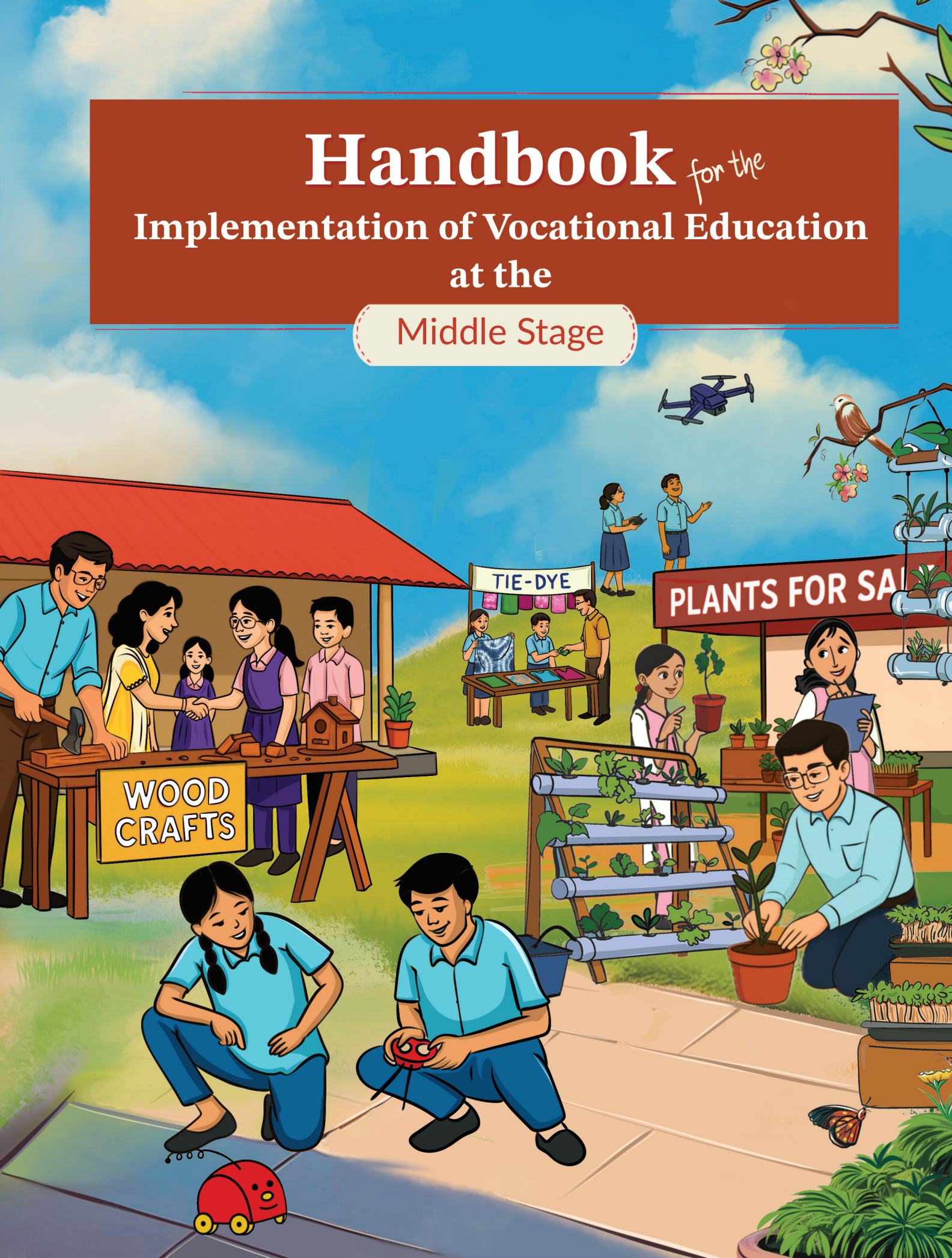
Handbook for the Implementation of Vocational Education at the Middle Stage



Handbook for the Implementation of Vocational Education at the Middle Stage

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एन सी ई आर टी
NCERT

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

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Foreword

The National Education Policy (NEP) 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, Arts Education, Physical Education and Well-being, and Vocational Education promotes their holistic development.

Vocational Education is being introduced as a separate curricular area at the Middle Stage. The role of teachers in ensuring learning experiences to enable students meet the Competencies and Curricular Goals of this stage is critical.

It is in this context, the NCERT has come out with the *Handbook for the Implementation of Vocational Education at the Middle Stage*. This Handbook will empower stakeholders, namely schools, communities, SCERTs, DIETs, and other stakeholders to enrich the educational journey of children by students on developing vocational capacities. This objective can be achieved by harmonising the efforts of schools and communities, positioning the child at the heart of this collective initiative.

The Handbooks serve as a roadmap to realise this vision, providing a clear path for stakeholders to engage meaningfully to students' learning and development. They are a testament to the belief that education is a shared responsibility, where the school, community and academic institutions are integral components of a cohesive whole.

This Handbook is the outcome of collaborative endeavours by the development team. It is suggestive in nature, and it can be embraced and modified by the States, Union Territories, and other stakeholders as required.

With this, I express my gratitude to all those who have been involved in the development of the Handbook 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.

Dinesh Prasad Saklani
Director
National Council of Educational Research and Training

New Delhi
July 2025

About the Handbook

The purpose of this Handbook is to support the implementation of the Vocational Education curriculum at the Middle Stage across schools in the country in alignment with the National Education Policy (NEP) 2020 and the National Curriculum Framework for School Education (NCF-SE) 2023. This document can be used both as planning the implementation of Vocational Education at various levels and as reference or training materials for different stakeholders.

NCF-SE 2023 includes Vocational Education as an integral part of the school curriculum for the aims of school education to be achieved. This inclusion is a transformative element of the NCF-SE 2023, intended to develop vocational capacities and necessary values and dispositions related to work.

Multiple stakeholders will be involved in this process – ranging from students, parents, community members, teachers and school leaders at the local level to district-level institutions, like the District Education Offices (DEOs) and District Institute of Education and Training (DIETs), and state-level institutions, like State Councils of Educational Research and Training (SCERTs) and Samagra Shiksha, as well as the Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), and the Ministry of Education (MoE) at the national level. All stakeholders must collaborate and be aligned for the successful implementation of Vocational Education in schools and classrooms.

Section A of the Handbook focuses on curriculum delivery and Section B focuses on the roles and responsibilities of key stakeholders. Section A takes forward the mandate of the NCF-SE 2023 through providing specific inputs on the implementation related to the Middle Stage. These inputs range from explaining how Learning Standards will be translated into classroom processes, how projects at the Middle Stage are to be implemented, time allocation, pedagogy and assessment, and leveraging existing resources. It illustrates how vocations and, within these vocations, projects are to be selected. Specific considerations are addressed, for example, related to work students may already be doing at home and developing capacities among students for dealing with daily tasks. Guidelines for integration of AI are also included.

Section B captures the action points for key stakeholders, outlining their roles and responsibilities in the implementation of Vocational Education.

Sections A and B together provide a comprehensive view of the implementation of Vocational Education at the Middle Stage. We hope that readers will find this Handbook useful. They are intended to serve as a document that provides practical support to their work.

The Handbook has informed the process of developing the Activity Books for Grade 6 to 8.

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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.**

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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)

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The efforts and hard work of Surender Kumar, *Incharge,* DTP Cell and Vivek Mandal, Kishore Singhal, Sanju Sharma, *DTP Operators* (contractual), Publication Division, NCERT, are appreciated for giving this document its final shape.

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CONSTITUTION OF INDIA

Part III (Articles 12 – 35)
(Subject to certain conditions, some exceptions and reasonable restrictions)
guarantees these

Fundamental Rights

Right to Equality

- before law and equal protection of laws;
- irrespective of religion, race, caste, sex or place of birth;
- of opportunity in public employment;
- by abolition of untouchability and titles.

Right to Freedom

- of expression, assembly, association, movement, residence and profession;
- of certain protections in respect of conviction for offences;
- of protection of life and personal liberty;
- of free and compulsory education for children between the age of six and fourteen years;
- of protection against arrest and detention in certain cases.

Right against Exploitation

- for prohibition of traffic in human beings and forced labour;
- for prohibition of employment of children in hazardous jobs.

Right to Freedom of Religion

- freedom of conscience and free profession, practice and propagation of religion;
- freedom to manage religious affairs;
- freedom as to payment of taxes for promotion of any particular religion;
- freedom as to attendance at religious instruction or religious worship in educational institutions wholly maintained by the State.

Cultural and Educational Rights

- for protection of interests of minorities to conserve their language, script and culture;
- for minorities to establish and administer educational institutions of their choice.

Right to Constitutional Remedies

- by issuance of directions or orders or writs by the Supreme Court and High Courts for enforcement of these Fundamental Rights.

Contents

Constitution of India

Part IV A (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 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.

Note: The Article 51A containing Fundamental Duties was inserted by the Constitution (42nd Amendment) Act, 1976 (with effect from 3 January 1977).

*(k) was inserted by the Constitution (86th Amendment) Act, 2002 (with effect from 1 April 2010).

Section A

Delivering the Curriculum of Vocational Education at the Middle Stage

1. Introduction

Vocational Education is being introduced to the Middle Stage as a separate subject from Grade 6 onwards as per the mandate of the National Education Policy (NEP) 2020 and National Curriculum Framework for School Education (NCF-SE) 2023. The Vocational Education curriculum at the Middle Stage is designed to provide students with exposure to a wide range of work. It is intended to develop values and sensibilities towards physical work, and an appreciation of the dignity of labour. It is also intended to help students deal with practical day-to-day tasks.

In order to receive a broad and experiential introduction to different aspects of Vocational Education, students will be exposed to work in three forms – Work with Life Forms, Work with Machines and Materials, and Work in Human Services.

Vocations that have some fundamentally common elements, similar or overlapping capacities and knowledge, are grouped together into the same form. Exposure to these common elements will ensure that students are able to take up other kinds of work in the same category or can easily take up newer kinds of work as they evolve. For example, if students learn how to use a desktop computer, they can learn not only how to use laptops and smartphones but also to use Artificial Intelligence (AI) tools. Grouping these would, therefore, help in developing a broad base of capacities for productive work. The different forms of work are:

i. **Work with Life Forms:** Productive work involving plants and animals.
ii. **Work with Machines and Materials:** Productive work involving the use of tools, machines and a wide range of materials, including waste.
iii. **Work in Human Services:** Productive work that involves interaction with people to understand their needs and requirements and provide them with services.

These work forms are broadly aligned with the commonly used classification of primary, secondary, and tertiary sectors of the economy.

Forms of Work

Work with Life Forms

Work with Life Forms involves developing capacities to do productive work that involves plants and animals. Illustratively, a school could choose to develop a vegetable garden or a chicken coop as part of this category at the Middle Stage, and

later take up floriculture, dairy farming, sugarcane cultivation, or natural farming at the Secondary Stage. The capacities required for such work involve both practical skills and conceptual knowledge about soil, plants, measurement, etc., related to these life forms thus, making school knowledge from other curricular areas relevant and practical.

Work with Machines and Materials

Work with Machines and Materials involves understanding and using machines or tools. It incorporates the processes and tasks that lead to tangible outputs, for example, machining, tailoring, carpentry, pottery, robotics, welding, recycling of waste materials, etc. For example, tailoring requires the use of basic tools, such as scissors, cutters, thread, pins, and machines, including the sewing machine, to sew cloth in a predetermined design. Thus, students will develop an understanding of the principles of tailoring and design, skills of cutting and stitching as well as attention to detail and persistence in creating high-quality products. Illustratively, a school could choose to offer machining, tailoring, carpentry and pottery as part of this category at the Middle Stage and later offer robotic welding along with advanced courses in carpentry and tailoring at the Secondary Stage.

