EAC–PM)
5. Shekhar Mande, *Former Director General*, CSIR; *Distinguished Professor*, Savitribai Phule Pune University, Pune
6. Sujatha Ramdorai, *Professor*, University of British Columbia, Canada
7. Shankar Mahadevan, *Music Maestro*, Mumbai
8. U. Vimal Kumar, *Director*, Prakash Padukone Badminton Academy, Bengaluru
9. Michel Danino, *Visiting Professor*, IIT, Gandhinagar
10. Surina Rajan, *IAS (Retd.)*, *Former Director General*, Haryana Institute of Public Administration (HIPA)
11. Chamu Krishna Shastri, *Chairperson*, Bharatiya Bhasha Samiti, Ministry of Education
12. Sanjeev Sanyal, *Member*, Economic Advisory Council to the Prime Minister (EAC–PM)
13. M. D. Srinivas, *Chairperson*, Centre for Policy Studies, Chennai
14. Gajanan Londhe, *Head*, Programme Office, NSTC
15. Rabin Chhetri, *Director*, SCERT, Sikkim
16. Pratyusha Kumar Mandal, *Professor*, Department of Education in Social Sciences, NCERT, New Delhi
17. Dinesh Kumar, *Professor and Head*, Planning and Monitoring Division, NCERT, New Delhi
18. Kirti Kapur, *Professor*, Department of Education in Languages, NCERT, New Delhi
19. Ranjana Arora, *Professor and Head*, Department of Curriculum Studies and Development, NCERT (**Member-Secretary**)

TEXTBOOK DEVELOPMENT TEAM

Contributors

1. Yogesh Ramesh Kulkarni, *Executive Director*, Vigyan Ashram, Pabal, Maharashtra (**Team Leader**)
2. Animesh Chandra, *Vocational Trainer*, +2 High School, Dantoo, Bokaro, Jharkhand
3. Deepika Goyal, *Senior Manager*, Lend A Hand India, Pune, Maharashtra
4. Joginder Singh Rathee, *Vocational Teacher*, Govt. Girls Sr. Sec. School, Chiri, Rohtak, Haryana
5. Navaneeth Ganesh, *Member*, Programme Office, NSTC
6. Neena Jaju, *Vice President - Learning & Development*, LabourNet, Bengaluru, Karnataka
7. Nimrat Kaur, *Professor*, Azim Premji University, Bengaluru, Karnataka
8. Poonam Bhushan, *Associate Professor*, Indira Gandhi National Open University (IGNOU), New Delhi
9. Pravin Narayan Mahamuni, *Associate Professor*, Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), NCERT, Bhopal, Madhya Pradesh
10. Rahul Aggarwal, *Co-Founder*, Swatantra Talim, Lucknow, Uttar Pradesh
11. Raj Gilda, *Co-Founder*, Lend A Hand India, Pune, Maharashtra
12. Ranajeet Shanbhag, *Deputy Director*, Vigyan Ashram, Pabal, Maharashtra
13. Shoaib Dar, *Founder*, Pi Jam Foundation, Srinagar, Jammu and Kashmir
14. Yadunath Deshpande, *Senior Consultant, Member*, Programme Office.
15. Vinay Swarup Mehrotra, *Professor and Head*, Curriculum Development and Evaluation Centre, and Centre for International Relationship, PSSCIVE, NCERT, Bhopal, Madhya Pradesh (**Member-Convener**)

Reviewers

Anurag Behar, *Member*, NCF Oversight Committee

Gajanan Londhe, *Head*, Programme Office, and *Member*, NSTC

NOTE FOR SCHOOL HEADS AND TEACHERS

Teachers are pivotal to achieving the goals set out in the National Education Policy (NEP) 2020. The National Curriculum Framework for School Education (NCF-SE) 2023 introduces vocational education as a distinct subject starting in Grade 6. The purpose of this subject is to promote 'learning by doing', 'dignity of labour', and the development of vocational capacities through exposure to a wide range of work. Successful implementation will aid in developing responsible and confident adults who value all professions. Vocational Education in schools also offers a robust medium for holistic learning by offering students opportunities to apply conceptual learning in other curricular areas to real-life situations.

In Grade 8, students will take up one project in each of the 'Forms of Work'. The sequence of these projects is not important, so long as all the projects are completed within the academic year. These projects can be taken up at the same time or one after the other. Groups of students may also take up different projects, which depends on the nature of the project and other factors, such as the number of students, resources available, and so on. Please note that it is important to identify concepts across curricular areas that students need to know (e.g., seed germination for agriculture related projects in life forms) and ensure that they have been covered before starting the project.

