Central Board of Secondary Education

Guidelines for Setting Up
Composite Skill Lab

Guidelines for setting up Composite Skill Lab in Schools

CENTRAL BOARD OF SECONDARY EDUCATION

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Message from Chairman

The National Education Policy (NEP) 2020 marks a generational turning point for Indian education — one that moves decisively away from rote memorisation and towards holistic, flexible, and competency-based learning. At the heart of this transformation is a clear and unambiguous mandate: that vocational and skill education must be integrated into mainstream schooling from the middle stage itself, not treated as an afterthought or a separate stream. The National Curriculum Framework for School Education (NCF-SE) 2023 operationalises this vision with precision, directing that all students from Classes VI to X receive meaningful exposure to skill education across three forms of work — work with life forms, work with machines and materials, and work in human services. This framework recognises that the ability to do productive work is as fundamental to a child's development as literacy and numeracy.

The establishment of **Composite Skill Labs (CSLs)** in every affiliated school is a decisive institutional response to this vision. A well-equipped CSL transforms the school itself — it signals to students, parents, and communities that productive work is valued, that curiosity is celebrated, and that a child who can grow a plant, wire a circuit, or render a design is as accomplished as one who scores full marks in a written test. I urge school leaders to see the CSL not as an infrastructure obligation, but as an investment in the full development of every child in their care.

The Composite Skill Lab embodies several principles that are central to NEP 2020 and NCF-SE 2023: the elimination of hard boundaries between academic and vocational streams; respect for the dignity of labour; interdisciplinary learning; and the cultivation of 21st century skills such as critical thinking, collaboration, creativity, and problem-solving. By 2025, NEP 2020 envisions that at least 50 per cent of school learners will have meaningful exposure to vocational education. The CSL is a decisive institutional step towards realising that goal.

I am confident that the **Guidelines for Setting up Composite Skill Labs** will serve as an indispensable reference for school leaders, teachers, and administrators as they plan, establish, and operationalise these learning spaces. I urge every CBSE-affiliated school to approach this not as a compliance requirement, but as an opportunity — to reimagine what learning can look like when students are trusted to think, make, and do.

My best wishes to all schools and stakeholders for the successful implementation of this important initiative.

Rahul Singh, IAS
Chairman,
Central Board of Secondary Education

Foreword

The National Education Policy (NEP) 2020 highlights the importance of integrating vocational and skill-based learning within the mainstream school system. It encourages experiential and competency-based approaches that enable students to develop practical abilities along with academic knowledge, thereby preparing them for diverse learning and career pathways.

The National Curriculum Framework for School Education (NCF-SE) 2023 operationalises this vision with a clear curricular structure, designating Vocational Education as a mandatory area organised around three forms of work — work with life forms, work with machines and materials, and work in human services. It directs that all students from Classes VI to X receive hands-on, project-based skill exposure across these three forms, with pedagogy that balances making and thinking, and assessments grounded in observation, portfolios, and projects. The National Credit Framework (NCrF) further ensures that skills acquired during school are formally recognised and portable across academic and vocational pathways.

In direct response to this mandate, CBSE issued Circular No. Skill-75/2024 dated 23 August 2024, directing all affiliated schools to establish **Composite Skill Labs (CSLs)**. The CSL is a flexible, multi-sector learning space enabling hands-on skill education across domains such as Electronics, Healthcare, Agriculture, Apparel, Food Production, IT/ITeS, and emerging fields including Artificial Intelligence and AVGC— covering all three forms of work within a single, well-organised environment. To guide schools through this, CBSE has developed these **Guidelines for Setting up Composite Skill Labs**, providing step-by-step guidance on selecting locally relevant skill subjects, infrastructure planning, sector-wise tool lists, safety protocols, AI integration, and leveraging existing school spaces.

The Board extends its sincere appreciation to the committee members, school principals, teachers, and field experts whose insights have shaped these guidelines. Special acknowledge is due to **Lend A Hand India** and all industry and NGO partners whose technical inputs and contextual knowledge have enriched this resource considerably.

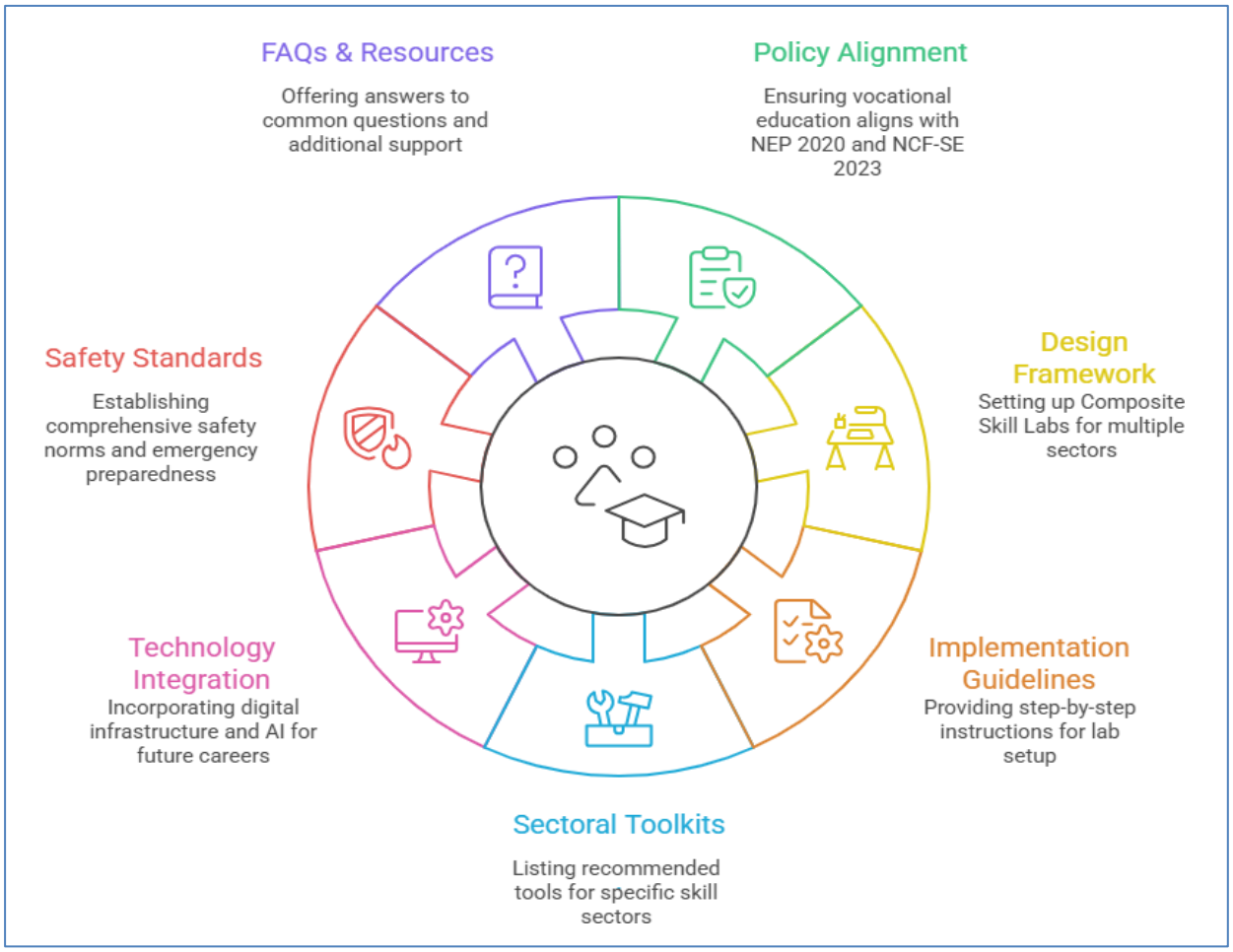
It is hoped that this booklet will inspire schools not merely to establish a compliant space, but to build a vibrant, inclusive, and student-centred environment where every learner discovers the joy and purpose of learning by doing.

Dr. Biswajit Saha
Professor & Director
Department of Skill Education, CBSE

About the Composite Skill Lab Booklet

In alignment with the National Education Policy (NEP) 2020 and the National Curriculum Framework for School Education (NCF-SE) 2023, the Central Board of Secondary Education (CBSE) has taken a significant step by mandating the establishment of Composite Skill Labs (CSLs) in all its affiliated schools.

This booklet is a comprehensive resource for schools to set up Composite Skill Labs. It provides a structured and step-by-step roadmap to help schools conceptualize, plan, set up, and operationalize Composite Skill Labs as a multi-functional, inclusive, and flexible learning space that supports hands-on learning across a variety of skill sectors and aligns with the three 'forms of work,' as per NCF-SE.

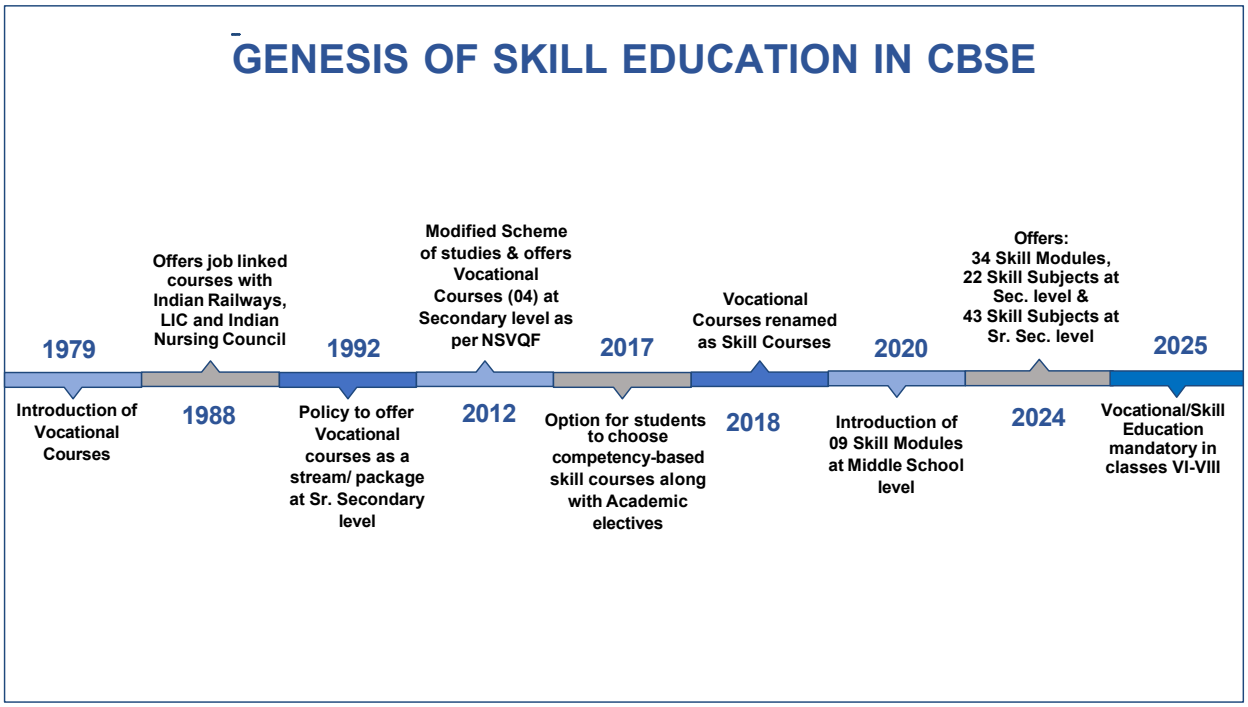


This booklet is intended to be an adaptable reference manual that schools can use at every stage of setting up the Composite Skill Labs (CSL) in their schools. From designing and planning CSL in these schools to its execution and maintenance, it will help the schools to ensure that Composite Skill Labs are not only compliant with CBSE mandate(s) but also contextually relevant and student-centred. This booklet also has a section on safety with shared guidelines along with the roles & responsibilities of each personnel in school.