Work in Human Services

Work in Human Services involves interaction with people to understand their needs and requirements. It requires the capacity to communicate well, and understand the processes and resources involved in providing a particular service. For example, working in a nursing home requires an understanding of procedures and ways of communicating with patients to deliver appropriate service. Through this form of work, students develop the essential capacities required for service, including interpersonal skills and compassion for other fellow beings. Illustratively, a student could work for a short period in a nursing home or a shop as part of this category at the Middle Stage. Later, in the Secondary Stage, opportunities could, illustratively, be offered to participate in tasks related to housekeeping, wellness or beauty, and tourism and hospitality.

Adapted from Section 9.3.2.1 of the NCF-SE 2023 (page 425)

The capacities required for all forms of work involve both practical skills, and conceptual knowledge of science, mathematics, arts, physical education and well-being, language, social science, and other necessary aspects, such as environmental awareness, sensitivity, and so on, thus, making Competencies developed in other Curricular Areas relevant and practical.

2. Approach to Vocational Education at the Middle Stage

i. Developing broad vocational capacities

The primary emphasis at the Middle Stage is on cultivating fundamental skills and vocational capacities across various types of work. Rather than specialising in specific job roles, the focus lies on developing broad competencies. Through hands-on experiences and practical learning activities, students develop a foundational understanding of different vocations and acquire essential skills applicable across various fields. The purpose is to instil amongst students a sense of curiosity, creativity, and adaptability and a willingness to work with hands as a joyful activity.

The major focus of learning in Vocational Education is the process, systematic activities, usage of tools, application of protocols – and developing values and dispositions related to work. The process is as important as the end product. These tasks and activities in turn must align with the 'Curricular Goals', 'Competencies', and 'Learning Outcomes' designated at the Middle Stage.

Vocational Capacities versus Skills

The focus of Vocational Education is on broad capacities for work as opposed to narrow skills. To quote NCF-SE 2023,

Capacities are broader human abilities that combine a variety of skills in a coherent manner to accomplish a complex job. Skills, on the contrary, are narrower know how to complete a specific task. For example, cooking is a capacity, whereas cleaning, cutting, frying, and sautéing are skills. (Page 421)

Vocational Education aims to develop these broad capacities, to prepare students for a wide range of work. This is important since students must prepare for work that may not even exist today. For example, AI (Artificial Intelligence) has the potential for a variety of jobs, but until a few years back the ordinary person had not even heard of AI.

ii. Project-based learning

In the context of Vocational Education, projects are a set of structured activities completed over a period of time by students. The long duration provides ample opportunity to explore information, conduct surveys, speak to experts, discuss with each other, plan, make and remake, get feedback and review their own work. Students learn about the importance of the work related to the project they are

doing and can connect it to real life. Thus, this long engagement provides time and scope for investigation, exploration, articulating questions, and experiencing 'real-world' challenges.

Project activities will be designed to result in output, such as a product, a model, a collection of artefacts, or the learning of a process, like cooking and serving a meal, etc. The authentic tasks and activities in the project are designed to meet the Curricular Goals, Competencies, and Learning Outcomes associated with this stage.

Who will teach?

Teachers of various subjects will be involved in the implementation of the projects at the Middle Stage. The school may consider assigning teachers of different subjects to different projects depending on suitability. If a separate Vocational Education Teacher is available, other teachers will complement the work as per their own curricular area.

The forms of work are such that teachers of all subjects can support them. For example, a Language Teacher can support documentation of a project related to biodiversity and also take charge of a project on script writing or creating a translation app using AI tools. Similarly, a Social Science teacher can support projects that require the use of tools by helping students understand why and how tools vary across geographies. They can take charge of a project about creating a school museum or podcasts related to the history of the region.

Since there will be some aspects that will need specific skills, for example, bicycle maintenance and pottery, local experts can be brought in as Resource Persons to help. These experts can be parents, local craftsmen and artisans – anyone who can support the students' work.

It is also advised that a Vocational Coordinator be appointed to oversee the entire process, to help teachers coordinate with each other and external experts, and to arrange visits and short internships, if feasible.

Where will tools and other resources be sourced from?

Most projects at the Middle Stage do not require specialised tools and materials. Most of these can be sourced within the school, for example, basic tools used in the school garden or for small repairs (hammer, nails, etc.). Emphasis is on using waste materials and on 'do-it-yourself' (for example, making dye out of easily available vegetables, fruits and flowers). Besides these, schools are expected to design projects related to vocations available around the school, so that resource persons are available and students can be taken on field trips.

In case an Atal Tinkering Lab (ATL) is available, the tools and materials can be used for doing projects on robotics, AI, and so on. If Vocational Education is already offered in the school at the Secondary Stage, then the tools and material already available can be used.

In each Grade, students will take up one project in each form of work, totalling three projects a year. **By the end of the Middle Stage, students will have done a total of 9 projects, 3 from each form of work** (Figure 1).

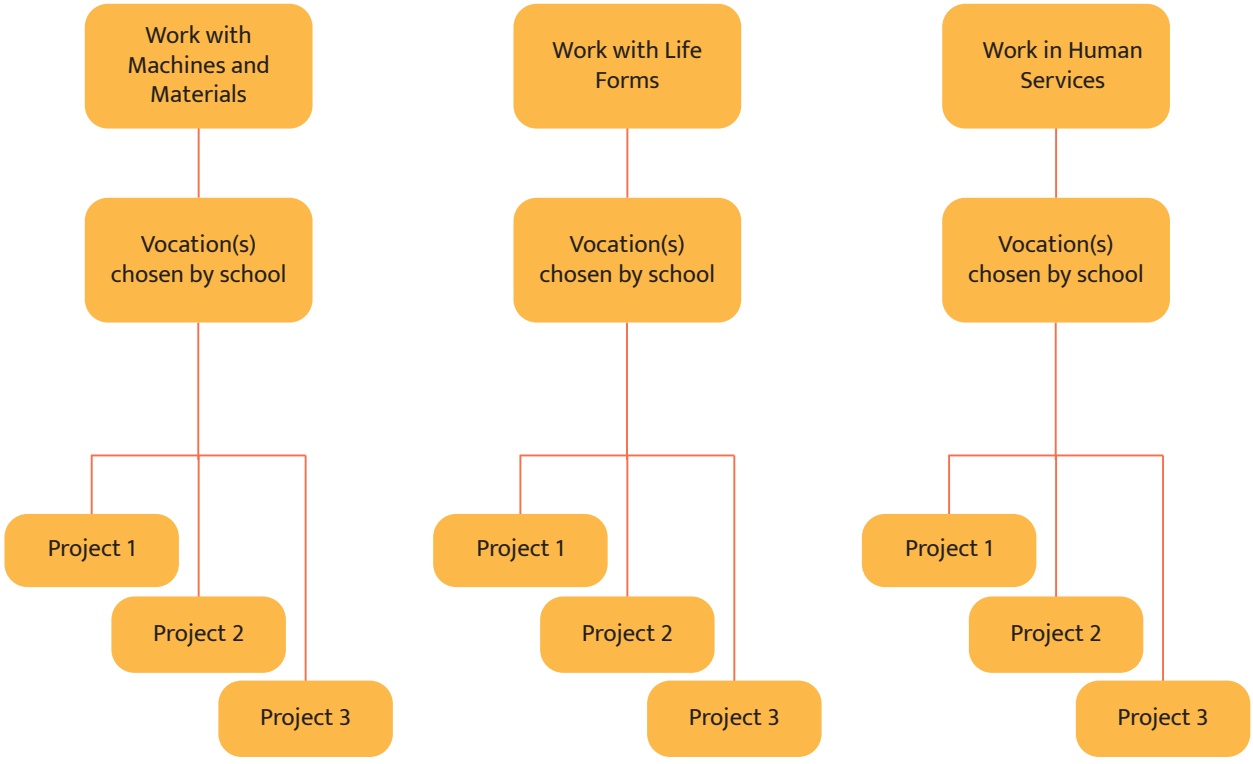


Figure 1: *Approach to Vocational Education across Grade 6 to 8*

The selection of vocations, and projects within these vocations, is up to schools, provided students do projects from all three forms of work in each year of the Middle Stage. Schools may also design their own projects as per the local context and aspirations, subject to the condition that Curricular Goals and Competencies laid down for the Middle Stage are met.

Schools may implement one or more than one project concurrently. For example, within a week, available time can be distributed across two or three projects. Or different groups of students can do different projects at the same time – this will ease the burden on resources and lead to the possibility of peer learning across projects. Another aspect is that, for example, plants need time to grow, pottery products need time to dry. Therefore, these projects need more time, and must be spread across the school year.

Implementing projects

Let us assume a school offers the following projects to students:

- **Work in Life Forms:** School Kitchen Garden
- **Work with Machines and Materials:** Basic Maker Skills
- **Work in Human Services:** School Museum

Option 1: All three projects are taken up in the same week, with each one being assigned different periods.

Option 2: Students are divided into three groups – each group takes up the projects in a different sequence. That is, for each group, a different project will be taken up in the Vocational Education periods.

Option 3: Students spend a few weeks in the 'School Kitchen Garden' and then take up the other projects one after the other. While doing other projects, they use a few periods every week to take up activities related to the 'School Kitchen Garden' project (since plants need to be taken care of continuously and take time to grow).

Option 4: Any combination of the above or any other approach the school wishes to adopt.

iii. Cross-cutting themes

Cross-cutting themes detailed in the NCF-SE 2023 emphasise rootedness in India and Indian Knowledge Systems, values and dispositions, learning about and caring about the environment, inclusion and educational technology will be integrated into all the projects. This will be done through selecting projects that provide opportunities for connecting with the local social and natural environment, making students aware of environmental issues and how to respond to them, ensuring all the students are able to take up all the activities, providing all students with opportunities to develop values and dispositions related to work, and integrating technology in a meaningful and age-appropriate manner.

3. Time Allocation

The time allocated for Vocational Education is 110 hours (or 165 periods of 40 minutes each) for three Vocational Education projects. In terms of weeks, roughly, the duration of one project in each form of work in a single academic year will be 11 weeks. Within this, some hours should be left unaccounted since time must be allocated for discussions, redoing, improvements, etc. It is not possible to precisely predict the exact time requirement, and the focus must be on independent work by students as long as possible. Furthermore, students will need time for the preparation of the *Kaushal Mela* (refer to Sub-section 6, Section B of this document). Conclusively, in terms of weeks, each project should be planned for about 8–11 weeks.

However, it is proposed that the time allotted is to be used in the following manner: (1) about 45 periods (or 30 hours) each for the three projects, one from each form of work – total 135 periods (or 90 hours); (2) about 15 periods (or 10 hours) for preparing and organising the *Kaushal Mela;* and (3) about 15 periods (or 10 hours) for other unforeseen tasks linked to project activities as sometimes repetitions or additional work may arise during implementation. This allocation is tentative and schools may add more time using bagless days as per the interest of students and/or needs of the project. In no case, however, should the allocated time be used for activities other than Vocational Education.

The school timetable is already packed. Where will the time for Vocational Education come from?

Vocational Education has been given as much space in the timetable as any other subject. This is because Vocational Education is critical for meeting the aims of education by developing the knowledge, capacities, values and dispositions that are necessary for students to succeed.

Vocational Education also helps in the learning of other subjects, since it applies the learning from other subjects. For example, it requires the application of concepts learned in Mathematics, Science and Social Science, capacities for communication developed in Language, and capacities for critical thinking, problem-solving, and rational thinking developed across subjects. On the contrary, the capacities developed in Vocational Education help learn in other subjects. For example, working with hands, conducting surveys, using technology.

Since Vocational Education requires a lot of time for hands-on activities, trial and error, preparation and cleaning, storing materials and tools, as well as demonstration followed by individual or group practice, block periods (as indicated

in the illustrative timetable given in the NCF-SE 2023 in Section 4.4.2, page 119–120) are required. In the illustrative timetable, the assumption is that two Saturdays of the month will be working days.