In this Activity Book, the projects are designed as per the Learning Outcomes for Vocational Education in Grade 8. The focus is on the following:

1. Using physical tools/equipment for carrying out different processes to perform authentic tasks.
2. Gaining clarity about what is to be done and reaching the final outcome through breaking down the task into smaller activities.
3. Understanding how to prepare materials and use tools and equipment, while following safety measures and protocols.
4. Connecting the activities done in school to the world of work.
5. Assessing work done in terms of quantity and quality.
6. Applying what is learnt in school to daily life.
7. Working collaboratively in groups while ensuring individual participation in each activity.

In doing the above, students will be able to develop values related to work, particularly respect for all work. They will realise the importance of the dignity of labour, which means that no work is considered superior and therefore, no work or person should be discriminated against on any basis.

The projects in the Activity Book are illustrative. Schools can choose to take up any one or design their own projects from each form of work.

Annexure 1 provides guidelines for designing a project in alignment with curricular goals, competencies and learning outcomes.

Annexure 3 has details of five additional projects in each form of work.

Thus, for each form of work, schools may (i) select one project from each form of work; (ii) design their own projects; and (iii) further detail out any one of the additional projects given in the Activity Book.

Pedagogy and Assessment

Projects comprise a set of activities that are generally expected to be completed in a group or individually, as required. Resources for projects (e.g., tools, equipment, materials, use of workspaces, etc.) and resource persons or master instructors (e.g., mechanics, farmers, craftspersons, artisans, persons working in technology, and experts in the field) must be drawn from the community. Exposure visits and interactions with professionals are built into the project to enable students to observe and understand work in real settings.

The total time allotted to vocational education is 110 hours or 165 periods in one academic year, excluding time for assessment, school events, bagless days and similar activities (Section 4.3 of the NCF-SE 2023). These periods may be distributed across the week as two blocks of two periods on week-days and one period on Saturday.

Each project is expected to be completed in about 30 hours (approximately 55 periods of 40 minutes each). This duration is to ensure a long-term engagement that allows students to complete a set of interrelated activities. It also gives them time for trial and error, to try out things differently, and to extend their learning into other activities.

The focus of the projects must be creativity and demonstration of skills, and the process of ‘doing’ rather than the ‘product’ or outcome. Working in groups and observing people with expertise is important to foster an appreciation for teamwork, creativity, sensitivity, persistence, and other important values related to work.

Students must be active throughout, as they take up activities that are directly connected to real life and the world of work. They must be able to integrate learning from other curricular areas into the projects. Prevalent biases must be addressed, for example, by assigning work roles to diverse gender and to students from all social groups. All students must participate in all activities. To ensure the participation of *divyang* students, projects can be adapted or an entirely different project may be developed.

The activity book is designed to enable continuous assessment by teachers, as well as self and peer-assessment by students. The questions and formats for recording require students to assess their own progress, share their learning and reflections, and record their answers as they move from one activity to the next.

Students must also maintain a portfolio in order to help them see their own progress, and record the processes and products related to the projects. It may contain any work done by students, including additional notes, presentations, sketches or photographs (besides those in the activity book) related to the project, and products they have created.

Assessing the inculcation of values related to work (e.g., initiative, persistence and focus, responsibility, discipline, eye for detail, curiosity and creativity, empathy and sensitivity, and willingness to do physical work) is particularly important. Students must be observed while at work to assess the same. Checklists and rubrics that outline specific behaviours and attitudes related to work values may be developed by the teachers. Annexure 2 contains the competencies to be developed across the middle stage and the learning outcomes to be achieved in Grade 8.

While this is true for all subjects, the role of feedback is particularly important in Vocational Education. Students must be encouraged and motivated by recognition of their work and their creativity. This approach ensures that all students are able to complete their work successfully through ongoing guidance, which in turn is motivating.

Summative assessment for Grade 8 can, for example, comprise a viva voce, presentation, role-play, simulation, group discussion, and the review of students' responses to prompts or questions in the activity book. If you wish to use a paper-pencil test, it could include situational questions, concept maps, flowcharts, questions related to learning from visits, and multiple choice questions. Each project also has a set of questions in the last section. These questions address key aspects of learning and concepts that are strengthened while doing the activities. To reiterate, the focus must be on assessing capacities and understanding of processes. Weightage to the theoretical aspects is suggested as 20 per cent and 80 per cent for the practical aspects.