1. Introduction

1.1. About Skill Education under CBSE

CBSE introduced Skill Education in 1970's, laying the foundation for integrating practical, career-oriented learning into school education. Since then, it has evolved significantly to meet the changing needs of students, schools and the workforce, reflecting India's growing emphasis on skill-based education. Today, CBSE offers skill education to students as an examinable subject from classes IX-XII.



In alignment with the National Education Policy (NEP) 2020, which recommends the introduction of skill education from class VI, CBSE launched skill modules from classes VI onwards in 2020 and further issued guidelines for mandatory implementation of Skill education in class VI-VIII aligning with NCF-SE 2023.

1.2. About CBSE Mandate for Composite Skill Labs in Schools

CBSE has mandated the setting up of Composite Skill Labs as per Circular No Skill-75/2024 dated 23 Aug 2024. The Composite Skill Labs are to be set up in schools with proper equipment for the purpose of delivering multi-sector skill education across three forms of work from classes VI to X as mandated in the National Education Policy (NEP) 2020 and the National Curriculum Framework for School Education (NCF-SE) 2023. The circular further mandates that all schools seeking fresh affiliation with CBSE must have a Composite Skill Lab with all necessary equipment.

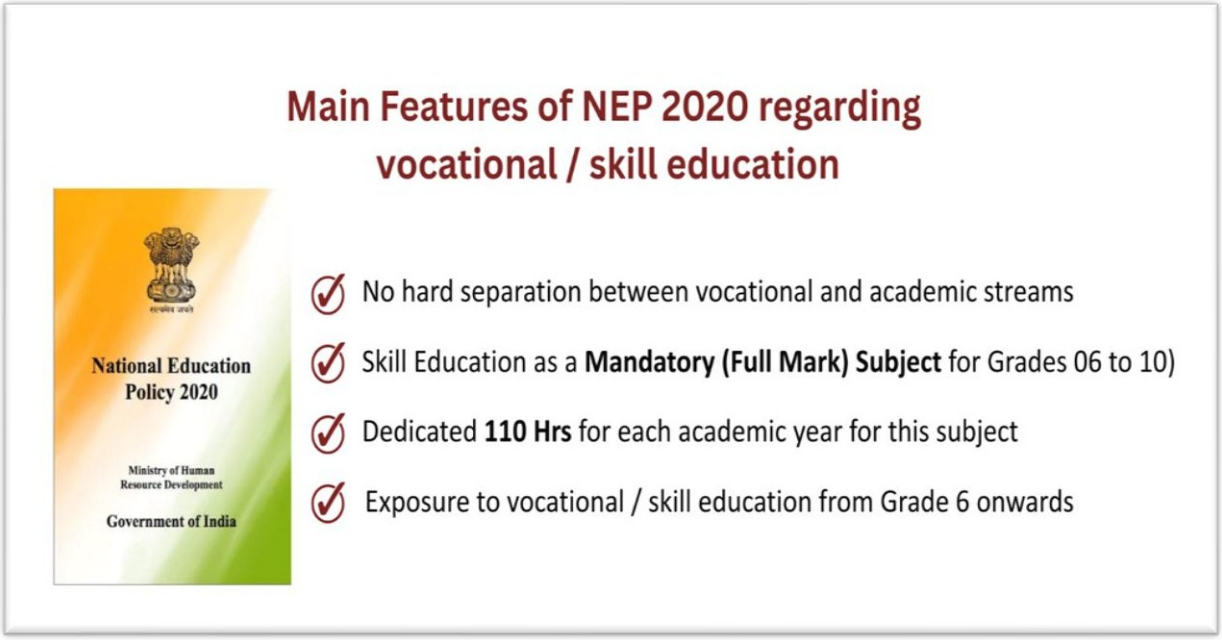
1.3. Vocational / Skill Education under National Education Policy 2020

National Education Policy 2020 (NEP 2020) has given immense focus to integrate vocational education with mainstream education and remove the boundaries between these streams of education.

Key provisions of National Education Policy are as follows:

- No hard separation between vocational and academic streams *(Section 4.9, NEP 2020)*
- Respect for diversity and respect for the local context (*Principles of this Policy, NEP 2020*)
- Learning should be holistic, integrated, enjoyable and engaging *(Section 4, NEP 2020)*
- Reduce curriculum content to enhance essential learning and critical thinking *(**Section 4.5**, NEP 2020)*
- Overcome the social status hierarchy associated with Vocational Education *(**Section 16.4**, NEP 2020)*
- By 2025, 50% school learners to get exposure to vocational education and be adept in at least 1 skill *(**Section 16.5**, NEP 2020)*

Building on the vision set forth by NEP 2020 and operationalizing its provisions, National Curriculum Framework 2023 provides critical guidance on the integration of vocational / skill education in schools.



Key Elements of NCF-aligned skilling in schools

Overview of Vocational Education as per NCF-SE:

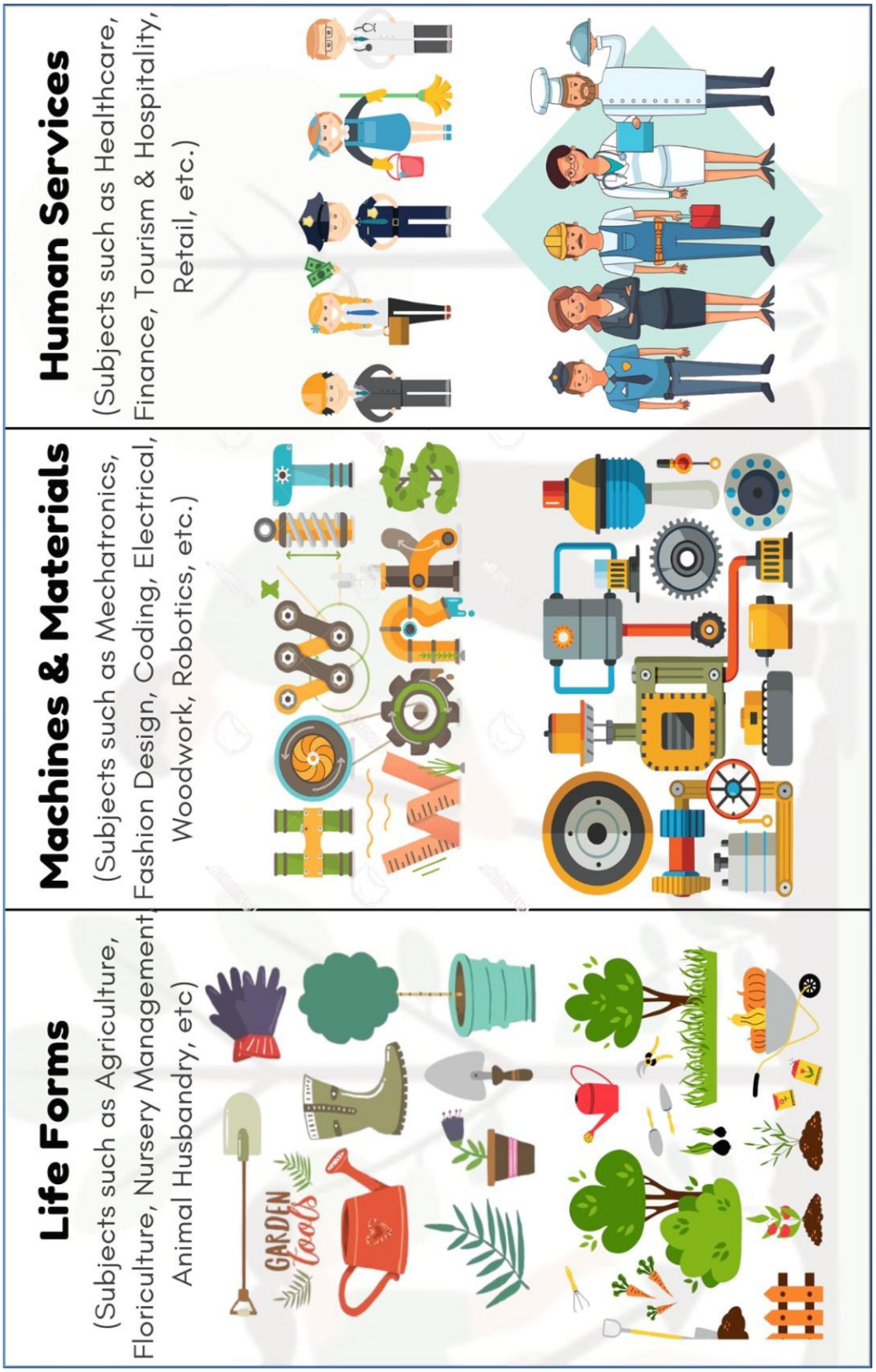
School education should prepare students not just to understand the world around them, but also to do productive work. These capacities for work would enable students to be productive members for their households as well as participate in the economy. Thus, this NCF sees Vocational Education as an integral part of the curriculum.

a. Through the Curricular Area of Vocational Education, students would be exposed to and develop basic skills in three 'forms of work' – work with life forms, work with machines & materials, and work in human services.
b. The school curriculum at the Preparatory and Middle Stages would endeavour to build relevant capacities in the three forms of work. It also becomes the foundation for developing capacities in vocations in primary, secondary, and tertiary sectors of the economy, this meaningfully contributing to the aim of economic participation.
c. In the Secondary Stage of four years, the first two years would work towards consolidating these capacities to develop transferable skills that serve students well in any vocation. In the last two years of schooling in the Secondary Stage, students will be given opportunities to specialise in specific vocations of their choice.
d. The content of Vocational Education should be locally relevant as far as possible and, at the same time, respond to the aspirations of students. In the Secondary Stage, Learning Standards should align with National Skills and Qualifications Framework (NSQF) levels.
e. The content must instil respect for the dignity of labour.
f. Pedagogy should balance 'making and thinking' in a manner that is relevant for vocations. Workshops and projects are effective ways of teaching vocational capacities. Internships and apprenticeships are encouraged while taking safety considerations into account.
g. Assessments should be based on observations, portfolios, and projects and should not just focus on capacities and skills but also values and disposition.