Table 1: ***Illustrative timetable***

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday (2)	
08:30–08:55	*Assembly*	*Assembly*	*Assembly*	*Assembly*	*Assembly*	*08:30–09:10*	Library
09:00–09:40	SS	Maths	Maths	SS	R2	09:15–09:55	Library
09:45–10:25	SS	R3	R2	Science	Math	09:55–10:15	Snack break
10:30–10:45	*Snack break*	*Snack break*	*Snack break*	*Snack break*	*Snack break*	10:20–11:00	VE
10:50–11:30	R2	Science	R3	Maths	Science	11:05–11:45	Art
11:35–12:05	R1	SS	R3	Maths	R1	11:50–12:30	PE
12:05–12:50	*Lunch*	*Lunch*	*Lunch*	*Lunch*	*Lunch*	*12:30–13:00*	*Lunch*
12:50–13:30	Science	Arts	Science	Arts	R3		
13:35–14:15	Science	Arts	Science	Arts	SS		
14:20–15:00	PE	VE	SS	PE	VE		
15:05–15:45	PE	VE	SS	PE	VE		

Note: *VE – Vocational Education; PE – Physical Education; SS – Social Science; R – Language*

4. Learning Standards and Learning Outcomes for the Middle Stage

The aims of Vocational Education outlined in the NCF-SE 2023 are the following:

i. **Developing understanding and basic capacities for different forms of work:** Students will develop a broad-based understanding of different forms of work, which will equip them to successfully manage their personal affairs. This will also equip them to identify, create, and initiate business, work, and community opportunities.

ii. **Preparation for specific vocations:** Students will develop capacities to be gainfully employed in one or more specific vocations after leaving school.

iii. **Respect for the dignity of labour and all vocations:** Students will develop respect for the dignity of labour through the acquisition of positive attitudes towards work and the workplace.

iv. **Developing values and dispositions related to work:** Students will develop persistence and focus, curiosity and creativity, empathy and sensitivity, and collaboration and teamwork. They will be willing to do physical work and will pay keen attention to detail.

The Curricular Goals for each stage are intended to support students in attaining these aims. There are four Curricular Goals (CGs) for each form of work at the Middle Stage. These are the following:

CG–1: **Involves the acquiring of knowledge and skills in work.** This goal focuses on developing competencies to use and maintain tools and materials in order to complete tasks in a planned and systematic manner.

CG–2: **Involves the application of a chosen form of work in the world of work.** This goal focuses on understanding the role and relevance of work in real life. It develops competencies to be able to apply vocational capacities to take up authentic work-related tasks, as well as review the output or processes involved.

CG–3: **Involves the values inculcated while working (since they are not always measurable, they need to be observed in students' practices).** This goal focuses on values and dispositions related to work, including attention to detail, persistence and focus, curiosity and creativity, empathy and sensitivity, collaboration and teamwork, and willingness to do physical work.

CG–4: **Involves the application of knowledge and skills (learned through engaging in different forms of work) in home-based tasks.** This goal, also referred to as the home Curricular Goal, focuses on applying learning in Vocational Education to deal with the day-to-day practicalities of life, including but not limited to home-based tasks.

Learning Standards

The Aims of School Education and the Aims of each Curricular Area are defined in the NCF-SE 2023. In addition to these, the NCF-SE 2023 defines Learning Standards for all the Curricular Areas, including Vocational Education.

Learning Standards comprise the following:

1. **Curricular Aims:** The Aims of each Curricular Area put together should result in the Aims of Education.
2. **Curricular Goals:** These goals are defined stage-wise and should result in the Aims of the Curricular Areas when put together. They give direction to curriculum development and implementation in order to achieve the Curricular Aims.
3. **Competencies:** These are defined for each stage and are directly derived from the Curricular Goals. They describe the capacities, knowledge base, values and dispositions related to the work that students must develop by the end of each stage in each Curricular Area. They are stated in terms that can be directly assessed.
4. **Learning Outcomes:** These are milestones of learning in each grade at the Middle Stage and lead to attainment of Competencies. They are stated in terms that can be directly assessed.

The details of the Competencies and Learning Outcomes for each Curricular Goal are given below:

CG–1: Develops basic skills and allied knowledge of work and associated materials or procedures

C–1.1: Identifies and uses tools for practice

Learning Outcomes		
Grade 6	**Grade 7**	**Grade 8**
• Selects tools appropriate for the specific task. • Uses tools correctly to complete the given task.	• Selects tools appropriate for the specific task. • Uses tools correctly to complete the given task.	• Selects tools appropriate for the specific task. • Uses tools correctly to complete the given task.

C–1.2: Approaches tasks in a planned and systematic manner

Learning Outcomes		
Grade 6	**Grade 7**	**Grade 8**
• Demonstrates appropriate stepwise process for completing the given task. • Develops time-based plan for the completion of task.	• Demonstrates appropriate stepwise process for completing the given task. • Develops time-based plan for the completion of task.	• Demonstrates appropriate stepwise process for completing the given task. • Develops time-based plan for the completion of task.

C–1.3: Maintains and handles materials or equipment for the required activity

Learning Outcomes		
Grade 6	**Grade 7**	**Grade 8**
• Describes the steps necessary to keep materials and equipment ready for use. • Follows the safety protocol while handling tools or materials.	• Describes the steps necessary to keep materials and equipment ready for use. • Follows the safety protocol while handling tools or materials.	• Describes the steps necessary to keep materials and equipment ready for use. • Follows the safety protocol while handling tools or materials.

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

C–2.1: Describes the contribution of vocation in the world of work

Learning Outcomes		
Grade 6	**Grade 7**	**Grade 8**
Describes the importance of vocation in the world around them.	Expresses what interests them in a vocation.	Describes how the vocation contributes to larger contexts.

C–2.2: Applies skills and knowledge learned in the area

Learning Outcomes		
Grade 6	**Grade 7**	**Grade 8**
Not to be assessed in this grade.	Explains how prior knowledge and skills have been used to complete the task.	Explains how prior knowledge and skills have been used to complete the task.

C–2.3: Evaluates and quantifies the associated products and materials

Learning Outcomes		
Grade 6	**Grade 7**	**Grade 8**
• Identifies criteria for evaluating the quality of products. • Identifies criteria for evaluating the quantity of products.	• Identifies criteria for evaluating the quality of products. • Identifies criteria for evaluating the quantity of products.	• Identifies criteria for evaluating the quality of products. • Identifies criteria for evaluating the quantity of products.

CG–3: Develops essential values while working across areas

C–3.1: Develops the following values while engaging in work:

- Attention to detail
- Persistence and focus
- Curiosity and creativity
- Empathy and sensitivity
- Collaboration and teamwork
- Willingness to do physical work

Learning Outcomes (To be assessed across each grade and projects)		
Grade 6	**Grade 7**	**Grade 8**
• Keenly observes the usage of tools and materials during demonstration and asks relevant questions. • Shows care and respect towards people doing physical labour, irrespective of gender. • Plans tasks with peers and helps others during difficulties at work. • Reworks or redoes tasks for improved efficiency. • Asks questions about the functioning of tools and machines, and gives suggestions for alternative uses. • Willingness to do physical work while enjoying working with tools and materials.	• Keenly observes the usage of tools and materials during demonstration and asks relevant questions. • Shows care and respect towards people doing physical labour, irrespective of gender. • Plans tasks with peers and helps others during difficulties at work. • Reworks or redoes tasks for improved efficiency. • Asks questions about functioning of tools and machines, and gives suggestions for alternative uses. • Willingness to do physical work while enjoying working with tools and materials.	• Keenly observes the usage of tools and materials during demonstration, and asks relevant questions. • Shows care and respect towards people doing physical labour, irrespective of gender • Plans tasks with peers and helps others during difficulties at work. • Reworks or redoes tasks for improved efficiency. • Asks questions about the functioning of tools and machines, and gives suggestions for alternative uses. • Willingness to do physical work while enjoying working with tools and materials.

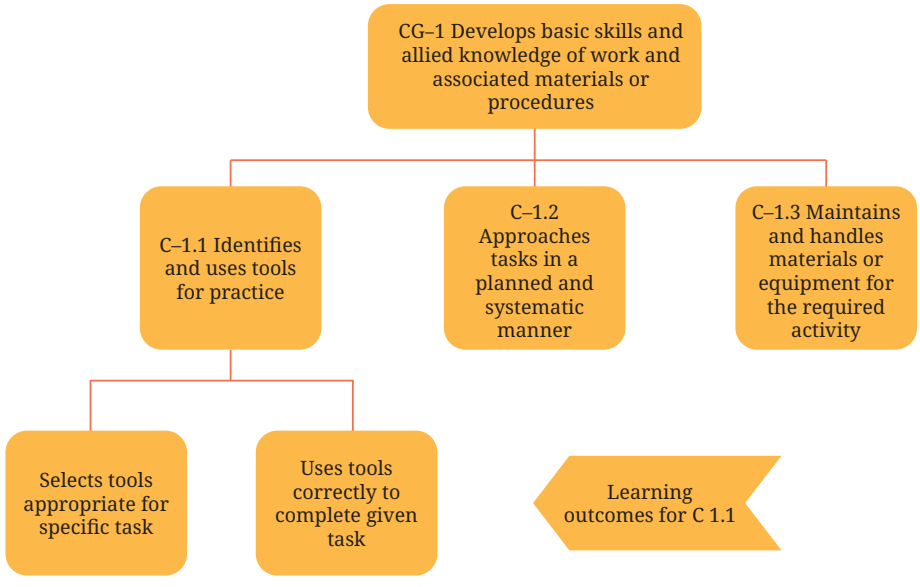
CG–4: Develops basic skills and allied knowledge to run and contribute to the home

C–4.1: Applies the acquired vocational skills and knowledge in home setting

Learning Outcomes		
Grade 6	**Grade 7**	**Grade 8**
Identifies where skills and knowledge are relevant at home.	Explains how skills and knowledge were used in a home setting.	Explains how skills and knowledge were used in a home setting.

Learning Standards in Action

The flow chart mentioned below shows an example of how Learning Standards translate into classrooms.



Illustratively, for a project related to kitchen garden, the learning outcomes for C–1.1 could be stated as:

- Selects hand trowel to plough the soil
- Uses hand trowel to plough the soil correctly

Illustratively, for a project related to wood carving, the learning outcomes for C–1.1 could be stated as:

- Selects chisel to make cuts and shapes during wood crafting
- Uses chisel correctly at an angle to make cuts and shapes during wood crafting

Illustratively, for a project related to first aid, the learning outcomes for C–1.1 could be stated as:

- Selects sterilised bandage to cover the skin cuts
- Applies the bandage correctly over a skin cut

5. Some Considerations Related to the Learning Standards

The following considerations have been kept in mind while designing projects and operationalising the Learning Standards:

i. Progression through Grades

The traditional approach to grade-wise syllabus in other Curricular Areas can not be followed in Vocational Education. In other Curricular Areas, there is a clear progression of Learning Outcomes as interim markers of learning that eventually lead to the acquisition of stage-wise competencies. However, the case is different in Vocational Education. Nine Vocational Education projects will be implemented across the Middle Stage (Grades 6–8). However, all nine projects may be from different vocations, or schools may choose different projects from within the same vocation.