A suggested weightage and marking scheme for assessment and evaluation is given below:

Mode of Assessment	Weightage
Written Test	10%
Oral Presentation/Viva Voce	30%
Activity Book	30%
Portfolio	10%
Teachers' Observations during Activities	20%

Criteria for Project Selection

The activity book is meant for students, and therefore 'speaks' to them. There are various components in each project, as indicated by the headings of sections (please refer to Annexure 1). These components are aligned with the competencies defined for Vocational Education in the NCF-SE 2023 (please refer to Annexure 2). Therefore, any project other than those in the activity book must include the same components. **The illustrative list of projects given in Annexure 3.**

The projects in this activity book are not mandatory, therefore schools are free to choose any one of these from each form of work or design an entirely different project. Students must also be encouraged to come up with ideas for projects.

If the school decides to choose a project other than those in the Activity Book, the following must be kept in mind for all the forms of work:

1. Is the project appropriate for students in Grade 8?
2. Does the project help students use learning from other subjects?
3. Is the project related to the work the students see around them?
4. Will the students be able to interact with persons who are experts in the work related to the project?
5. Will the students be able to get hands-on experience?
6. Will students be able to take up different kinds of activities within the project?
7. Will students find the activities within the project challenging and interesting?
8. Will students learn something they can use at home?
9. Will it develop the values related to work, particularly the dignity of labour?
10. Will the project help students acquire vocational capacities for their daily living (e.g., using technology, consciousness of environmental concerns and sustainability, taking care of oneself, doing small tasks at home, and the like)?

The proposed time allocation and connection of each section of the project to the learning outcomes for Grade 8 are given in Annexure 4. This may be referred to while developing a project other than those in the activity book.

Please note that suggestions for the use of technology, including Artificial Intelligence (AI) tools, are placed in boxes throughout the Activity Book. AI is a branch of computer science focused on creating systems or machines that can perform tasks that typically require human intelligence. The suggestions may be taken up if

suitable resources are available. Suggestions for Internet search are also included. Due precautions must be taken to ensure the safety of students. Students must work in groups and the use of Internet by them must be supervised by the teacher or an expert.

Who will teach?

Since the purpose of vocational education in the middle stage is to provide vocational exposure to students, and till such time that teacher education programmes offer specialisation in vocational education, existing teachers will take up this subject in the Middle stage (Grade 6 to 8), with the support of resource persons/master instructors. A teacher of any subject can take the lead in organising activities for projects in which they have some understanding and expertise.

The Head of the School may nominate a “Teacher Coordinator” among the existing teachers to coordinate and schedule the activities of different projects to be undertaken at the Middle stage.

Safety Measures

Due care must be taken to ensure safety at all times. Safety measures must be demonstrated to students, who must, in turn, also demonstrate their understanding of how to keep themselves and others safe. Where necessary, use of certain tools and materials by students may be supervised in small groups. Due safety during field visits, ranging from transportation to orientation of resource persons must receive necessary attention.

Internet safety or cyber safety is critical when students are accessing the Internet or using AI tools. Students must be made aware of the consequences and implications of sharing private information, visiting sites that are not approved by the teacher, or sharing of passwords.

NOTE FOR STUDENTS

Dear Students,

This activity book will help you learn about different kinds of work and how to do work yourself.

When you think about work, you must remember two things: (i) all work is important; and (ii) people work not only to make a living, but also to make life more joyful and interesting. In daily life, you see people doing various kinds of work. Some of the work is related to running a household while some is related to earning a living.

Vocational education prepares you to deal with practical things related to daily life and understand the world of work. This will happen through projects that you will do in school. These projects will give you an opportunity to work with your hands, work in groups with your peers, and learn the skills which help you become self-dependent in life.

How to use the Activity Book?

Read through the introduction of the project to get an idea of what you will be doing.

Materials Needed

Gather all the materials listed at the beginning of each activity.

Follow the Steps

1. Each activity has clear, numbered steps. Follow them to complete each task. Take your time and make sure you understand each step before moving on. Take notes during field visits or interaction with experts.
2. Complete all the questions and tables given in the activity book; this will help you to both learn and check your understanding.

Check Your Work

After completion of the task, reflect on what you have learnt and what else you want to learn. Questions have been included to help you both think and write about what you are doing. Write in your own words,

use simple language, and share your observations and thoughts. After finishing an activity, review your work. Make sure you have completed all the steps and check your answers.

If the space in the activity book is not enough, please use a different notebook or loose sheets, which you can add to the portfolio.

Ask for Help

If you are unsure about any part of an activity, do not hesitate to ask a teacher, parent, or peers for help. Ask as many questions as needed if something is unclear. Collaboration and discussion can make learning more fun and effective.

You can also get help from Internet searches or using AI tools. AI tools make our tasks easy by helping us find things or do something quickly. Some examples of AI tools are ChatGPT, tools for translation or for finding information about something. Please note that AI is not necessary for your projects; you can use it if you want.