The National Curriculum Framework for School Education (NCF-SE) 2023 details delivery of multi-sector skill education across three forms of work in schools. NCF-SE 2023 emphasizes that vocations chosen must be across the three forms of work:

*"This NCF uses 'forms of work' as a guiding concept for designing the curriculum. Productive work at its most fundamental level can be divided into three categories (**Section 9.1.3**, NCF-SE 2023)*

i. Work with Life Forms
ii. Work with Machines & Materials, and
iii. Work on providing Human Services"



THE THREE FORMS OF WORK AS PER NCF-SE 2023

The key elements of vocational/skill education in each stage as per NCF-SE 2023:

Section 9.3.2.2: Middle stage

a. *Students will develop basic skills and knowledge in all three forms of work: Working with Life forms, Working with Machines and Materials, and Working in Human Services. At this stage, the skills for work are the focus and not specific vocations.*

b. *In each Grade, three projects, one from each form of work will be implemented in schools. Thus, by the end of this Stage, students will work on nine projects.*

c. *States/Schools will choose vocations within the three forms of work, and design projects for each Grade in each form of work. The selection of projects must consider the context of the school, locality, and age-appropriateness of students.*

d. *Projects that align with other curricular areas will be supported by the respective subject teachers. These projects can aid in interdisciplinary understanding by integrating concepts from other curricular areas. For example, in the case of agriculture or animal husbandry concepts from botany and zoology can be integrated with the project.*

e. *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 use of learnt skills at home.*

f. *It is to be noted that with this design in the Middle Stage, students will indeed be exposed to vocations and develop relevant capacities and knowledge; thus, this NCF does not use the phrase 'prevocational' for such learning in the Middle Stage, while that phrase has been used in other school education related documents.*

Section 9.3.2.3: Secondary stage classes IX and X

a. *Students will be given exposure to six vocations (two from each form of work) spread over two years. These will be at least equivalent to NSQF Levels 1 and 2, where relevant.*

b. *The vocations will be carefully identified considering the basic skills needed by students at this stage for each of the three forms of work.*

c. *The focus would be on developing the appropriate skills with hands-on experience with the tools and techniques involved; only the limited theoretical knowledge relevant to students will be included. The hands-on experience will be supplemented with internship opportunities at this stage.*

d. *These six vocations are chosen on the premise that exposure across these vocations will not only enhance exposure but also enable students to make an informed choice in classes 11 and 12.*

e. *The choice of these vocations is also based on the premise that certain capacities in skills within cut across vocations. For example, a farmer needs to understand how motors and tractors work, and someone working in machine servicing needs similar capacities.*

f. *Students will learn the relevant skills for these vocations through both workshops conducted in the school as well as projects and internships in local sites of work.*

g. *Further, students will be given on-site exposure to industrial/agricultural spaces to broadly understand the functioning of vocations in the world of work. Schools must develop linkages with local industries, farms, service centres, cooperatives, relevant NGOs, state transport corporations, cottage industries, printing presses, call centres, software design companies, mobile operating companies, law companies, local water/electricity boards to enable students to spend part of their time gaining work/practical experience at these facilities as interns while they are still in school.*

h. *It is not likely that all schools will have a trained teacher for vocational courses. Hence, these vocational courses can also be taught by locally trained and experienced resource trainers and coordinated by regular teachers who have been relevantly trained, also with appropriate use of technology.*

Section 9.3.2.4: Secondary stage classes XI and XII

In classes XI and XII students take choice-based courses in different curricular areas. Vocational Education is one of the Curricular Areas that should be available for students. Students choosing vocational courses from this curricular area would have in-depth training in a specific vocation over the period of two years. These will be minimally at NSQF levels 3-4 where relevant.

Further, the NCF-SE has allocated time within the school timetable for the integration of vocational education:

(NCF-SE 2023 Pg. No. 137)

Illustrative timetable for the Middle Stage (Two Working Saturdays)							
Time	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday (2)**	
830-855	Assembly	Assembly	Assembly	Assembly	Assembly	830-910	Library
900-940	R1	Maths	Maths	Maths	Maths	915-955	Library
945-1025	R2	R2	R1	Maths	R1	955-1015	Snack break
1030-1045	Snack break	Snack break	Snack break	Snack break	Snack break	1020-1100	**VE**
1050-1130	SS	SS	SS	SS	SS	1105-1145	Art
1135-1205	SS	Science	SS	Science	Science	1150-1230	PE
1205-1250	Lunch	Lunch	Lunch	Lunch	Lunch	1230-1300	Lunch
1250-1330	Science	Art	Science	Art	R2		
1335-1415	Science	Art	Science	Art	R3		
1420-1500	PE	**VE**	R3	PE	**VE**		
1505-1545	PE	**VE**	R3	PE	**VE**		

Section 4.4.2: Suggestive Time Allocation/ Timetable provided in NCF-SE 2023 for Middle Stage (Classes VI-VIII) (with two working Saturdays)

Suggested time table provided in NCF-SE advocates that skill/ vocational education periods may be combined to have a continuous longer period required for hands-on activities.

(NCF-SE 2023 Pg. No. 138)

Middle	Annual Hours	Annual Periods
R1+Library	65	97.5
R2	70	105
R3	75	112.5
Mathematics (M)	115	172.5
Science	160	240
Social Science (SS)	160	240
Art Education (Art)	100	150
Physical Education (PE)	100	150
Vocational Education (VE)	110	165

Annual Hours and Annual Periods

(NCF-SE 2023 Pg. No. 139)

Illustrative timetable for the Secondary Stage (Grades 9 & 10)							
Time	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday (2)**	
0800 - 0825	Assembly	Assembly	Assembly	Assembly	Assembly	800-850	SS
0830 - 0920	R1	R2	Maths	R2	R1	855-945	IDA
0925 - 1015	Maths	Maths	Maths	Maths	R3	950-1040	R2
1020 - 1110	Art	Science	Science	Science	Art	1045-1135	R3
1115 - 1205	Art	PE	Science	Science	Art	1140-1230	R1
1205-1300	Lunch	Lunch	Lunch	Lunch	Lunch	1230-1300	Lunch
1300-1350	SS	SS	SS	SS	SS	1305-1355	AEP*
1355-1445	IDA	**VE**	PE	**VE**	IDA		
1450-1540	IDA	**VE**	PE	**VE**	IDA		
1545-1635	AEP*	AEP*	AEP*	AEP*	AEP*		
*AEP = Additional Enrichment Period							

Section 4.4.3: Suggestive Time Allocation/ Timetable provided in NCF-SE 2023 for Secondary Stage (Classes IX and X)

(NCF-SE 2023 Pg. No. 140)

Secondary	Annual Hours	Annual Periods
R1	70	84
R2	70	84
R3	70	84
Mathematics (M)	135	162
Science	135	162
Social Science (SS)	125	150
Interdisciplinary Area (IDA)	125	150
Art Education (Art)	115	138
Physical Education (PE)	90	108
Vocational Education (VE)	110	132

Annual Hours and Annual Periods

2. Composite Skill Lab

2.1. Skill Education Components

Effective implementation of skill education for all students from classes VI to X will require the following components to be in place.

- **Curriculum** – The curriculum will be provided by CBSE in alignment with the curriculum/textbook provided by NCERT.
- **Teacher Training & Staffing** - Teachers need to be identified and/or hired specifically for imparting skill education. These teachers will be trained on pedagogy of skill education, curriculum, practical and technical aspects.
- **Time Table** - Schools needs to incorporate 110 hrs. of Skill Education annually in their time table for classes VI to X.
- **Composite Skill Lab (CSL)** - The guidelines for the setting up of the Composite Skill Lab is covered in subsequent chapters in this guide.
- **Industry Partnership** - Skill coordinators of respective schools will facilitate work-place exposure initiatives such as industry visits relevant to the skill subject, guest expert sessions in schools and internships, etc.

2.2. About Composite Skill Lab and Expenditure on setting up of CSL

Composite Skill Lab allows a school to efficiently use one lab to teach multiple sectors across classes. The setting up of the CSL may cost about Rs. 3-6 lakhs depending on the skill subjects chosen, size of lab and type of furniture, etc. Schools may need more quantities of tools depending on the number of students in classes VI to X. This costing is only suggestive, and schools may want to invest more in branded equipment or more specialised equipment/furniture, etc.

2.3. Alignment with NEP 2020 & NCF 2023

The concept of Composite Skills Labs aligns with both the National Education Policy (NEP) 2020 and the National Curriculum Framework for School Education (NCF-SE) 2023, fostering practical learning, creativity, and employability.

- **Hands-on exposure to multiple sectors**: CSL provides a single, integrated lab space where students can explore multiple sectors, develop varied skills, and understand cross-sectoral applications and career pathways.
- **Theory in Action**: CSL will bridge classroom knowledge with real life applications through hands-on activities and projects making students more employable and career ready.
- **Interdisciplinary Learning**: CSL will facilitate cross-sector projects like Agri-tech, sustainable fashion, entrepreneurship through the combination of digital, financial and technical skills, to promote holistic learning and employability.
- **21st Century Skill Development**: CSL will foster critical thinking, communication, collaboration and problem-solving, equipping students with essential 21st century skills as emphasized in NEP 2020.

- **Inclusivity & Accessibility**: CSL are designed to promote equitable participation, ensuring all students gain practical skills and thrive in supportive environments, as outlined in NEP 2020.
- **Technology Integration**: CSL will emphasize the inevitable inclusion of technology in all sectors and use of videos, apps to aid teaching and learning through a multimedia approach.

2.4. Setting up a Composite Skill Lab

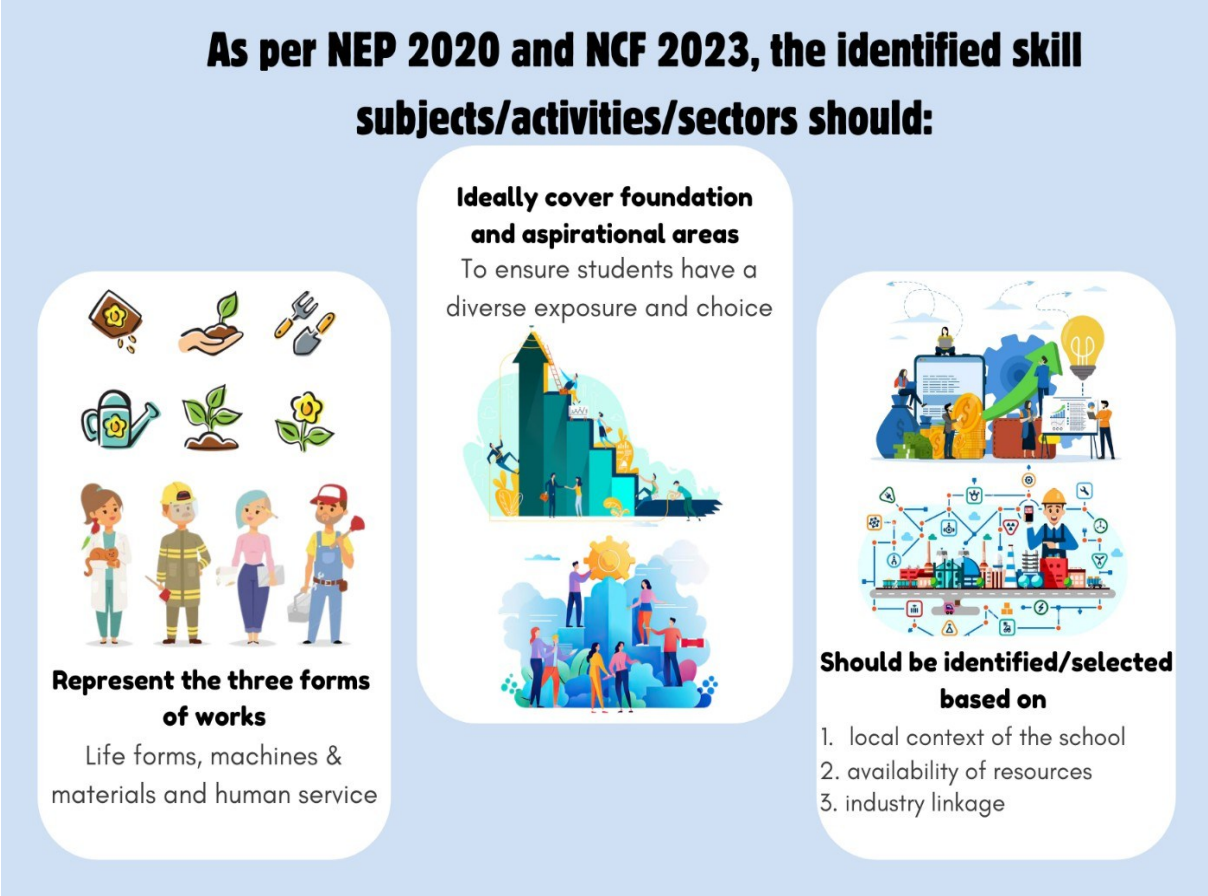
1. Identification	• Space & Sector Identification
2. Infrastructure Readiness	• Developing Infrastructure
3. Finalise the lab design	• Fixing the layout of the room based on its dimension
4. Tools and furniture	• Installation of the requisite tools-equipment & furniture for selected sectors
5. Ensuring Safety	• Enable all safety measures and put up directions and signs

1: Identifying the skill subjects and activities relevant to the local context, aspirations, industry and resources in and around the school

- It is recommended that the Composite Skill Lab should aid teaching skill education in at least three skill subjects as recommended by NCF-SE 2023
- These skill subjects should cover all three forms of 'work' (Life forms, Machines & Material and Human Services)
- Principles for choosing skill subjects/activities:
  - Understanding the local context of the school and the relevant skill subjects/activities
  - Mapping the availability of resources for teaching the skill subjects - tools, equipment and raw material, teacher qualification, etc.
  - Access to local business for work-place exposure - field visits, guest experts from business/Industries to teach specific skills and also about availability of work or academic avenues for the specific skill subjects.