Learning Outcomes are the same across grades in Vocational Education (with a few exceptions) since the same matter is being learnt across vocations (for example, the use of tools and materials, learning the procedures and processes). If, for some reason, the school picks up the same vocation across grades, complexity will deepen, and the Learning Outcomes can be rearticulated or the same Learning Outcomes can be used for deeper complexity. The nature of tools and activities can be more complex while the Learning Outcome remains the same. For example, if students develop a kitchen garden by simply sowing seeds and planting seedlings in Grade 6, they can learn to use more complex techniques, like grafting and layering, in Grade 7, and they can learn about techniques for water conservation and irrigation in Grade 8. Similarly, in Grade 6 they can learn about making simple clay pots, in Grade 7 about ceramics, and finally, they can design and develop replicas of classic artefacts or figures with decorations in Grade 8.

At the end of the Middle Stage, to quote the NCF-SE 2023, students will learn multiple capacities, knowledge bases, and values, which are common across many vocations. (Section 9.6.1.1, page 456)

ii. Acquisition of generic capacities for living

While all the Curricular Goals are intended to prepare students to deal with the day-to-day practicalities of life, in particular, Curricular Goal, CG–4: *Develops basic skills and allied knowledge to run and contribute to a home* is termed as the 'Home Curricular Goal' in the NCF-SE 2023. This goal, to quote the document, 'equips students with essential capacities to manage their day-to-day life better

and establish them as competent and productive members of the family and society'. This competency is attained through developing generic capacities for living.

Generic capacities for living in the Middle Stage include: age-appropriate digital literacy; financial literacy; environmental literacy; cultural literacy; self-sufficiency; home maintenance; and occupational literacy. These are embedded in each project, so that by the end of the Middle Stage, all students have the capacity to apply each of these capacities in different home situations. While these capacities are also embedded across other Curricular Areas (for example, cultural literacy is explicitly embedded in Arts, Language and Social Science Education, Personal Health and Well-being, Physical Education and Well-being and in Science Education, digital literacy across all areas), students will be required to 'demonstrate' them in the Vocational Education curricular area. Students also develop entrepreneurial capacities during preparations for and participation in the *Kaushal Mela*.

While selecting projects, schools must ensure these generic capacities are addressed across the Middle Stage.

Generic Capacities for Living

***Digital literacy*:** Ability to use technology for various functions. This can be developed by integrating a digital component in projects, including using Artificial Intelligence (AI) as elaborated in the next section. For example, preparing a presentation on their project, using Excel for recording, using an app, searching on the Internet, making audio and video clips.

***Financial literacy*:** Ability to conduct basic transactions, like budgeting, investing, borrowing, taxation, and personal financial management. This can be developed by surveying costs, buying materials, setting a selling price for products or services, developing budgets for homes, and others that may be relevant in projects.

***Environmental literacy*:** Consciousness of environmental issues and sustainability practices. This can be developed by integrating the 5 Rs of sustainable development, namely, Refuse, Reduce, Reuse, Repurpose and Recycle in projects. For example, students can be encouraged to think about how to use waste materials, decrease waste, and adopt minimum waste practices.

***Cultural literacy*:** Understanding the traditions, regular activities and history of the communities within which they live, and respect for culture and diversity in society. This can be developed by integrating working with others, surveys of community members, exploring local art and history, and other activities that may be relevant to projects.

***Home maintenance*:** Ability to contribute to a clean and well-maintained home, and necessary related activities, like furniture repair, brick work, plumbing, basic electrical repair, bicycle servicing, painting, home decoration, and others that may be relevant in projects.

***Self-sufficiency*:** Ability to take care of oneself and deal with routine problems without help from other people. This can be developed through growing fruits and vegetables, learning to cook, basic stitching, cleaning, washing and ironing, basic first-aid, nutrition, health and hygiene, shopping, and others that may be relevant to projects.

***Occupational literacy*:** Understanding the world of work, developing values and dispositions necessary for work, learning to work together, acquiring the vocabulary of work.

***Entrepreneurial capacities*:** The *Kaushal Mela* organised at the end of the academic year will allow students to practice skills under the generic competencies' category, as well as develop entrepreneurial capacities. The *Mela* will allow students to demonstrate skills acquired during the year, like narrating the history of local places of interest, serving food as per protocols, displaying posters describing steps in completing a service, creating e-invites, washing dishes, washing and ironing clothes, health and safety protocols, food segregation and recycling, decorating the space for the event and cleaning up after the event, working with others, communicating effectively, putting up stalls, making alternative arrangements in case of rain, creating a budget and pricing products, and so on.

6. Integrating Artificial Intelligence in Vocational Education Projects

Artificial Intelligence (AI), is a fast-growing technology that enables machines to mimic humans. Our students are going to live in the age of AI, and it is the responsibility of schools to prepare them to use it effectively and ethically. Through Vocational Education, we can introduce AI to students as a tool to enrich the activities they complete as part of their projects in the earlier grades of the Middle Stage. This will help them gain confidence to use AI as a tool. In later grades, they can design AI applications by themselves.

The objectives of introducing AI to school education are the following:

i. Develop awareness of the qualities of human intelligence and machine intelligence.

ii. Identify which tasks can be done better by machines, and how humans can use the power of machines.

iii. Explore how the power of AI can be used to make the earth a better place. For example, how AI helps increase creativity, and enables dialogue across diverse languages, enhances understanding of the environment.

AI-based tasks can be integrated across projects. To do so, schools or students must have access to computers or smartphones, and Internet connectivity. Depending upon their prior knowledge of computer operations, office, Internet searches, use of apps, coding, etc., students can take up projects of increasing complexity. While selecting projects that integrate AI as a tool, care must be taken to ensure that students are aware of the risks involved in using AI tools and the limitations of virtual activities.

The table below gives specific examples of integrating AI into the Vocational Education curriculum either as an independent project or as part of activities in a project.

Table 2: *AI and how it can be incorporated at the Middle Stage*

AI capabilities	Incorporation in Middle Stage projects
AI can Read (Apps like Google Lens, Bhashini, Google Translate, Microsoft Translate)	• Translate reports on the same topics in different newspapers into at least 5 languages (could be regional languages or a foreign language) using AI tools. Try to find the viewpoint in each. Make a presentation in class.
AI can Identify. (Apps like Google Lens, Google Maps, ArcGIS Online, PlantNet, PlantSnap, NatureID, Plantix)	• Observe biodiversity among plants, grass, insects, birds, weeds in your village or town. Find out their name, scientific name, qualities using AI tools. • Use Google Lens to identify different objects. Learn more about different artefacts. Visit online or virtual museums (for example, the virtual museums run by the Ministry of Culture, Government of India at https://indiaculture.gov.in/virtual-museums https://artsandculture.google.com/partner/national-museum-delhi https://vmis.in/Exhibitions/exhibition https://artsandculture.google.com/partner/archaeological-survey-of-india) and learn more about our history and culture. • Mapping your neighbourhood with AI tools – create interactive maps of your locality with important local information.
AI can Speak Apps, like Anuvaad Bhashini, Google Translate	• Make a presentation on a specific topic and give it a voice over in another regional language. Get the accuracy of the translation checked by a person who speaks that language. • Interview persons who speak a foreign language or other regional languages in their language. Write the translated interview and publish the interview in the school magazine.

AI can understand Photomath/ChatGPT/ Co-pilot/Gemini	• Ask AI tools to explain difficult concepts or to simplify them. • Use AI tools to gather information about any historical place in your village or town. Check the information and modify it with local history, examples, present condition of the place, Google locations, stories from elders, etc. Add recent photographs and prepare a presentation.
AI can do 'ART' Tools like DALL-E 2 Mini, Canva Magic Editor, Fotor, Microsoft Designer, Artify, Cut-Pro	• Give proper instructions to any AI tool to create a picture. Ensure it is accurate. • Draw an image or picture and try to enhance it using AI tools. • Create a school magazine using different AI tools. • Write a poem and give music to it using AI tools. • Make a video advertisement of local products using AI tools.
AI's process of data creation and annotation Use tool like Google's Teachable Machine	• Teach the computer to train AI models using your image database. • Teach the computer to train AI models using your audio database.
Programming and Coding	Depending upon prior knowledge of students related to writing algorithms, selecting parameters and writing a programme, they may carry out activities using programming languages. For example, • Preparing computer games • Making school timetable or bus timetable • Selection of sports team • Calculating Midday Meal requirement of school based on attendance

7. Principles for the Selection of Vocations within the Forms of Work and Projects within Vocations

Projects must be selected at the level of schools for various reasons, as indicated below:

- Students must get adequate exposure to each form of work – they must get hands-on experience in using tools and materials, basic processes and necessary knowledge;
- This must be done through selecting vocations that are (1) locally available and feasible, and (2) for which Resource Persons and places where students can observe and/or experience work (sites for practice) are within reach of the school;
- Students must be given opportunities to experience as many vocations as possible through selecting different vocations in each Grade; and
- Wherever possible, students must be exposed to vocations that are aspirational.

Two levels of selection are necessary – the first selection of vocations within the forms of work, the second of projects within these vocations.

i. Principles for selection of vocations within forms of work

On the basis of the principles of content selection in NCF-SE 2023 (pages 433–435), the following principles must be kept in mind while selecting vocations within which to offer projects. One vocation must be selected from within each of the forms of work in the Middle Stage in each Grade:

a. *As locally relevant as far as possible*: Vocations from which related projects are selected must be as locally contextualised as possible to enable students to better connect what they are doing in school to their life outside school. This will also make access to resource persons and sites for practice easier. For example, in a rural context, projects related to the following can be taken up; (i) school gardening can be taken up since schools will have space; (ii) poultry farming, since students can take field trips or take up short internships; and (iii) local crafts, clay modelling, spinning wool or cotton, sewing clothing since resource persons and materials will be relatively easily available compared to cities. In an urban setup, projects related to the following can be taken up: (i) floriculture (in pots if space is not available) and hydroponics; (ii) metalcraft and block printing since too much space is not necessary, and resource persons can guide the students; and (iii) beauty and wellness since Resource Persons will be easily available. In both rural and urban areas, projects related to (i) recycling and proper disposal of waste; and (ii) photography, making videos and audio clips using mobile phones can be offered.

b. *Address and respond to students' aspirations*: Projects should also be related to vocations that are not locally available but are attractive to students. This could be made possible by offering projects that also involve the use of technology, or by adding an element that brings value beyond the traditional to the project. Students must be able to get a glimpse of the state-of-the-art innovations in the chosen vocation. For example, a project on agriculture could include using a farming app or plant recognition apps.

c. *Progression through grades and linkages with other curricular areas*: As students progress through grades and stages, they deal with greater complexity. Their capacities in other curricular areas also expand. Hence, these factors must be considered while selecting a vocation. For example, once students learn about data analysis in mathematics, projects in data management could be planned.

d. *Relevance and feasibility*: Resources and persons who can support student learning must be available within the reach of the school. Vocations could be

related to the predominant economic activity in the region. For example, if *poplar* or *tendu* leaves grow in an area or sugarcane is being cultivated or jaggery production is done on farms, agriculture or forestry could be selected. There is also the possibility that schools could also end up increasing the knowledge of entire families if they take up vocations around them.

e. *Geographic location of the school*: Selection of vocation can also be guided by the location of the school, that is, which region it is in, what kind of terrain it is in lends itself to anything specific. For example, if a heritage monument is close by or if the school is located in a place frequented by tourists, vocations related to the different types of economic activity being generated could be selected.

The table below summarises the principles and what they mean for schools.

Table 3: *Selection of vocations*

Principle of selection of vocations	Illustrative questions schools must ask before selection
Local relevance	What kind of work is done around the school?
Aspirational	Are there experts available who can enable this? For example, • If shoes are manufactured around School A, is a shoe designer available? • If bricks are manufactured around School B, is there an expert in ceramics available? • If dairy products are being produced around School C, is there an expert in making innovative sweets or artisanal cheese available? • Can technology be used? • Can experts be invited for demo-cum-practice through video conferencing? • Can technology be used to allow students to go beyond what they can see around them? For example, can students explore alternative ways of doing things? • Can AI tools be used for recognition of plants or pests and diseases that affect them? • Can AI tools be used to design a model of a shoe that students can recreate?
Linkages with other curricular areas	• What will help students 'see in action' what they learn in other curricular areas? • What will help students apply their learning to other curricular areas? • What will help students apply their learning to real life situations? • Can they get hands-on experience that will help them understand concepts as they progress through grades?