Take Short Breaks

Do not rush through the activities. If you start feeling tired, take a short break during the activities.

Be Creative

Some activities may have open-ended questions or ask for your creative inputs. Let your imagination flow and write about your ideas and experiences.

Stay Positive

Learning new things can be challenging. Stay positive and remember that practice makes you perfect.

Reflect

Think about what you have learned from each activity. Share your progress with peers and teachers and ask for their feedback.

Design Your Projects

Think about how you can continue to build on your learning to do other things.

Try out different things, and do activities other than those in the activity book. There may be a new way of doing something or maybe different materials can be used. If you face any difficulty or want to try out something different, reach out to others or consult library books. But do remember to discuss this with your group and the teacher. You may want to work beyond school hours and do some of the activities at home. You can even help your family and friends with what you learnt.

If you have any ideas for projects other than the ones suggested here, you can share them with your teacher, who will help you design your project.

Internet Safety

If you use Internet searches or AI tools or both, please do so under supervision of an adult. You need to be careful of what you are accessing on the Internet. Just as there are places in and around your school and home where you will not go without an adult, there are places on the Internet that are not safe for anyone, neither you, nor adults. You must take care, and whenever in doubt, ask someone you trust.

ACKNOWLEDGEMENTS

The National Council of Educational Research and Training (NCERT) acknowledges the guidance and support of the esteemed Chairperson and members of the National Curriculum Framework Oversight Committee for their invaluable contributions in overseeing the translation of NCF-SE perspectives into the textbook. NCERT is also deeply grateful to the Chairperson, Co-Chairperson, and members of the National Syllabus and Teaching–Learning Material Development Committee for their continuous guidance and thorough review of the textbook. Furthermore, NCERT extends its heartfelt thanks to the Chairperson and members of the Curricular Area Group (CAG): Vocational Education, as well as other relevant CAGs, for their support and guidelines on the cross-cutting themes.

The support and guidance of Deepak Paliwal, *Joint Director*, PSSCIVE are acknowledged.

The generosity of Gopal Naik, *Jal Jeevan Mission Chair Professor*, Centre for Public Policy, IIM Bangalore, for reviewing the Water Audit for Water Management project, and sharing insights and photographs is acknowledged with gratitude.

The following schools and institutes from across the country are acknowledged for contributing photographs that have either been used in the activity book or have provided guidance for illustrations: Zila Parishad School, Jalindernagar, Pune; Kalbhairavnath, Sau. Lakshmibai Baburao Bangar Vidyalaya, Khadaki (P), Pune; and Hirkani Vidyalaya, Gawadewadi, Pune.

NCERT acknowledges the contribution of Suyog Warghade, Suman Pandey, Komal Raut, Kailash Jadhav, Bhanudas Doundkar, Ranjith Kumar M., Animesh Chandra, Ranajeet Shanbhag, Yogesh Kulkarni, Yadunath Deshpande, Silja Bansriyar, Ahmed Shaikh, and Navaneeth Ganesh for photographs used in the activity book.