2: Identify a room that fits the following pre-requisites

- One room of minimum 600 sq. ft space for class VI-XII or two rooms of minimum 400 sq. ft space, one for classes VI-X & one for classes XI-XII (as per Circular No. Skill-75/2024).
- The room/s should have enough space for conducting requisite practical work with safety and ease for the batch of 25 – 40 students.
- Room/s should be properly ventilated with windows and exhaust fans.
- Room/s should have at least two clear walls for peg boards & poster displays.
- Room/s should have proper electrical wiring, lights and fans.
- Room/s should have access to water and proper drainage of water from sink (if required).
- Room/s should preferably be close to an open area where some activities such as gardening can be done.

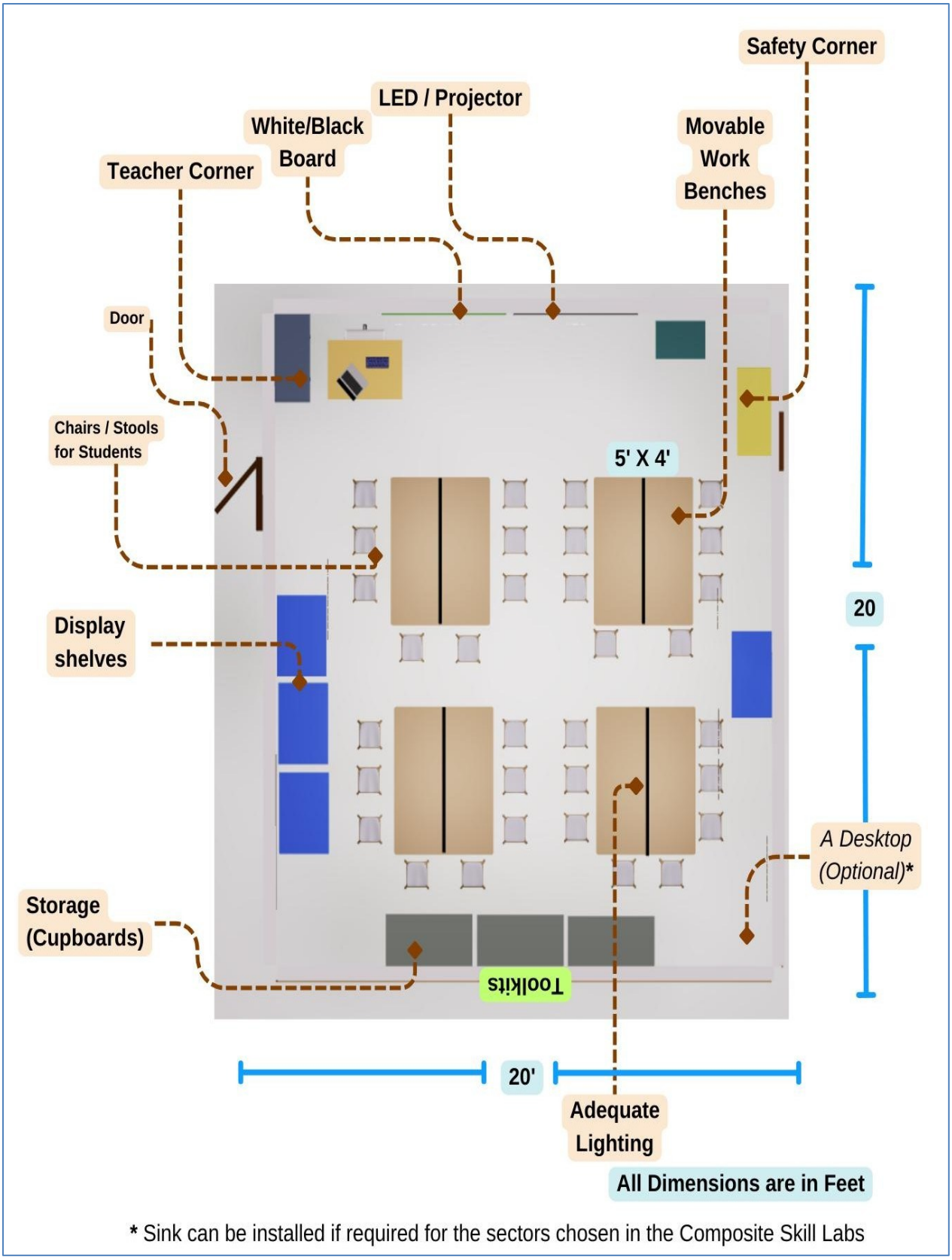


Identification of Skill subjects/sectors/activities for setting up Composite Skill Lab

3: Fix the layout of the room based on its exact dimensions and available space

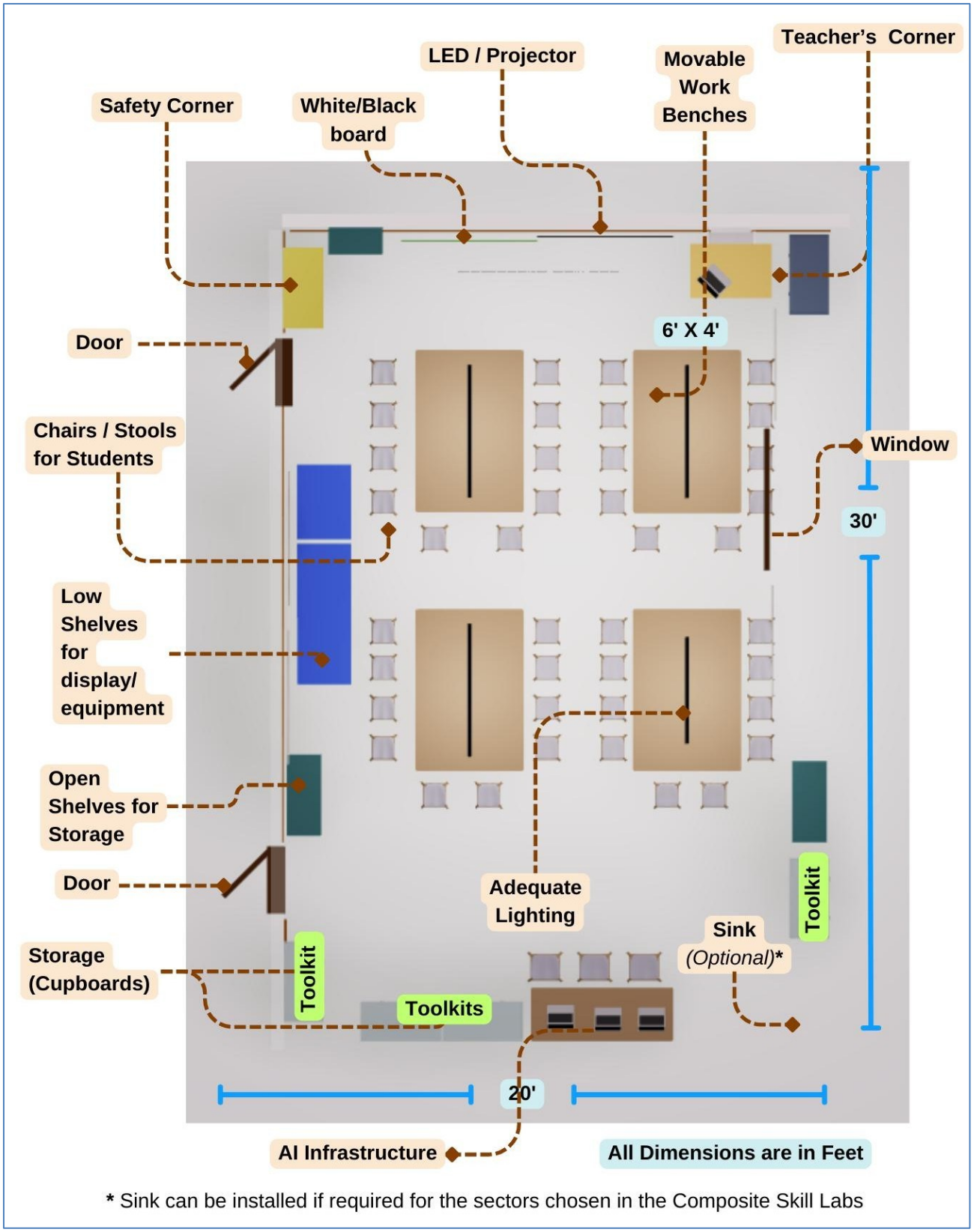
- It is recommended that the Composite Skill Lab be made modular to create flexibility in both the use of workstations and in the choice of skill subjects that the school chooses to offer.
- Schools will pick skill subjects that are relevant to its local context and aspirations of the students and management. These choices may change over time and the modular structure with toolkit-approach will help the lab remain relevant & dynamic.
- Lab spaces can be reconfigured to adapt to emerging demands of skills or emerging technologies.

Some illustrative/ model/ sample layout plans for Composite Skill Lab are being shared for reference.



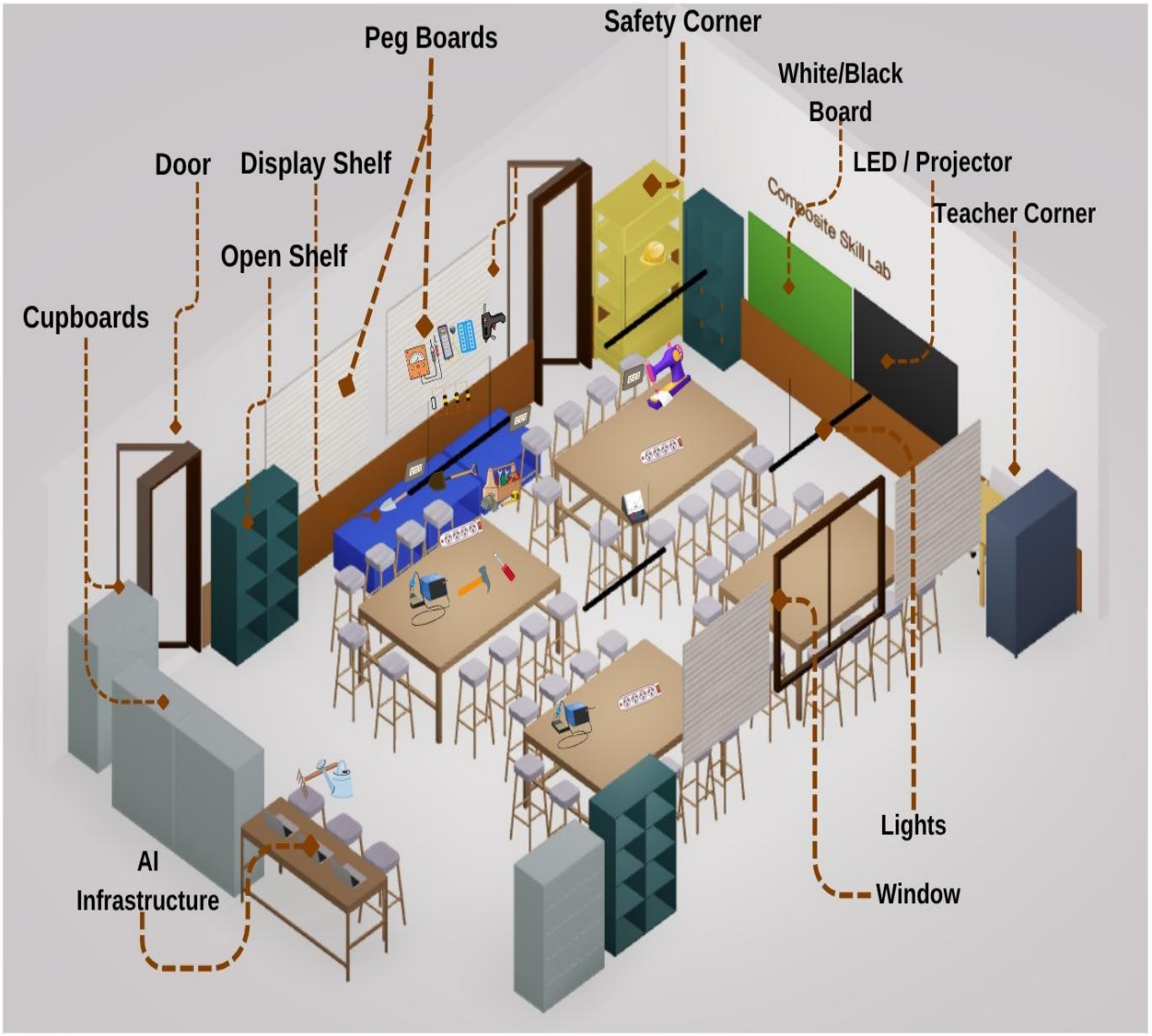
Model layout plan- 1 for a Composite Skill Lab (400 sq. ft)