Feasibility	• What is needed for all students to successfully complete the projects assigned? • Are suitable resource persons available to support students? • Are all safety considerations fulfilled?
Relevance	• Will students be able to add value through their learning? • Will they be able to share something new with their friends and family? • Will they be able to make the school a more attractive place to be in? • Will it help students take 'ownership'?
Geographic location	• Is there something the community takes pride in? • Are there some special agricultural produce or products related to the geography that can be used in a project? • Can this be integrated with students' learning in school?

ii. Principles for selection of projects

On the basis of the principles of content selection in the NCF-SE 2023, the following are the principles for the selection of projects at the Middle Stage (Section 9.7.2 and Section 9.7.3.3 of the NCF-SE 2023):

a. *Age-appropriate*: Projects must be age-appropriate and developmentally appropriate. Students must have acquired competencies in other Curricular Areas (Language, Science, Social Science, Mathematics, Arts, Physical Education and Well-being) that may be relevant to the project. Student must be able to 'do' and not be 'told'. For example, students must understand the diversity amongst living beings before doing a project related to biodiversity, they must have a basic idea of circuits before doing a project on electronics. Similarly, if students are doing a project related to the care of the elderly, they must not be expected to deal with medication, but can certainly help elderly move around and learn what interests them. If students are doing a project on cooking, they can cook without a fire in Grade 6 and learn more complex dishes in Grade 7.

b. *Interdisciplinarity*: Given the nature of Vocational Education, projects must leverage the competencies acquired in other curricular areas. At the same time, conceptual understanding of particular topics in any other Curricular Area should be strengthened with the help of the projects undertaken in Vocational Education. Students must be able to apply competencies developed through Vocational Education in other Curricular Areas as well. For example, if students are learning about society in different periods of history, they can do a project that requires them to prepare a presentation on how life was for their grandparents 50 years back. If they are learning of the conditions that sustain life, they can do a project on how pollution impacts life or on how to encourage the growth of a plant.

c. *Interesting and meaningful*: Projects should be interesting and meaningful – this will help students develop an appreciation for what they are doing, critically assess the quality of their own work, and have a chance to overcome challenges. Students must be able to engage in varied activities over a period of time. This is also necessary for the acquisition of relevant Curricular Goals and Competencies. For example, if students are doing a project on cooking, they must understand what people like to eat, and how to present food in addition to chopping and recipes. They must have time for trial and error, to learn how to use seasoning, to try out new seasoning and even create their own dishes.

d. *Instil the dignity of labour*: Projects must enable students to develop respect for the dignity of labour through experiencing different kinds of tasks, not just 'high level' work. They must also deal with notions and beliefs of different types of work and understand the importance of each task. This implies that all students must do all things. Illustratively, they must make organic manure themselves while doing a project on gardening, clean a greasy bicycle chain, clean a drain. All tasks, big or small, must be done by all students. Schools must also ensure that projects selected must develop this value.

e. *Exposure to different aspects*: The project must enable comprehensive exposure. Students may already be familiar with some aspects of the project they are doing. Extending beyond that through understanding related tasks will provide comprehensive exposure. Hence, projects need to be designed so that students do different kinds of tasks within the same project. For example, in a project related to gardening, the cost of seeds or saplings and the selling price of the product in the market must be compared to estimated profit, creating a protective fence, and so on.

f. *Progression of exposure depending on availability of resources*: Projects must be selected in such a manner that they provide increasingly progressive exposure to students, depending on the resources available. For example, if the same vocation of carpentry is identified across grades, students in grade 6 will design and create simple products, like stools, and learn to make simple repairs, followed by shoe racks in grade 7 and cupboards in grade 8. Alternatively, if students take up a project on simple machines in grade 6, they can assemble and dissemble machines in grade 7, and put together a machine of their own design in grade 8.

g. *Exposure to ecosystem of work*: Students must understand the place of the tasks they are doing within the larger ecosystem of work. This involves discussions with resource persons, visits to sites of practice, discussions about the use of products. Hence, students should not only be limited to the tasks within the

project but also to how these tasks extend to various larger activities and processes. For example, what are the jobs available, how does this work connect to other kinds of work (such as, parts made at different places being assembled in one place), what is the impact of the work (like, cottage industries producing handmade products positively impact the economy of a locality), and so on.

h. *Developing and pursuing specific interests*: Students must develop curiosity through actually doing work and through learning about how the work takes place in different contexts, what are the advances in the field, and so on. This will help them identify where their interests lie. For example, while doing a project about creating a class museum, they can explore real and virtual museums, learn about archaeological sites, maybe even see a film about explorations by historians and archaeologists.

i. *Hands-on exposure*: Whatever the nature of the project, students must actually 'do' the work. Therefore, projects should be such that practical experience can be provided. During selection, schools must keep in mind that materials, tools and sites for practice are available. To quote NCF-SE 2023, "*The essence of Vocational Education lies in the work being done practically*" (Page 435).

j. *Connect to home*: Projects chosen must enable students to contribute to home-based tasks in creative and interesting ways. For example, they must be able to apply their learning to simple repairs, contribute to tasks at home (for example, cutting and cooking, creating a budget), and create interesting activities (for example, a video on the history of the community) and products (for example, food items, decorative items) to be enjoyed by their friends and families.

k. *Development of generic capacities for living*: Selection of projects must ensure that the generic capacities for living described and illustrated in sub-section 5, Section A of this document are developed amongst students.

The table below summarises the principles and what they mean for schools.

Table 4: *Selection of projects*

Principle of selection of projects	Illustrative questions schools must ask before selection
Age-appropriate	• Will students be able to handle the tools and/or equipment? • Will they be able to perform all the activities independently? • Will they have the basic understanding required to do the activities independently?

Interdisciplinarity	• Will students be able to use their understanding of other subjects? • Will they be able to apply their learning from the project to other subjects?
Interesting and meaningful	• Will the project be fun for students? • Will it connect to their lives?
Instil the dignity of labour	• Will all the students be able to work with their hands? • Will all of them be involved in preparation and cleaning? • Will all of them perform the same tasks and activities?
Exposure to different aspects	• Will students be able to do different kinds of activities? • Will they learn different things? • Will they get a holistic understanding of what work involves – not just 'doing' but planning, time management, collaboration, review, etc.?
Progression of exposure depending on availability of resources	• Will students learn something new? • Will they practice with more complex tools and perform more complex tasks than in the previous grade?
Exposure to ecosystem of work	• Will students be able to visit actual sites of practice? • Will they get a chance to interact with professionals? • Will they get a chance to connect what they are doing with various kinds of work they are already aware of?
Developing and pursuing specific interests	• Will students get an opportunity to discover their interests? • Will the projects allow students to explore different kinds of activities?
Hands-on exposure	• Will students actually be able to 'do' work? • Will they get the opportunities to actually do some activities that are a part of the work the project is related to?
Connect to home	Will students be able to use what they learn in school?
Development of generic capacities for living	Will students be able to develop capacities that are critical for day-to-day living?

On the basis of the above, three schools are described, and the kind of vocations and projects that will fulfil the criteria for selection.

Table 5: *Sample scenarios*

	School A (urban, in the middle of the city with not much space)	School B (rural, with space within the school and fields outside the school)	School C (semi-rural, with space within the school but only a few fields outside the school)
Work around the school	For example, offices, factories, warehouses, retail and wholesale markets, small shops for daily needs, restaurants, hotels, service centres, construction work, cottage industries, beauty parlours, and educational institutions.	For example, agriculture, poultry, dairy, cottage industries, repair shops and dhabas along the highway, factories, and brick kilns.	For example, building and infrastructure construction, road construction, service centres for tractors and agricultural machinery, cottage industries, food processing and preservation, and beauty parlours.
Vocations chosen	*Work with Life Forms*: Farming *Work with Machines and Materials*: Masonry work *Work in Human Services*: Service in a restaurant	*Work with Life Forms*: Farming *Work with Machines and Materials*: Machining *Work in Human Services*: Culinary arts	*Work with Life Forms*: Farming *Work with Machines and Materials*: Food preservation *Work in Human Services*: Beauty and grooming
Project chosen	*Work with Life Forms*: Hydroponics *Work with Machines and Materials*: Making a concrete bench outside the school *Work in Human Services*: Running a school canteen	*Work with Life Forms*: Cultivation of field crops (includes using AI tools for recognition of plant diseases) *Work with Machines and Materials*: Maintenance and repair of a bicycle *Work in Human Services*: Food *Mela*	*Work with Life Forms*: Organic school kitchen garden *Work with Machines and Materials*: Making pickles *Work in Human Services*: *Mehndi* on hands

To elaborate, for Work with Life Forms, School B has more than one option for which all the criteria are fulfilled – farming, animal husbandry, poultry. The school selects a project on the cultivation of field crops. For the aspirational element, the school decided to include the use of AI tools for recognising pests and plant diseases. School C chooses to use the space within the school for growing vegetables since they feel all the criteria will be fulfilled. For the aspirational element, the school decided to use only organic methods. School A carefully considers that both space and resources could be an issue. They explore both growing vegetables in pots and hydroponics. Finally, the school decided that hydroponics will fulfil all the criteria, particularly since, there is a university nearby with a reputed science department that is doing some work in this area.

8. Pedagogy for Vocational Education

Learning in Vocational Education happens while 'doing', be it a field visit, meeting with an expert of any other activity. Classroom lecture sessions must be avoided – necessary vocational knowledge must be provided using strategies, like demo or during an activity or field trip, and so on.

i. Critical components in the pedagogy of Vocational Education

Across projects, students must first systematically prepare to undertake activities related to the project, actually 'do' them, record observations, processes, outcomes of tasks, and then reflect on the entire process. Figure 2 illustrates these components with the example of a project related to hydroponics.

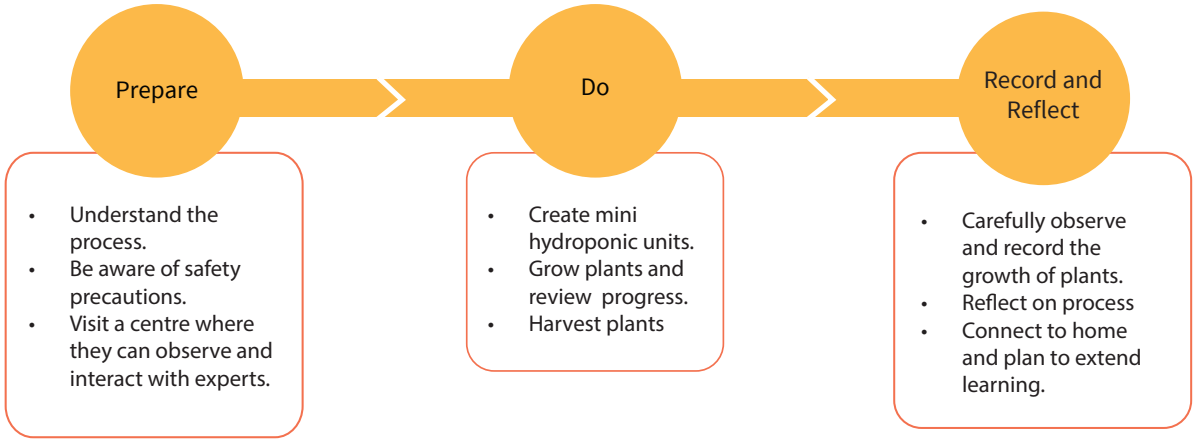


Figure 2: *Pedagogical approach in action for a project related to hydroponics*

Approaches that focus on practical, hands-on activities, and real-life situations create an enabling environment for students to connect knowledge, capacities and skills to real-life situations. Teaching–Learning in Vocational Education must, therefore, be student-centred and collaborative. It must encourage students to become independent and autonomous learners. Experiential approaches, such as project-based learning, which involve completion of a real-life task, or enquiry into specific questions, equip students to address authentic problems.