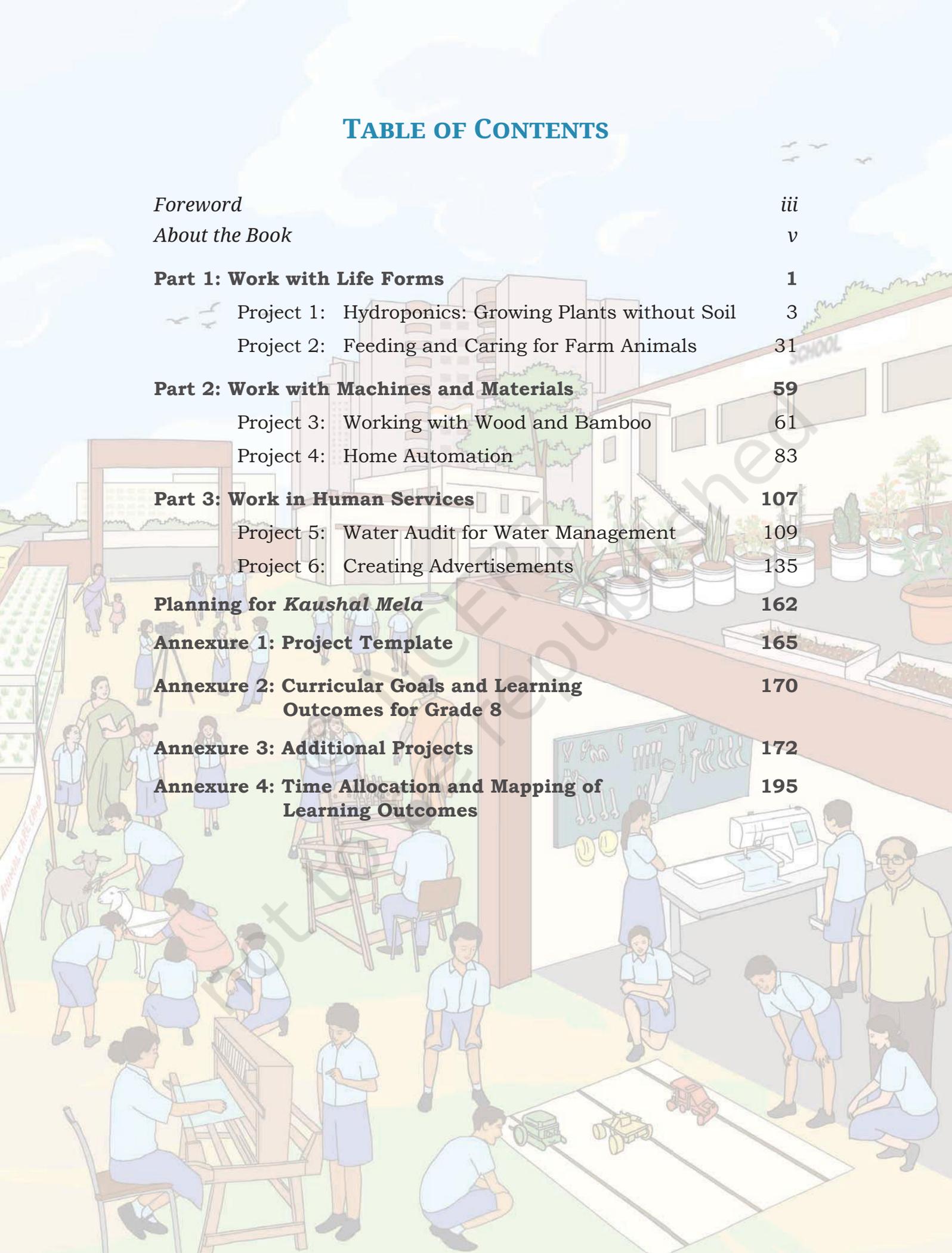
Support from Pramod Kumar and Nidhi Shastri from the *Programme Office*, NSTC, New Delhi; and the contributions of Deepti Kavathekar, *Consultant* (Contractual), Prerna Nashine, *Assistant Professor* (Contractual), Saurabh Meshram, *Assistant Professor* (Contractual), and Akansha Dubey, *Assistant Editor* (Contractual) from PSSCIVE are duly acknowledged.

The Council also acknowledges the valuable contribution of Alpana Saha, *Assistant Editor* (Contractual) for copy-editing and giving final shape to the book. The efforts of Pawan Kumar Barriar, *In charge*, DTP Cell, NCERT, and Shiv Shankar Dubey, Manoj Kumar, Anita Kumari, Sadiq Saeed, and Bittu Kumar Mahato, *DTP Operators* (Contractual) towards the flawless layout and design are acknowledged along with the contributions of Lomesh Giri, Maya, Rajan Dabur and Dwaipayan Upadhyay, *Proofreaders* (Contractual). The contribution of Fatma Nasir, *Artist* is recognised for extending her support in sketching the icons and framing the layout. Thanks are also due to Srinidhi Gurunath and Kaumudi Sahasrabudhe for their support in making the illustrations.

Copyright permissions have been applied for all the texts. The publisher extends apologies for any omission and would be glad to hear from any such unacknowledged copyright holders.

TABLE OF CONTENTS

<i>Foreword</i>	iii
<i>About the Book</i>	v
Part 1: Work with Life Forms	1
Project 1: Hydroponics: Growing Plants without Soil	3
Project 2: Feeding and Caring for Farm Animals	31
Part 2: Work with Machines and Materials	59
Project 3: Working with Wood and Bamboo	61
Project 4: Home Automation	83
Part 3: Work in Human Services	107
Project 5: Water Audit for Water Management	109
Project 6: Creating Advertisements	135
Planning for Kaushal Mela	162
Annexure 1: Project Template	165
Annexure 2: Curricular Goals and Learning Outcomes for Grade 8	170
Annexure 3: Additional Projects	172
Annexure 4: Time Allocation and Mapping of Learning Outcomes	195



THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a ¹**[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 ²[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.**

1. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
2. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Unity of the Nation" (w.e.f. 3.1.1977)