Model layout plan- 2 for a Composite Skill Lab (400 sq. ft)



Model layout plan- 1 for a Composite Skill Lab (600 sq. ft)

Model layout plan- 2 for a Composite Skill Lab (600 sq. ft)



Illustrative Model for Composite Skill Lab
View 1 - From the back of the Classroom

Illustrative Model for Composite Skill Lab
View 2 - From the door of the Classroom

Some more Sample Lab Designs

4: Installation of tools-equipment and furniture to complete the lab design

Based on the skill subjects chosen, room-size and layout, the infrastructure is to be provided/procured:

A. Flooring of Composite Skill Lab:

a. **Material**: Preferably use concrete flooring or rubber mats to withstand vibrations and heavy loads.
b. **Durability**: Avoid vitrified tiles or stone flooring as they may not endure prolonged use with heavy tools.
c. **Versatility**: Flooring should be adaptable to the needs of different skill subjects.

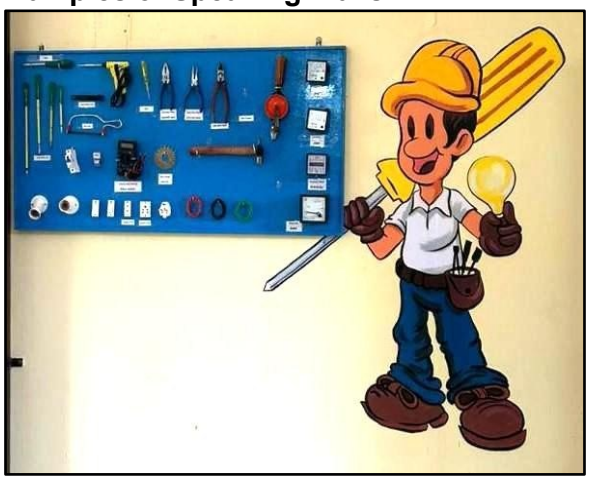
B. Civil Work:

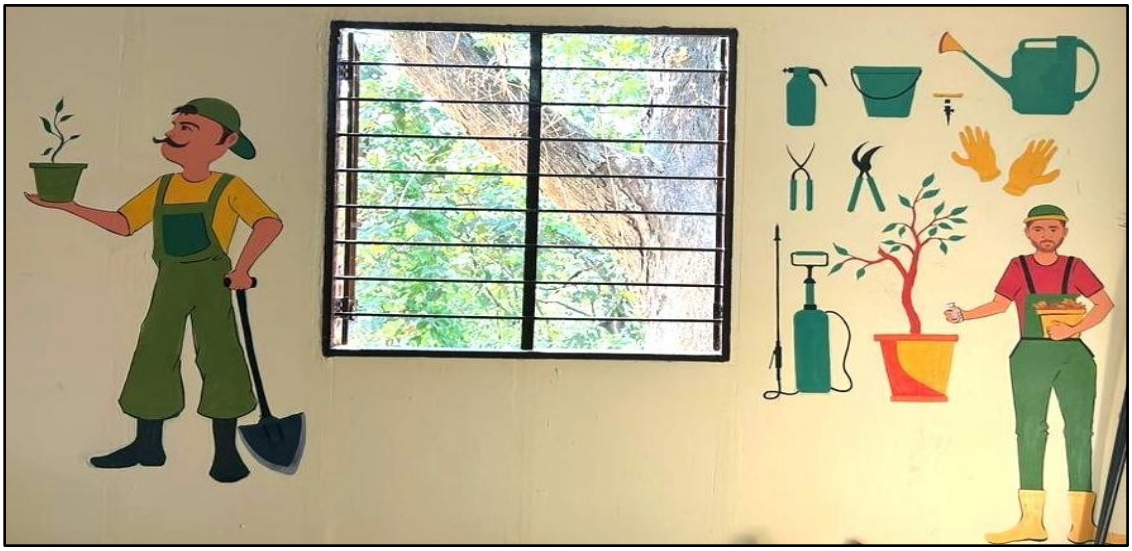
a. **Ventilation**: Ensure the lab has windows or vents for proper airflow.
b. **Electrical Wiring**: Install a combination of 15-ampere and 5-ampere switches and sockets preferably on all walls for operating machines and tools.
c. **Proper Lighting and Fans**: Ensure that the room has adequate lights and fans to work comfortably and with precision.
d. **Sink Area**: Provide a sink with a water tap and drainage outlet, if you have selected skill subjects that require flowing water on regular basis for conducting activities/ practical. This is optional for other schools.

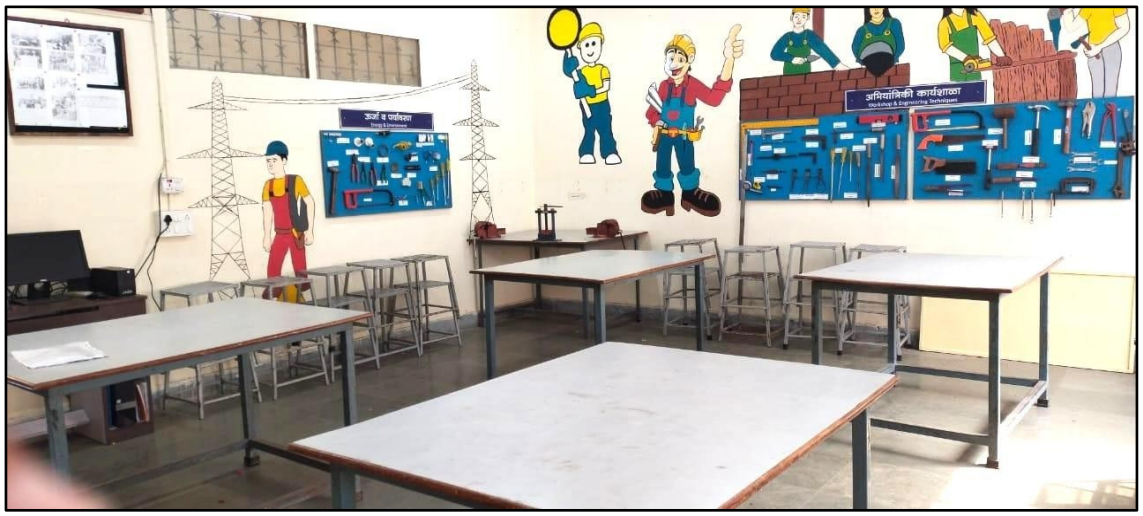
C. Walls and Colouring

a. **Base Paint**: Walls may be painted white or in light shades for a clean and bright look.
b. **Accent Colours**: Use tiles or contrasting paint up to 3 feet above the floor for durability and visual appeal.
c. **Murals**: Encourage schools to paint murals or skilling visuals on walls to enhance the learning environment. Bright & warm colours will make the room inviting to students.
d. The lab should provide a positive & fun filled learning environment for the students.

Examples of Speaking Walls:







D. Furniture for Composite Skill Lab

a) Working Tables

Working tables form the backbone of the Composite Skill Lab. The following considerations are important:

- Working area should enable working in small groups.
- It should have strong, safe and reliable working platforms so as to have durability and
- easy maintenance and ensure long-term usability in practical environments.
- If needed, heavy tools should be mounted for ease of use and to avoid accidents.
- The tables should have a sturdy wooden top to withstand wear and tear from tools and materials.
- Some tools may also be needed to be fitted on the top of the tables for effective use.
- The tables should be appropriately sized to accommodate small groups of students working collaboratively. Depending on the size of the room, tables can be 5ft x 4ft or 6ft x 4ft.
- Ensure that the edges of the tables are smooth and rounded to avoid injuries.

Illustrative Working Tables

b) **Teacher Table:** Provide a table and chair for the use of the teacher/trainer

Illustrative Teacher's Table

c) Storage

- Since the lab would have tools and equipment for a variety of skill subjects, it is important that they are stored safely, as well as accessible easily. Use large-sized cupboards with adjustable shelves ensuring adaptability to various tools and materials and optimizing space usage

- Types of Storage: Use a mix of cupboards, shelves, and racks to cater to different storage needs. Consider mobile storage units for flexibility.
- Labelling: Clearly label all storage units and their contents to facilitate easy access and inventory management, can consider using pictures of contents as labels.
- It is also important that tools are not only accessible but readily visible during the practical work. Hence lower display shelves, peg boards can be used

d) Tools Storage – Cupboards and Open Cupboards

a. **Size**: Use large-sized cupboards with adjustable shelves to adapt to different storage needs. Shelves should be capable of holding heavy tools and equipment securely. A typical cupboard could be 6.5ft x 3ft x 2ft
b. **Design**: Include transparent or labelled doors for easy identification of contents
c. **Positioning:** Cupboards should be positioned along the walls to optimize floor space. Ensure they are accessible but not obstructive. Proper placement avoids workspace congestion and maintains a neat environment

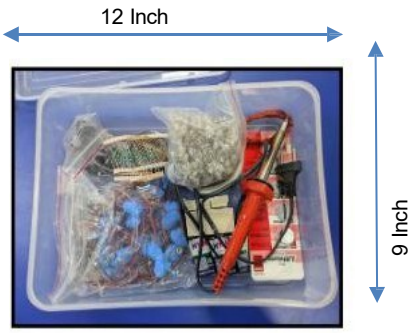
Illustrative Cupboards

e) Containers

a. **Label containers** - Store materials in labelled containers within the cupboards to enhance organization

b. **Stackable containers** - Maximize space utilization by using stackable containers. Organized containers prevent mix-ups and ensure efficient use of cupboard space

Illustrative storage box



Tools/toolkits placed inside the box

f) Storage unit for teachers - Provide a small cupboard to store stationery, students' handbooks, and other teaching materials for the teachers.