Collaborative learning motivates and encourages students to develop concepts and skills by working in collaboration with their peers. Therefore, activities, to the extent possible, should be done in groups. This is essential for two reasons – promotion of the value system that the NCF-SE 2023 mentions and also to facilitate peer learning, assessment and feedback.

To meet the above requirements, the broad pedagogical approach to Vocational Education at the Middle Stage will be project-based learning.

ii. Project-based learning

Project-Based Learning is a dynamic teaching–learning approach that encourages students to actively explore real-world problems and challenges. This method not only promotes deeper learning but also helps students develop critical thinking, collaboration, and communication skills. This approach transforms the traditional classroom into a more engaging, student-centred environment where learners can see the relevance of their learning in Vocational Education to their lives and future careers.

The project-based learning is based on the premise that students are not passive recipients of information, but acquire the desired competencies by engaging with real problems. In this approach, students are encouraged to participate in authentic work situations.

The project must result in a product or demonstration related to work, whether it is an object, or a protocol for a service. While students must maintain records and place their reflections related to the process they are following, reports or presentations will only be a part of the process and must not be treated as the desired outcomes of the project.

By engaging in these authentic opportunities, students apply knowledge and other capacities developed across curricular areas in the Foundational, Preparatory and Middle Stages (for example communication, critical thinking, problem-solving, collaboration, questioning, etc.).

How are projects different from other activities?

A lot of activities are conducted in school, for example, tree plantation, and projects in other subjects. Bagless days are also conducted with various activities for students. The difference between these activities and projects is that the latter is a long-term engagement with some kind of work, involving various related activities.

Projects are meant to develop vocational knowledge, apply concepts learnt in other subjects, and develop values and dispositions related to work. This is possible only through a range of activities that provide holistic understanding and the experience to develop these vocational competencies.

iii. Strategies within project-based learning

As mentioned earlier, projects are of long duration, to enable the attainment of the expected stage-wise Competencies and related Learning Outcomes. Therefore, many strategies can be used within this pedagogical approach. Some examples of these are given below. These are meant only as illustrations since multiple other strategies can be used:

a. Demonstration followed by practice: This is a frequently used strategy in Vocational Education. Demo-cum-practice is necessary when students learn about the use of tools and materials, or the process of doing something. For example, how to cut vegetables, plant seeds, use a hammer and nails.

The demonstration comprises the performance of an authentic task using real tools by the teacher, followed by a question-and-answer session where students can clarify questions. Next, students practice the use of the tools or protocol themselves, using the same tools and protocols. The teacher observes students closely and provides feedback as and when necessary, until students can perform the task adequately, with due safety considerations.

In some instances, the teacher may decide to 'demonstrate' using a video. However, the teacher must be able to respond to questions, and to provide feedback to students as they practice.

Considerations for demo-cum-practice

The following need to be kept in mind during demo-cum-practice:

- Demonstration could be done with a model, chart, scrapbook, any equipment, etc.
- It must be ensured that all the students are able to observe the demonstration.
- Demonstration should be done by making each step in the process clear – students must be clear about how to do the task from start to end.
- Questions from students are important.
- The teacher must also keep asking questions to ensure students have understood the process, safety precautions and other relevant aspects.
- Students must have the opportunity to experiment and/or innovate new techniques for doing the demonstrated tasks.
- Students then practise doing the task independently. They can work in groups, with a team leader who reports to the teacher how students are progressing.
- Teacher must observe and guide students as required.

b. Use of Case Studies: As a student-centred method, case studies focus on real-world situations related to work. They are presented in the form of a situation or a 'case' from the real world. Students are expected to read, analyse and suggest what they would do in the situation presented in the case. The objective is to challenge their existing knowledge and understanding, and evoke critical thinking and problem-solving skills. Case studies are useful in enabling an understanding of real-world situations and contexts, including the relevance

of the vocation and its place in the world of work. Examples include a day in the life of a professional, setting up a small-scale cottage industry, a video of the working of an industry or service in a restaurant, etc.

Using case studies

Case studies are useful when a real-life, holistic understanding needs to be developed amongst students.

- Case studies should be selected based on the desired outcomes – to motivate students, help them 'see' a process from start to finish, help them think of new ways of doing something.
- Work ethics, and other values and dispositions related to work, in particular, can be presented through case studies.
- Teachers could introduce the idea or concept that they want to emphasise in the case study.
- Students could be given some open-ended questions or asked to relate the case study to their surroundings and community.
- A case study could help provide examples of work, for example, a day in the life of a potter, revival of a form of printing, innovative technique for making toys, etc.
- If a real-life example of entrepreneurship or successful leadership is to be provided, then some components that must be covered include personal history, how the idea came about, what the process was, hardships or failures, and so on.

c. **Field Trips:** By undertaking field trips, students gain first-hand experience of and make connections between what is learnt inside the classroom and the outside world. Teachers prepare students to gain meaningful insights through three phases, that is, before the trip, during the trip and after the trip. Understanding gained during the visit is reinforced through discussions, presentations, role-play, practice, etc., in the classroom. Examples here include a trip to a farm, *Gram Sabha*, an ecologically conscious industry, etc.

Conducting field trips

- Field trips are useful for developing familiarity with sites of work, provide necessary exposure to students specific to what they are doing in schools, help them develop interests in specific areas and motivate them to learn.
- They also provide students with opportunities to collaborate with each other, develop observation skills, and communicate with people at the site of work.
- Students must be prepared before the trip. They must be aware of where they are

going, why and what kind of work will be observed. They can be shown pictures from the site of work. Teachers must help them prepare checklists for observation as well as questions they could ask during the field trip.

- Some criteria for deciding the site of visit are distance from the school, which site is best suited for students to visit, safety and security. In case of girl students, a woman teacher must accompany the group. Adequate preparations for first aid, food and water must be made.
- Communication with Resource Persons from the site prior to the field trip is necessary. It must be decided what they have to tell students, who will take responsibility for each group, etc.
- For students to gain familiarity with them and to be prepared for what to expect, they can be called for a guest lecture prior to the trip.
- Students can be divided into groups, with each group accompanied with a Resource Person from the site who will guide the students and demonstrate tasks as planned. These resource persons will need to be oriented by teachers prior to the visit.

d. Role-Play: Role-play is a simulated exercise wherein students perform assumed roles from the real world to create a simulated scenario. Apart from developing multiple perspectives related to the matter they are studying, role-play helps children to (i) demonstrate their learning (particularly in the case of Work in Human Services); and (ii) communicate issues and solutions involved effectively. Examples here include explaining, through a simulated role, the need to adopt healthy eating practices, persuading farmers to develop better marketing strategies for their crop, etc.

Role-Play of work

- Role-play should be done but not as a substitute for real-life exposure through hands-on tasks. It can be used as preparation for a task or visit, or to reinforce learning.
- The teacher should inform students of the time allotted for the role-play and the main points to be included (task or interaction to be demonstrated).
- Students must plan independently with support from the teacher. For example, assign roles, plan and prepare a script.
- The role-play could be done by rearranging the classroom or outdoors within the school.

e. **Internships:** Internships enable students to experience the workplace environment that cannot be simulated in a classroom. They can observe and put forth questions to adults who are doing different jobs. This 'real' experience provides students opportunities to explore the specific work and whether it interests them. It also helps them identify the values and dispositions relevant in the workplace. These internships can take place during bagless days, as well as during holidays.

Internships

In the context of Vocational Education, an internship may be defined as the duration spent by a student in work-based learning to develop an understanding of a specific job role. Internships are generally of short duration, and help students understand the place of a particular trade in the world of work.

Its importance has been emphasised in NEP-2020, *"All students will participate in a 10-day bagless period during Grades 6–8 where they intern with local vocational experts, such as carpenters, gardeners, potters, artists, etc. Similar internship opportunities to learn vocational subjects may be made available to students throughout Grades 6–12, including holiday periods."* (Para 4.26)

In the Middle Stage, students can actually participate in real workplaces. For example, students can spend a few days as interns in institutions near the school, such as hospital, restaurants, police stations, post office, industries, local gym, beauty salon, local poultry or dairy farm, local nursery, parks, and shops. They could spend a few hours in small groups over a period of a few days. Teachers must be closely involved and ensure detailed discussion on all aspects of student experiences.

Objectives of the internship

- Exposing students to a workplace environment that cannot be created in classrooms.
- Provide opportunities to observe and discuss their queries with people at work.
- Provide opportunities to explore specific kinds of work, and whether they interest them.
- Opportunities to learn new skills and supplement what they have already learnt.
- An opportunity to apply their learning across curricular areas in a real-life situation.

There are a few important considerations for effective internships.

Collaboration: Schools must play a proactive role in collaborating with such organisations as may provide meaningful experience and understanding to students in specific domains. It is important that these organisations represent all the three forms

of work—Work with Life Forms, Work with Machines and Materials, and Work in Human Services.

Some examples of where internships can be done at this stage are:

- *Work with Life Forms* – in poultry farms, dairy farms, with gardeners, and in a nursery.
- *Work with Machines and Materials* – with local mechanics, in local cottage industries, with local craftspersons.
- *Work in Human Services* – in hotels, restaurants, dospitals, gyms, orphanage, and beauty salons.

Orientation: For mutual clarity of role and expectations, it would be good to orient the persons working in the place of internship on the expectations from them, behavioural norms for trainers and students. This should also include clear guidelines on aspects of safety and security of students, including any form of sexual harassment.

Grouping: These internships should be in small groups of 5–6 students. Individual internships at this stage may be avoided. This makes the logistics easy and manageable and also takes care of the safety and security of students.

Clarity amongst Students: Students must also have clarity on their role and expectations from them during the internship. This should also include how the evaluation (including weightage) will be done at the end of the internship. This evaluation could be in the form of a reflective note, a presentation on the work they participated in, or a product they create.

Student evaluation may be jointly done by the concerned representative or trainer of the institution and teacher of the school. After successful completion of an internship, a certificate may be awarded to students by the organisation they interned with.

f. Short Workshops in the School: Workshops are appropriate for developing specific skills and these workshops can be planned on 'Bagless Saturdays'. For example, cleaning, cutting, and cooking for the entire school can be done in a workshop mode. Similarly, disassembling and assembling a motor pump can be done in a workshop. In workshops, usually, the focus can be on individual work.

Conducting workshops in schools

- Workshops of 5–10 days' duration can be held in the school.
- Either the same or different resource persons can be involved in helping students

develop the desired competencies by taking on aspects that schools may not be able to address or to supplement the efforts of schools.

- During the workshop, local role models (for example, a successful entrepreneur, an ASHA worker) can be invited to speak to students.
- Resource persons could be identified by taking input from the school development management committee, local authorities, asking students what is happening related to the work in their community, or they could be invited from local sites of work.
- Resource persons must be oriented before the workshop about what is to be done, what students already know, what is expected from them, how they should interact with students, etc.

The experiential learning methods used in Vocational Education as discussed above combine preparation through acquiring theoretical understanding and conducting necessary enquiries (for example, what people like, preparing a plan or design), 'doing', recording actions and their results, and reflecting on the process.

9. Assessment in Vocational Education

Before initiating any teaching–learning in a Vocational Education class, the teacher must assess students' prior learning – the knowledge students bring to the classroom. During the course of teaching–learning, the teacher must continuously undertake formative assessments while enabling assessment of learning. Summative assessments must be done after a unit of teaching, when the teacher expects a set of Learning Outcomes to have been met. The school may determine when they would like to undertake summative assessments.

All assessments must be closely aligned with the Learning Outcomes, for the purpose of improving learning with the help of feedback obtained through the use of different techniques. The tasks for assessment must be authentic as Vocational Education concerns itself with real-world situations.

i. Assessment of prior learning

Assessment of prior learning is a review of the past learning experiences of students to assess what is already known and what needs to be learnt so that it can be aligned with desired Learning Outcomes. At the same time, the teacher can adapt the content and pace of the teaching–learning process to the requirements of the students and build on their previously gained knowledge. This prior learning may be experiential and informal – acquired by them outside a structured learning environment, while

helping parents at home or at work. It will also include knowledge from other curricular areas that is relevant to Vocational Education.

The different ways in which teachers can assess students' prior learning is through informal discussions in groups or individually. The student activity book is also a useful resource.

ii. Assessment as learning

As students take up activities related to projects, they must necessarily review what they have already done. For example, if they have planted seeds, they must check that they have planted them at the right depth and distance; if they have prepared a dish, they must taste it to see if it needs improvement before serving; if they are making a toy, they must ensure the parts they have assembled work properly. Thus, assessment as learning is a critical part of Vocational Education. This may be in the form of self-assessment or through peer assessment – in the process of giving feedback to peers, students will also learn.

iii. Formative assessment

Formative assessment provides feedback to both students and teachers while the teaching–learning process is underway. Such an assessment is called assessment for learning, precisely for its role in the teaching–learning process. Formative assessments must be frequent and timely with constructive feedback given to students.

On the basis of the feedback, teachers have the flexibility to use a variety of teaching methods to suit the needs of the students and to vary approaches to assess what students have learnt. Evidence collected through this form of assessment is significant as teachers can improve their teaching.

Assessment of Project Work

Developing assessment for Project Work focuses on problem solving, creativity, and other higher order skills and soft skills.

Project Work is a process that enables students to question, reflect, analyse, evaluate and make decisions. The culmination of this process takes place in the form of an artifact or a product. It is important to assess the process involved, not the end product alone.

Goals and objectives of the Project should be set clearly and communicated to the students. Assessment should focus not only on the mastery of the content but also on the other skills and competencies that the student is expected to acquire.

Assessment can be based on a rubric with components, such as content, skills and competencies. Self-assessment and peer assessment based on rubrics are also an option.

Self- and peer- assessments must be designed primarily as assessment for learning. Observing others and giving them feedback helps in assessing one's own work. For example, if students are working on stitching cloth bags, they can observe their own and others' progress by using a simple rubric involving criteria, like suitability of material (will the material be easy to stitch or not, or whether the material is suitable for a bag), cutting (if the pattern is suitable for a bag, whether space has been left for stitching), decoration (is some decoration planned, what is being used, whether decoration should be pasted or stitched on before or after the bag has been stitched, etc). Thus, the rubric itself serves as an indicator of what they should be doing.

iv. Summative assessment

Summative assessment, on the contrary, is known as assessment of learning, because it is used to evaluate the knowledge and skills acquired by students at the end of a course or an academic year. Summative assessment in Vocational Education at the Middle Stage will be at the end of each project. The objective is to evaluate student achievement, as well as the quality of teaching and resources. It indicates what the student has learnt, and also the pathways to the next stage of learning in terms of further support required.

Summative assessment is also very important since it informs schools and teachers of the effectiveness of the teaching – learning process. It offers an overall, cumulative picture of the learning of students, and provides feedback to teachers and schools on where improvement is required.

v. Assessment of values and dispositions

Values and dispositions must be assessed through observation of students as they are engaged in activities related to Vocational Education. Another source of evidence is oral presentations or viva voce. Rubrics for observation or assessing presentations or viva voce would necessarily combine assessment of values and dispositions. Rubrics must be carefully developed to ensure ease of use; they may be shared with students to help them understand expectations. Feedback must be constructive and any negative effect on (or negative labelling of) students or their families is unacceptable. It must be noted that the values and dispositions we want students to demonstrate must be reflected in the culture and processes of the school.

vi. Tools for assessment

Table 6 indicates the tools that can be used for assessing Learning Outcomes for each Curricular Goal and Competency at the Middle Stage.

These tools can be used for both formative and summative assessments. Any one of these tools can be used by the teacher, based on their comfort.

Table 6: *Mapping of Learning Outcomes with tools for Formative and Summative Assessment*

Learning Outcomes	Suggested Tools
CG–1: Develops in-depth basic skills and allied knowledge of work and its associated materials or procedures	
C–1.1: Perform procedures competently through required tools or equipment	
• Selects tools appropriate for specific task • Uses tools correctly to complete given task	• Observation by teacher and peers (through checklist, rating scale, rubrics) • Self-assessment (through checklist)
C–1.2: Approaches tasks in a planned and systematic manner	
• Demonstrates appropriate stepwise process for completing the given task • Develops time-based plan for completion of task	• Observation by teacher and peers (through checklist, rating scale, rubrics) • Self-assessment (through checklist) • Paper pencil test (MCQ, situational questions, concept maps, flowchart) • Oral presentation (individual or group) • Role-play • Simulation • Viva Voce or Questioning • Workbook or activity book
C–1.3: Maintains and handles materials or equipment for the required activity	
• Describes the steps necessary to keep materials and equipment ready for use • Follows the safety protocol while handling tools or materials	• Observation by teacher and peers (through checklist, rating scale, rubrics) • Self-assessment (through checklist) • Oral presentation (individual or group) • Viva Voce or Questioning • Workbook or activity book • Paper pencil test (conceptual knowledge required to do the tasks or activities)

CG–2: Understands the place and usefulness of vocational skills and vocations in the world of work	
C–2.1: Describes the contribution of vocation in the world of work	
Grade 6 – Describes the importance of vocation in the world around them Grade 7 – Expresses what interests them in a vocation Grade 8 – Describes how the vocation contributes to larger contexts	• Oral presentation (individual or group) • Viva Voce or Questioning • Paper pencil test (Short answer) • Role-play • Simulation • Workbook or activity book
C–2.2: Applies skills and knowledge learned in the area	
Grade 6 – not to be assessed in this Grade Grade 7 – Explains how prior knowledge and skills have been used to complete the task Grade 8 – Explains how prior knowledge and skills have been used to complete the task	• Viva Voce or Questioning • Paper pencil test (conceptual knowledge required to do the tasks or activities)
C–2.3: Evaluates and quantifies the associated products and materials	
Grade 6 – Identifies criteria for evaluating the quality and quantity of products Grade 7 – Identifies criteria for evaluating the quality and quantity of products Grade 8 – Identifies criteria for evaluating the quality and quantity of products	• Oral presentation (individual or group) • Viva Voce or Questioning • Paper pencil test (Short answer) • Workbook or activity book
CG–3: Develops essential values while working across areas	
C–3.1: Develops the following values while engaging in work: Attention to detail; persistence and focus; curiosity and creativity; empathy and sensitivity; collaboration and teamwork; willingness to do physical work	
• Keenly observes the usage of tools and material during demonstration and asks relevant questions.	• Observation by teacher and peers (through checklist, anecdotal records, rubrics)
• Shows care and respect towards people doing physical labour, irrespective of gender • Plans tasks with peers and helps others during difficulty at work. • Reworks or redoes task for improved efficiency. • Asks questions about functioning of tools and machines, and gives suggestions for alternative use. • Willingness to do physical work while enjoying working with tools and material.	• Self-assessment (through checklist) • Workbook or activity book (reflections)

CG–4: Develops basic skills and allied knowledge to run and contribute to a home	
C–4.1: Applies the acquired vocational skills and knowledge in home settings	
Grade 6 – Identifies where skills and knowledge are relevant at home Grade 7 – Explains how skills and knowledge were used in home setting Grade 8 – Explains how skills and knowledge were used in home setting	• Oral presentation or Viva Voce • Role-play • Simulation • Workbook or Activity book

Please note that students are expected to retain products they have prepared, particularly for display in the *Kaushal Mela*. The Activity Book is also designed to capture the progress in students' learning. This is also in keeping with the emphasis on process and not product in the NCF-SE 2023.

10. Inclusion of Vocational Education

Inclusion refers to well-though through processes developed to cater to the needs of all students. With the belief and consideration that all students can learn and work towards their interests, the system should be able to adapt to their specific requirements and provide equal opportunities to each of them. It is crucial to understand that having genuine respect for each student and his/her needs will guide us towards catering to their needs.

Who must be included?

The NEP-2020 emphasises the inclusion of students from Socio-Economically Disadvantaged Groups (SEDGs). It states the following:

Socio-Economically Disadvantaged Groups (SEDGs) can be broadly categorised based on gender identities (particularly female and transgender individuals), socio-cultural identities (such as, Scheduled Castes, Scheduled Tribes, OBCs, and minorities), geographical identities (such as, students from villages, small towns, and aspirational districts), disabilities (including learning disabilities), and socio-economic conditions (such as, migrant communities, low-income households, students in vulnerable situations, victims or students of victims of trafficking, orphans, including student beggars in urban areas, and the urban poor). (Para 6.2, page 24)

The following guidelines can help schools and classrooms in creating an inclusive space for students:

i. School and classroom culture and processes

a. Often, indifference, derogatory responses to questions and statements, and discriminatory remarks based on gender, disability, caste, religion, etc., can make students feel excluded from tasks or teamwork. School and classroom culture must be of zero tolerance towards such behaviour.

b. It is also important to set proper regulations and instructions on the ways of working and communicating during group projects. This is applicable to both students and teachers.

c. Support from parents and local communities should be ensured as needed. External resource persons must be suitably oriented well before they start interacting with any student.

ii. Involving students with disabilities

a. All students should be given exposure to the maximum possible vocational exposure at school, using adaptive strategies to ensure their participation and comfort.

b. Assistive devices must be made available as required. For example, hearing devices, material in Braille, voice recognition programmes, screen enlargement applications, etc., as required for students with visual impairment.

c. Teachers must modify tasks suitably to provide time for practice. For instance, a student with visual impairment may find a project related to computers accessible through the use of assistive technologies, such as screen readers. Another student could make a small model of a stool while others make a regular stool.

iii. Pedagogy and assessment

a. Both adaptation and modification are required to accommodate the needs of students.

b. Adaptation refers to adjustments in pedagogy, assessment and the learning environment to suit the specific needs of students to help them achieve Curricular Goals. Examples include the use of computer software for speech,

use of audio tapes, extension of submission time for assignments, oral or picture-based assignments.

c. Modifications involve making changes in pedagogy, assessment and the learning environment to help students achieve Curricular Goals. Examples include reducing tasks both in terms of expectations and number, using pedagogy and assessment specific to the students' needs. An example of providing for different learning needs, is using a variety of experiences in the activity on 'How Plants Grow'. It can be taught through hands-on experience in the school field or classroom or by observing and recording the growth of the plant weekly and comparing it to relevant pictures.

d. Inclusive assessment must be based on students' experiences and interests, and located in real life situations. They must be designed to ensure no students are excluded or unfairly disadvantaged. This means reviewing the assessment task to be undertaken, how and when the expectations will be shared with students, developing marking criteria, and making the assessment task accessible for all students.

11. Leveraging Community Resources

The involvement of the community is critical for the effective implementation of Vocational Education in schools. The *Kaushal Mela* provides an opportunity to bring together members of the community and schools, and therefore has a very important part to play.

In addition to the relevant suggestions in the foregoing sections, the following may also be considered.

- The members of the School Development Management Committee (SDMC) can be requested to support the school in leveraging resources from the community, they must play the primary role in mobilising community resources.
- Parents and guardians of students can also help in arranging resources.
- Guest lectures must be arranged related to projects going on in schools, with the option of face-to-face and online interactions, in case no expert is available locally.
- Local industries and other sites of work must be encouraged to support schools as part of their social responsibility. They could help the school arrange visits, internships, Resource Persons for workshop, and so on. Students could also be taken to these sites for a short period for hands-on work or practicals.