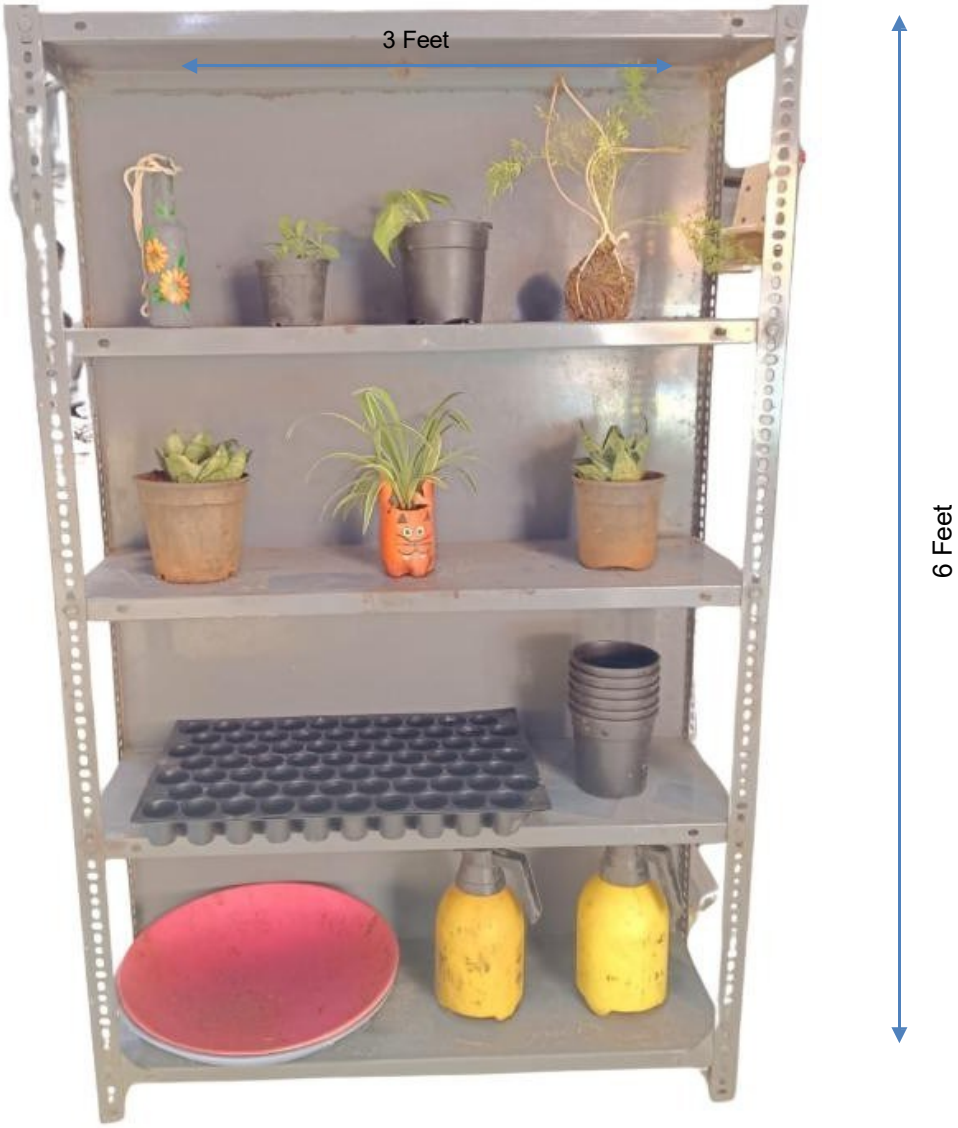
Illustrative storage rack for teachers

g) Display

Proper display of tools foster pride in students' work and encourage peer learning and inspire innovation and healthy competition.

h) Shelves

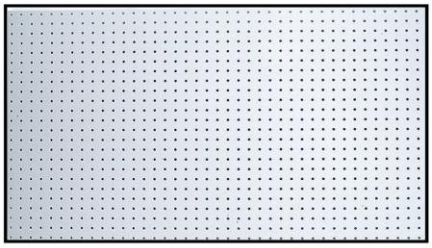
Use tall, adjustable racks or low shelves depending on the space available to store large equipment or display students work. The lab will be used by students from classes VI to X and therefore, a mix of heights can serve all students.



Illustrative Tall Storage Rack

i) Pegboard

- Pegboards may be provided for displaying tools so that students learn visually and remember over time.
- **Tool Display**: Install peg boards on walls to hang tools in an organized and visually appealing manner.
- **Learning Aid**: Displaying tools on pegboards helps students familiarize themselves with tool names and functions.
- **Customization**: Arrange tools by category or usage to streamline learning and retrieval.



Pegboard without tools

Pegboard with tools

Illustrative Pegboard

j) Projection

- **Equipment**: Install an LED screen or projector for presentations, tutorials, and demonstrations. Choose a device with high resolution and compatibility with multiple input formats.
- **Placement**: Position the equipment to ensure visibility for all students. Use a retractable screen or wall-mounted display for efficient use of space.

- **Connectivity**: Provide HDMI, USB, and wireless connectivity for seamless integration with laptops and other devices.
- **Maintenance**: Ensure regular cleaning and servicing of the projector or screen to ensure optimal performance. Keep spare bulbs or parts readily available.
- **Internet Connectivity**: Internet connectivity may be provided to enable online interaction with mentors.

5: Ensure safety protocols are well laid-out and practised

- Safety of the students and teachers is of paramount importance. Therefore, the Composite Skill Lab should be designed considering all safety protocols.
- The Lab should have a dedicated safety corner as well as have safety provisions embedded in installation.
- See Chapter 4 for safety guidelines, roles and expectations, equipment and some sample posters/illustrations.

Specification of Key elements of setting up of CSL

*(*These are suggested specifications based on the lab size of 30 Feet X 20 Feet and the model layout. These sizes can be adjusted based on the actual space available.)*

S. No.	Element	Description	Specifications*
1	**Digital Displays or Smartboards**	Used for presentations, videos, multi-media teaching-learning material	LED TV/Screen & Projector
2	**Inspirational Quotes/Goals Wall**	Features motivational quotes or learning goals (e.g., "Learn by Doing").	-
3	**Labelling Zones with Wall Decals/Paint**	Labels with fun fonts or icons (e.g., “First Aid Station”) to visually organize areas.	-
4	**Safety Rack**	Easy access to all safety equipment including helmets, gloves, PPE kits, shoes/slippers.	Iron rack with 3 adjustable shelves. Dimension: 48” x 48” x 18”. Fire extinguisher & 2 sand buckets to be hooked on wall
5	**Sink with platform**	Sink with drainage area to reduce spillage, proper drainage system & installation of sink	Sink with drainage area 37” x 18” x 8” fitted into a platform 4ft x 3ft
6	**Stools for sitting**	Flexible seating that does not take up too much space and can be stacked up when standing is required.	12” x 12” x 20” (square top) or 12” diameter (round top). Top: Perforated sheet with gauge, Steel Frame: 20 mm x 20 mm x 18 Gauge square tube with powder coating in grey paint, bottom should be rubber leveller (Nylon)

S. No.	Element	Description	Specifications*
7	**Teacher's cupboard**	Small filing cabinet/cupboard for books, stationery and other items for teacher's use.	Steel/Metal cupboard with 3 adjustable shelves with lock and key facility, 20 Gauge with dimension 48"x 36"x18"
8	**Teacher's desk and chair**	For the teacher to sit	Wooden table 3ft x 2ft
9	**Tool Pegboards**	Wall-mounted perforated boards with hooks and labelled sections for organizing smaller tools like scissors, cutters, and hammers.	4ft*3ft plywood of 18mm thickness with boundary and cloth in contrasting colour in the background. Waterproof ISI Mark plywood
10	**Wall Storage Cupboards**	Cupboards (with glass/steel door) to store toolkits by skill subjects	Steel/Metal cupboard with 4 adjustable shelves with lock and key facility, 20 Gauge with dimension 78"x 36"x24"
11	**Wall Storage Shelves**	Low open shelves to place large equipment and display students' work	Wooden shelves along the wall edge. Length as per available wall. 2ft (H) x 2ft (D)
12	**Whiteboards/ Chalkboards**	Used for writing daily instructions, schedules, or tasks.	As per available size of wall
13	**Working tables**	To perform practical in groups. Allows for collaboration and group work. Large table allows for different kinds of activities from designing in fashion to making mechatronics projects	Steel Frame with gauge 2'x2" sq. pipe Length: 6/8ft, Breadth: 4ft and Height: 30 Inch (2.5 ft) Top: 18 mm commercial ply with lamination/powder coating, bottom should have rubber leveller

(** These are suggested specifications based on the lab size of 30 Feet X 20 Feet and the model layout. These sizes can be adjusted based on the actual space available.)*

3. Introduction to Major Sectors

3.1. About Multi-Sector Approach

The Composite Skill Lab reflects the interdisciplinary nature of different sectors across the three forms of work. It enables students to engage in hands-on activities across sectors and bring together their interconnected nature, while integrating technology in all that they learn and do.

The multi-sector approach helps students gain a breadth of exposure to many skills and trades, identify their interests, get exposure to different careers and see connections between different sectors and thereby apply their skills across trades. For example, a student who is exposed to both agriculture and mechatronics may apply his/her skills in mechatronics to find solutions for challenges in agriculture while using AI as a tool or someone who learns fashion design, finance and retail/e-commerce may start his/her own business as an entrepreneur.

Schools must choose skill subjects across different sectors based on their local context, availability of resources and local businesses for effective work-place exposure. Availability of curriculum and books may also determine the subject choice in the beginning.

For illustrative purposes, this document has picked the following seven (07) sectors: Electronics, Agriculture, Healthcare, Apparel, Banking, Financial Services and Insurance (BFSI), Food Processing and Information Technology. The tools list for these illustrative sectors have been provided in Annexure 1 and will enable schools to cover different skill subjects within the sector.

3.2. Sector-Wise Description

3.2.1 Agriculture

The tool list for Agriculture is provided in Annexure 1, Section 7.1.

- **These tools will enable the teaching of skill subjects related to agriculture, organic farming, and modern practices of gardening, floriculture, terrace farming, hydroponics and urban landscaping**, making it relevant to urban, semi-urban and rural settings in this sector vital to the economy.
- Gardening offers a modern and creative way to connect with nature while building practical skills in plant care and landscaping, while agriculture remains a cornerstone of India's economy and employment, making education in modern farming techniques crucial.
- Hands-on projects include creating kitchen gardens, managing small-scale greenhouses, and operating irrigation systems. Students will learn to use tools like soil sensors and irrigation systems, integrating technology with gardening practices.
- By incorporating gardening, students develop practical knowledge of biology and ecology. Agriculture education instils a deep appreciation for food systems and their socio-economic importance.

- Exposure to agricultural skills helps develop an entrepreneurial mindset for ventures like agro-tech startups or organic produce businesses. Future-ready skilling includes concepts like terrace gardening, indoor farming, and using smart irrigation systems.

3.2.2. Food Production

The tool list for Food Production is provided in Annexure 1, Section 7.1.

- **These tools will enable the teaching of skill subjects related to food production, food preservation, various cooking methods, baking and packaging food.**
- The food processing sector involves the transformation of raw agricultural products into consumable food and dairy items through various techniques like washing, cutting, cooking, freezing, packaging, and preserving.
- The sector is essential to a growing population that needs to feed itself. It reduces wastage of raw agriculture produce through preservation techniques that increases shelf life, enhances quality and safety, and encourages entrepreneurship from small scale cottage industry to large scale export houses.

3.2.3 Electronics

The tool list for the Electronics sector covering foundational skills is provided at Annexure 1, Section 7.2.

- **These tools will enable the teaching of skill subjects related to emerging technologies such as mechatronics, electronics, robotics, and basic Industry 4.0 skills which are the fundamental building blocks to future technologies.**
- Hands-on skilling in these subjects equips learners to design and maintain smart systems used in manufacturing, healthcare, and transportation. These skills are critical for the future of work, where automation and AI are transforming industrial processes.
- Projects in these skill subjects introduce students to innovation and problem-solving, fosters interdisciplinary learning, blending physics, mathematics, and computer programming.
- Students gain critical insights into Industry 4.0, including IoT (Internet of Things) and smart manufacturing technologies.
- The sector aligns with India's vision for becoming a global manufacturing hub through initiatives like 'Make in India.' Early exposure prepares students for advanced engineering fields, opening pathways to careers in automation, robotics, and system design.

Existing ATL/Agile ATL/Tinkering Labs may be leveraged for teaching skill subjects related to this sector.

3.2.4 Apparel

The tool list for Apparel is provided in Annexure 1, Section 7.2

- **These tools will enable the teaching of skill subjects related to fashion design, textile design, patternmaking, block-printing, embroidery, sewing, weaving and knitting.**
- Apparels offer an intersection of creativity, craftsmanship, and technology, making it an exciting field for students. Students can tap into our rich textile and handloom heritage while experimenting with sustainable fashion practices, including recycling and upcycling materials.
- The sector fosters entrepreneurial skills by enabling students to design, produce, and market their creations, while also breaking gender barriers.
- Hands-on skilling prepares students for careers in textiles, apparel manufacturing, and retail management. The sector promotes cultural appreciation through projects involving traditional and regional crafts.

3.2.5 Automotive

The tool list for Automotive is provided in Annexure 1, Section 7.2

- **These tools will expose students to skill subjects covering mechanical, electric, fabrication in the Automotive sector.** The sector is undergoing a transformation from engine-based vehicles to electric vehicles. The sector represents a diverse range of skills and is a fast-growing sector for India's economy.
- Hands-on practical on live automobiles will help students to not only understand the internal workings of the vehicle, but also understand how deeply technology has been integrated into running the vehicle - a great example of electronics, AI, coding & mechanics all coming together.
- This sector will expose students to the large auto-parts and servicing industry.
- This sector offers many opportunities for students to understand and apply physics, Mathematician and Environmental Concepts.

3.2.6 Shaping Materials

The tool list for Shaping Materials (Chapter 5 in Kaushal Vikas Textbook) is provided in Annexure 1, Section 7.2

- **Shaping Materials** is a foundational component of Skill Education that enables students to understand how different materials are transformed into useful products through processes such as design, measurement, marking, cutting, shaping, joining and finishing.
- It develops transferable competencies that are common across a wide range of vocational areas under **Work with Machines and Materials**, including craftwork, sheet metal work, apparel, pottery and other allied fields.
- Through hands-on activities, students develop creativity, precision, problem-solving, design thinking and safe working practices while learning to select appropriate materials, tools and techniques.
- The learning should cover technical drawing and prototyping, material selection, measurement and estimation, safe use of tools and equipment, quality assessment, and sustainable use of materials to prepare students for practical work across multiple vocation contexts.

3.2.7 IT/IT enabled Services (IT/ITeS)

The tool list for IT-related subjects is provided in Annexure 1, Section 7.2

- **These tools will enable teaching any skill subject that require the use of computers and the internet. This could include coding, AI, IT, graphic design, animation, visual effects, simulations, data science, web application, multi-media design.**
- IT is a critical skill for the digital age, enabling students to create software, websites, and apps.
- IT skills are essential for careers in AI, software development, data science, software engineering, cybersecurity and emerging fields like blockchain, machine learning, and cloud computing preparing students for future technologies.
- This sector aligns with India's vision of a digitally empowered society, fostering a robust talent pool for IT industries.
- The existing IT Lab can be leveraged to deliver IT-related or computer-based subjects.

3.2.8 AVGC & Media Content Creation

The tool list for IT-related subjects is provided in Annexure 1, Section 7.2

- The Media & Entertainment industry is rapidly expanding with growth in animation, gaming, digital storytelling, OTT platforms, and content creation.
- To support early exposure to these emerging fields, schools can establish an AVGC & Media Content Creation Composite Skill Lab.
- The lab provides learners practical exposure to animation, digital design, video production, sound editing, and basic game development.
- This low-cost model is designed specifically for government schools so that creative media education can be scaled widely using affordable infrastructure.

3.2.9 Healthcare

The tool list for Healthcare is provided in Annexure 1, Section 7.3

- **These tools offer opportunities for hands-on learning in skill subjects related to first aid, patient care, pharmaceuticals, preventive healthcare, health diagnostics techniques and AYUSH in this vital sector**.
- Students practice applied skills such as measuring vital signs, administering basic care, and using diagnostic tools.
- Training in this sector prepares learners for future roles in allied health professions, which are in high demand globally. Students will be oriented toward emerging trends like telemedicine, wearable health devices etc.
- Healthcare skilling cultivates empathy, precision, and teamwork, which are critical soft skills in the medical field. Early exposure to this sector can inspire careers in nursing, paramedicine, lab technology, or public health.
- Hands-on skilling ensures students understand the practical applications of biology and chemistry in healthcare.
- Preparing students in healthcare also supports India's growing need for skilled professionals in rural and urban healthcare systems.

3.2.10 Beauty & Wellness

The tool list for Beauty & Wellness is provided in Annexure 1, Section 7.3

- **These tools will enable the teaching of skill subjects related to salon-related services, hair dressing, making organic beauty products such as soaps & shampoos, using Indian knowledge systems on beauty as well as spas & therapies.**
- As the population of India grows and becomes more affluent, demand for this sector will grow.
- There is an increasing trend towards using ayurveda in skin and hair care products as well as ayurvedic therapies for wellness.

3.2.11 Retail

The tool list for Automotive is provided in Annexure 1, Section 7.3

- Retail and e-commerce go hand-in-hand in the modern world. Most retail stores also sell on e-commerce platforms and deliver to the consumer. This sector gives an understanding of inventory management, logistics, display principles etc, all of which are essential skills as a product-based entrepreneur.
- Most importantly, studying retail as a skill subject exposes students to the importance of customer service and builds understanding of marketing principles.

3.2.12 Banking, Finance Services, and Insurance (BFSI)

- **This sector does not require any tools. Availability of computer devices and/or smartphones will enable teaching this subject.**
- Finance skills are foundational for personal and professional success, making them indispensable. It covers skill subjects related to banking, financial planning, savings & investment instruments, importance of insurance, loans, etc.
- This sector builds essential skills in critical thinking, attention to detail, and financial literacy and prepares students for careers in finance.
- This sector is essential to promote entrepreneurial skills by teaching students to manage resources effectively for business ventures. Training in finance aligns with India's growing need for skilled professionals in a rapidly digitizing economy.

3.2.13 Tourism & Hospitality

- This sector also does not require any specific tools. Instead access to the internet, access to travel guides and different kinds of brochures and pamphlets will be required.
- India is a sought-after destination for many types of tourism - historical, food, adventure, medical, spiritual, religious, wedding, etc.
- This sector builds essential skills in customer handling, event planning.

4. Safety

4.1. Guidelines

Creating a safe and conducive learning environment in a Composite Skills Lab is essential for the well-being of students, teachers, and staff. As these labs encompass a diverse range of tools and equipment for Fashion, Healthcare, Gardening/Agriculture, and Various hands-on activities, it is vital to establish comprehensive safety guidelines.

These guidelines are designed to ensure that all individuals—principals, teachers, students, lab assistants, and housekeeping staff—are equipped with the knowledge and practices necessary to minimize risks, promote responsible behaviour, and effectively respond to emergencies. By fostering a culture of safety, we not only enhance the learning experience but also instil a sense of responsibility and awareness among all participants in the skills lab.

Safety Guidelines:

- Two wide doors for unobstructed exit from the CSL.
- An adequate number of fire extinguishers near CSL.
- Periodical checking of vulnerable points in the CSL avoid possibility of any mishap.
- It should be ensured that gas fittings in the CSL fulfil the desired norms and standards.
- Periodical checking of electrical fittings/ insulations for replacement and repairs.
- Timely and repeated instructions to students for carefully handling tools and equipment in the laboratory.
- Display of do's and don'ts in the laboratory at prominent places.
- Safe and secure storage of all tools and equipment.
- Proper labelling and upkeep of tools and equipment.
- Proper safety and protection while doing practical work.
- Careful supervision of students while doing practical work.
- Advance precautionary arrangements to meet any emergencies.
- Conduct any additional experimental work only under supervision and with due advance permission.
- Availability of First Aid and basic medical facilities in the school.
- Conduct emergency response, evacuation and fire drills to ensure everyone knows what to do in case of emergency

Roles & Responsibilities

PERSONNEL	ROLES	SAFETY GUIDELINES
PRINCIPAL	Policy Development	Establish safety protocols and emergency response plans specific to the Composite Skill Lab. Communicate these to all staff and students.
	Regular Inspections	Conduct routine safety audits of the lab environment, tools, and equipment to ensure compliance with safety standards.
	Training Sessions	Organize mandatory safety training for all staff on emergency procedures and proper usage of lab equipment.

PERSONNEL	ROLES	SAFETY GUIDELINES
TEACHERS	Classroom Management	Supervise students closely during all lab activities, especially while using tools and equipment.
	Safety Instructions	Provide clear safety instructions and demonstrations before activities involving tools or software. Emphasize the importance of using relevant personal protective equipment (PPE).
	Emergency Protocols	Be familiar with emergency exit routes and procedures for fire, electrical, or chemical hazards. Ensure students know how to respond in emergencies.
STUDENTS	Personal Responsibility	Follow all safety guidelines and instructions given by teachers and lab assistants. Report any unsafe conditions or incidents immediately.
	Proper Tool Usage	Use tools and equipment only for their intended purpose and under supervision. Familiarize yourself with the correct operation of any device before use.
	Personal Protective Equipment (PPE)	Wear appropriate PPE, such as gloves, goggles, or masks, when required, especially during hands-on activities involving chemicals or tools.
	Clean Workspace	Keep work areas tidy and free from clutter to minimize accidents. Properly store tools and materials after use.
LAB IN-CHARGE	Tool Maintenance	Regularly check tools and equipment for damage or malfunction. Report any issues to the teacher or principal immediately.
	Assistance and Supervision	Assist teachers in supervising students during lab activities. Provide guidance on safe practices and correct tool usage.
	Inventory Management	Maintain an inventory of all tools and equipment, ensuring they are in good condition and adequately stocked.
CLEANING STAFF	Cleaning Protocols	Use appropriate cleaning materials for lab environments, especially with chemicals or electronic devices. Ensure proper disposal of hazardous waste.
	Emergency Preparedness	Be aware of the location of first aid kits and fire extinguishers in the lab. Familiarize yourself with emergency procedures.
	Safety Equipment Maintenance	Ensure safety equipment, such as eyewash stations and fire alarms, is regularly checked and functional.
GENERAL SAFETY MEASURES FOR ALL PERSONNEL	Emergency Contacts	Display emergency contact numbers in the lab, including local fire department, poison control, and school administration.
	Fire Safety	Ensure fire exits are clearly marked and accessible. Keep flammable materials stored away from heat sources.
	First Aid Kits	Maintain fully stocked first aid kits in accessible locations and ensure staff members know how to use them.
	Chemical Safety	For agriculture-related tools, ensure proper handling and storage of chemicals.