- Local artists and craftspeople could also be asked to support schools. For example, if students are doing a project on pottery or making wood products, local artists could be asked to help students decorate their products.

12. Guidelines for *Kaushal Mela*

The NCF-SE 2023 states, *"Towards the end of the academic year, a Kaushal Mela (skills fair) will be organised in the school for students to demonstrate their projects to the school, community members and other stakeholders. This will include a presentation of the project work, key learnings, reflections, and the use of learnt skills at home*". (Section 9.3.2.2, page 452).

The *Kaushal Mela* is a means of bringing together the school and the community in the spirit of collaboration for achieving the Curricular Goals and Competencies related to Vocational Education. Invitees to this event must include parents, community members, owners of local businesses and industries, professionals, school management, education functionaries, and other relevant stakeholders.

i. The purpose of *Kaushal Mela*

a. Exhibition of work done by students during the academic year – this can include both physical products (for example, vertical garden, compost pit, solar cooker, and photographs and/or handmade posters showing the process of developing the products), and demonstration of vocational capacities acquired during the year (that is, narrating the history of local places of interest, serving food as per protocols along with posters describing steps in doing a service, safety protocols, etc.). The *Kaushal Mela* will showcase all three projects done by students.

b. Building a triangular relationship between students-teacher-community to develop coordination, cooperation, and correlation in the learning process. Inputs from the community should be invited to improve the development of products or processes – this will help professionals amongst them take ownership of students' learning and encourage them to participate as resource persons.

c. Inviting students to share how they are applying the vocational capacities they acquired in school at home. This can be in the form of posters, concept maps,

presentations or any other form students choose. Prior information about this can be given to parents, and they can also be invited to speak during the exhibition.

d. Providing students with the experience of setting up an exhibition and showcasing their work (for example, identifying what is to be showcased, setting up stalls, guiding parents, preparing an entire storyboard for the event, allocating time, etc.).

e. Informing school management or district and block education functionaries of the status of inclusion of Vocational Education in the school curriculum and inviting their input on how processes can be improved.

f. Felicitation of community members who have served as resource persons or provided sites of work for students to visit and/or intern in.

ii. The following principles must inform the organisation of the *Kaushal Mela*

a. There should be no 'competition' to decide the best demonstration by students or groups of students. Each student's work must be treated with respect and appreciation for the learning acquired during the process of doing each project.

b. Students must be encouraged to reflect on the process of their learning. Several strategies can be used to develop this capacity. For example, they can be provided with a diary in which they write (before they start a project) what they know about the related work, document challenges and how they overcame them, whether there was a change in the original plan they had developed for the project, and why, and to write about how they felt about working with their peers, and so on. There should be no strict timelines related to doing this work. Students should write when they are inclined to do so; however, at the same time, the teacher must keep encouraging them to maintain this diary. Excerpts from these diaries, which students could volunteer to share, must be part of the *Kaushal Mela*.

c. Students' participation must be central (from selection of display to setting up exhibits, etc) and their voices must be heard. They must be given space to 'exhibit' the outcomes of their projects as motivation to engage further with Vocational Education as they progress through schooling, and also to motivate parents to appreciate Vocational Education as a critical aspect of their children's development.

d. Community members must participate in the event, and not simply be observers. They must actively discuss the project and outcomes with students, helping the latter see connections with real life. They must be encouraged to suggest other projects students can take up, besides giving suggestions on how to improve existing projects.

e. Communication with the community must clearly state expectations; for example, providing constructive feedback, offering specific suggestions for future projects, and so on.

f. It is recommended that the *Kaushal Mela* also be conducted at the district and state level along the lines of Science exhibitions.

Section B

Enablers for the Implementation of Vocational Education at the Middle Stage

1. Role of Academic Institutions

i. Role of national-level institutions

Two important national and regional-level institutions have an important role to play in the implementation of Vocational Education, namely, the Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), Bhopal; and the Regional Institutes of Education (RIE) in Bhopal, Bhubaneshwar, Ajmer, Mysuru, and Shillong.

The PSSCIVE, a constituent of the National Council of Educational Research and Training (NCERT), will act as the principal coordinating agency for the implementation of the programme at the national level and for organising teacher capacity-building programmes, while the RIEs will support contextualised and need-based implementation of the Vocational Education. All efforts will be aligned with the NCF-SE 2023.

Specific roles and responsibilities would be as follows:

Institution	Roles and responsibilities
Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE)	Principal coordinating agency for the implementation of Vocational Education programmes.
	Developing guidelines for the implementation of Vocational Education.
	Organising teacher capacity-building programmes and developing training modules for key functionaries and practising teachers in vocational pedagogy.
Regional Institute of Education (RIE)	Providing guidance to schools on the implementation of contextualised curricula and resource materials at a regional level.
	Conducting workshops, seminars, and conferences for educators, administrators, and policymakers related to Vocational Education.
	Preparing future teachers for implementation of Vocational Education through pre- and in-service programmes at the regional level.

ii. Role of state-level institutions

At the state level, the Department of Education and the State Council of Educational Research and Training (SCERT) will provide leadership for the implementation of Vocational Education in alignment with the NCF-SE 2023.

Specific roles and responsibilities would be as follows:

Institution	Roles and responsibilities
State Department of Education	Policy formulation at the state level.
	Overseeing fund distribution and implementation of Vocational Education in the state.
	Ensuring equitable access to all students.
	Reviewing implementation of Vocational Education in schools, and taking informed decisions for continuous improvement.
State Council of Educational Research and Training (SCERT)	Liaising between central education bodies, like NCERT and State Education Departments
	Developing State Curriculum Framework (SCF) and curriculum for Vocational Education.
	Developing guidelines for schools, including selection of projects, pedagogy and assessment.
	Developing teaching–learning resources and materials with support from DIET.
	Conducting in-service teacher training programmes in the state.
	Organising workshops, seminars and refresher courses for teacher development.
	Conducting and collaborating with other institutions and organisations on research and pilot projects.
	Holding awareness workshops on NEP 2020 and NCF-SE 2023 in the context of Vocational Education with relevant departmental heads and local industry resource persons.

iii. Role of district-level institutions

At the district level, the District Education Officer (DEO) and the District Institute of Education and Training (DIET) will provide leadership for the implementation of Vocational Education in schools.

Specific roles and responsibilities would be as follows:

Institution	Roles and responsibilities
District Education Officer (DEO)	Providing administrative support in schools for the effective implementation of Vocational Education.
	Cultivating and nurturing relationships with local stakeholders to address needs and challenges related to the implementation of Vocational Education.

District Institute of Education and Training (DIET)	Conducting awareness programmes for relevant stakeholders, including parents and other community members and local experts.
	Conducting teacher training programmes in the district.
	Providing support in the implementation of Vocational Education at the district level.
	Training and mentoring Block and Cluster Resource Coordinators to enable school-based support to teachers.
	Contextualising projects and materials to meet local educational needs.
	Dissemination of teaching–learning materials tailored to the local context and languages.
	Supporting schools to engage with local communities to promote awareness and participation in Vocational Education.

2. Role of School Heads

School Heads will be responsible for the overall responsibility for the smooth and effective implementation of the project-based activities in Grades 6–8.

Their roles and functions would be as follows:

Area	Description
Community involvement	• Promoting awareness of Vocational Education amongst parents and community members. • Initiating community mobilisation activities.
Vocational Coordinator	Appointing a Vocational Coordinator to oversee and facilitate all the activities related to Vocational Education. Vocational Coordinators will coordinate and schedule the activities of different projects to be undertaken at the Middle Stage. They will also coordinate with external resource persons.
Timetable	• Creating a flexible schedule that allows for adequate time for vocational classes alongside academic subjects; consider block scheduling or integrated project periods to maximise hands-on learning time. • Ensuring proper integration in the school calendar and allocating the required 165 periods in consultation with concerned teachers. It must be ensured that these periods are not allocated to any other subject.

Project allocation	• Allocating different projects to different subject teachers keeping in view the relevance or linkage of a project with a particular subject or/and the special interest or skill set of existing teachers. • To incorporate vocational elements into their subjects and collaborate on interdisciplinary projects, all subject teachers will be involved in the design and the implementation of projects and activities.
Additional support and resources	Facilitating the implementation of various components of the projects. Some may require additional infrastructure support, for example, or the purchase of materials.
External resources	• Networking and collaborating with various institutions and experts to provide Vocational Education support and facilities to students. • Facilitating field visits and expert meetings, which are essential components of the projects.
Inclusion	Making provisions for inclusive education and providing additional resources for the same for proper transaction of Vocational Education to children with special abilities.
Pedagogy and assessment	Guiding the vocational coordinator and teachers with proposed pedagogy and assessments, and supporting them regularly.
Administrative support	Playing a proactive role in effective Vocational Education teaching through various administrative activities as required, such as setting up committees, chairing the meetings, organising activities, supervising the staff, addressing students' grievances, organisation of field visits, internships, and competency-based assessment and evaluation.
Review	Developing a system for monitoring and evaluating the programme's effectiveness. This could include the following: • Regular assessments of student progress and skills. • Feedback from students, parents, and partners regarding the implementation of Vocational Education. • Continuous improvement plans based on evaluation data

3. Role of Teachers

Teachers will work closely with the Head of the School and the vocational coordinator to gather resources, and conduct teaching and training activities, including organisation of field visits, guest lectures of experts, conducting activities and assessment of students for the implementation of Vocational Education from Grade 6 to 8.

The specific roles and functions of the teachers would be as follows:

Area	Description
Coordination	• Carrying out responsibilities entrusted by the Head of the school from time to time. • Coordinating with the vocational coordinator to arrange expert interaction, field visits, and other components necessary for the projects.
Time management	Ensuring that the various activities planned for Vocational Education are conducted in a timely manner and as per the timetable and guidelines.
Developing new projects	Developing projects related to the specific context in alignment with the template provided in the Activity Book.
Planning	• Developing a detailed plan for conducting classes and other activities for the effective implementation of Vocational Education in the school. • Developing teaching plans in alignment with the learning outcomes. • Promoting values and dispositions related to Vocational Education values amongst the students. • Incorporating local context as far as possible.
Pedagogy and assessment	• Using experiential strategies for the implementation of projects. • Ensuring students are actively engaged in projects that link directly to real-life work. • Fostering an inclusive and participative environment. • Encouraging teamwork and problem-solving through group work. • Encouraging exploration and critical thinking, and assisting without imposing solutions. • Monitoring and providing constructive feedback. • Conducting assessments and evaluations of students to monitor progress and ensure Learning Outcomes are achieved. • Including self and peer-assessment through observation and verbal feedback to enhance communication skills. • Reflecting on the effectiveness of planning and transactions, and identifying areas for improvement.
Reporting	Collecting necessary information from time-to-time, and writing reports for timely feedback to the Head of the school.

Thus, the success of the implementation of Vocational Education in schools is contingent upon a variety of factors, and each part of the education system performs its role with due diligence and care.

Acronyms

AI	Artificial Intelligence
ASHA	Accredited Social Health Activist
ATL	Atal Tinkering Lab
CG	Curricular Goals
DEO	District Education Officer
DIET	District Institute of Education and Training
NCERT	National Council of Educational Research and Training
NCF-SE	National Curriculum Framework for School Education
NEP	National Education Policy
PE	Physical Education
PSSCIVE	Pandit Sunderlal Sharma Central Institute of Vocational Education
RIE	Regional Institute of Education
SCERT	State Council of Educational Research and Training
SCF	State Curriculum Framework
SMC	School Management Committee
SEDG	Socio-Economically Disadvantaged Groups
SS	Social Science
VE	Vocational Education

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

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