4.2. Safety Tools

ITEM	SPECIFICATION	QUANTITY
Fire Extinguisher CO2	2 Kg, ABC type	1
First Aid Box	Cotton, Adhesive Bandage, Gauze roll bandage, Scissor, Dettol, Antiseptic cream.	1
Hand Gloves (for electrical/ gardening/shaping materials)	Sturdy, Washable	15
Overcoat (Apron)	Small and Medium size for students	15
Rubber Matting	As per table size to be put on the floor on either side of workbench	8
Sand Bucket	10 ltr.	2

***Quantity (for a class of 40 students)**

4.3. Safety Corner

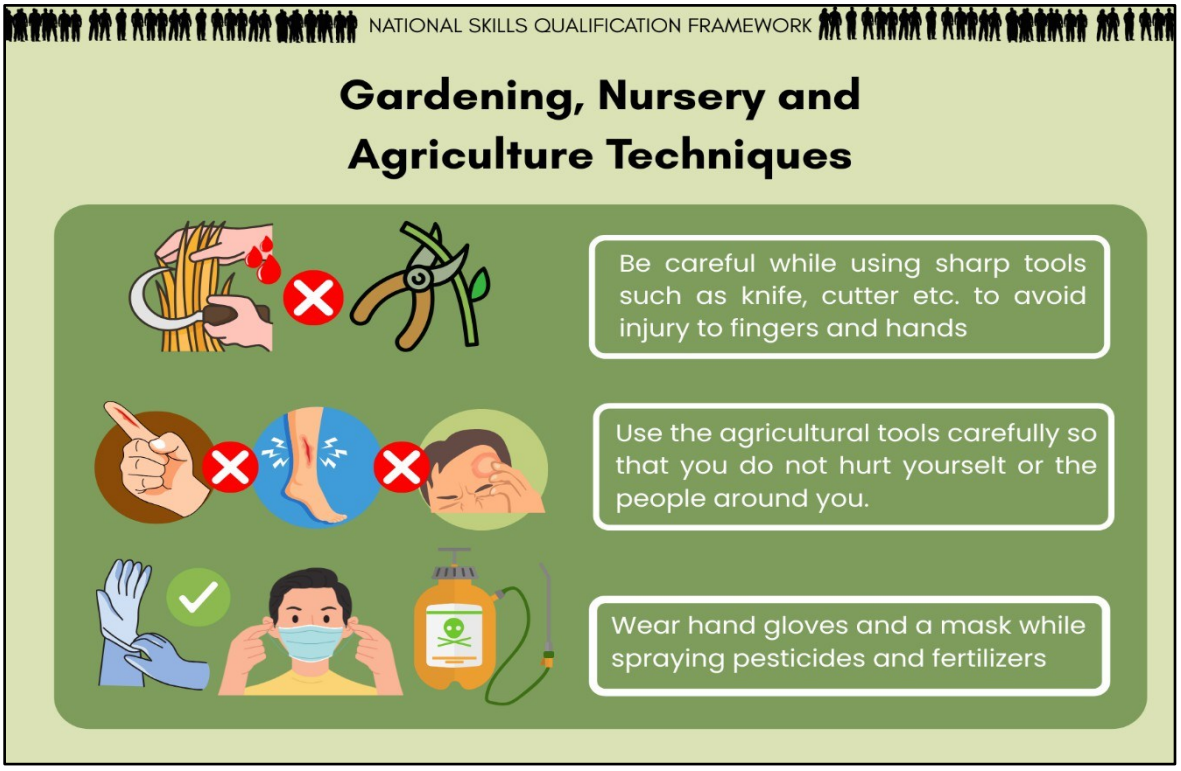
- **Placement**: Positioning a safety rack near the entrance of the lab will ensure that students can quickly access the gear in emergencies, such as a fire outbreak or electrical shock.
- **Contents**: The safety corner should have adequate and relevant safety gear. The details of the general safety provisions can be found in Chapter 4. More safety equipment can be added as per the chosen skill subjects.
- Conduct regular safety drills to familiarize students with emergency procedures.

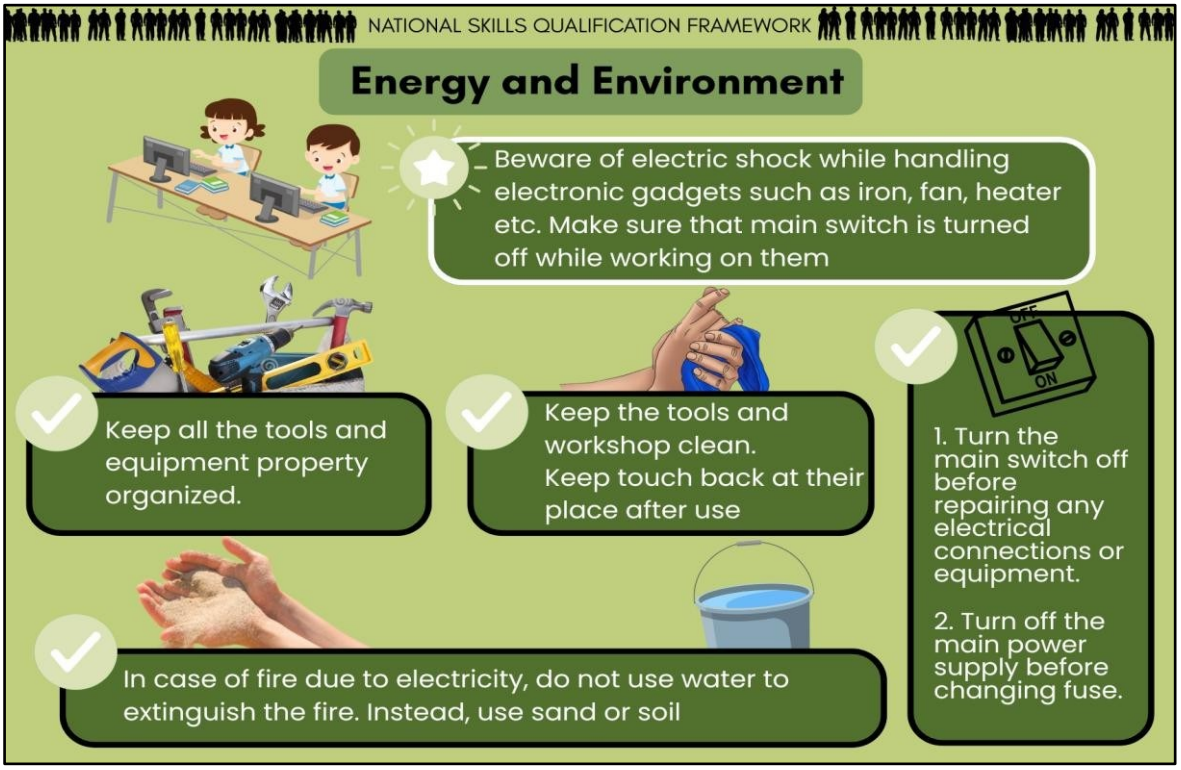
4.4. Posters/visuals

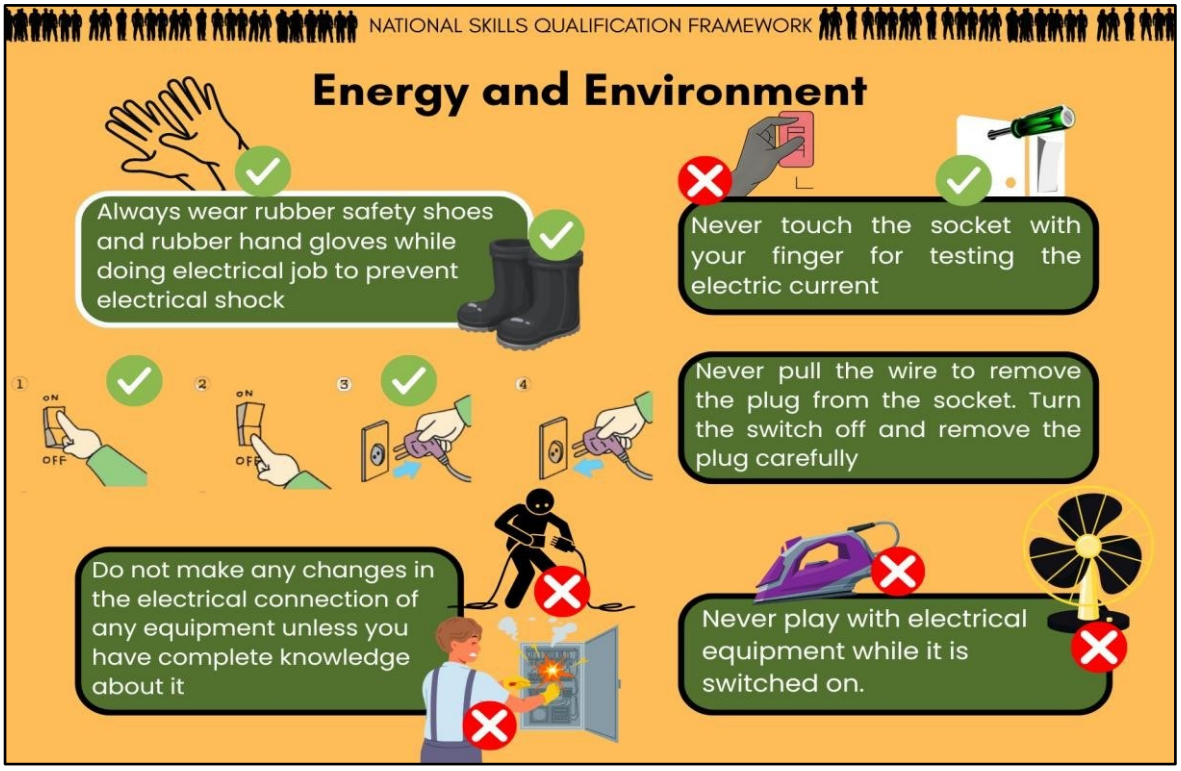
- Display posters with clear safety instructions and protocols.
- Position posters in prominent locations around the lab.
- Use bright colours and simple visuals to ensure readability and engagement.

4.5. Safety Drills

- Conduct regular safety drills to familiarize students with emergency procedures.
- Besides, safety drills mist be conducted regularly to ensure that the students are familiar with emergency procedures.


NATIONAL SKILLS QUALIFICATION FRAMEWORK
Gardening, Nursery and Agriculture Techniques
Be careful while using sharp tools such as knife, cutter etc. to avoid injury to fingers and hands
Use the agricultural tools carefully so that you do not hurt yourselt or the people around you.
Wear hand gloves and a mask while spraying pesticides and fertilizers


NATIONAL SKILLS QUALIFICATION FRAMEWORK
Energy and Environment
Beware of electric shock while handling electronic gadgets such as iron, fan, heater etc. Make sure that main switch is turned off while working on them
Keep all the tools and equipment property organized.
Keep the tools and workshop clean. Keep touch back at their place after use
OFF
ON
1. Turn the main switch off before repairing any electrical connections or equipment.
2. Turn off the main power supply before changing fuse.
In case of fire due to electricity, do not use water to extinguish the fire. Instead, use sand or soil



4.6. Safety Provisions embedded at the time of installation

It is important that during the installation of the tools, important safety provisions are embedded. Some examples can be as follows. The respective teacher for the skill subject should oversee that critical safety measures are taken during the installation itself.

1. **Flooring**
   - Anti-Slip Flooring: Use textured flooring around areas prone to water spillage to prevent slips and falls
   - Anti-Static Flooring: Use anti-static mats to protect sensitive electronics from electrostatic discharge

2. **Electrical Safety:**
   - Cable Management: Install under-desk cable trays and raceways to prevent tripping over wires.
   - Surge Protection: Equip workstations with surge protectors and uninterruptible power supplies (UPS) to safeguard devices.
   - Equip sewing machines with surge protectors and ensure proper insulation of all electrical cords.
   - All plugs and switches should be away from water sources.

3. **Safety while working**
   - Tool-Specific Safety Labels: Clearly label tools and machines with usage instructions and hazard warnings.
   - Heat-Proof Surfaces: Install heat-resistant surfaces for using irons, steamers, and other equipment.
   - Ventilation: Ensure proper cooling and ventilation for computers and servers to prevent overheating.
   - Equip all machines with easily accessible emergency stop buttons for immediate power cutoff in case of malfunctions.
   - Isolation Panels: Use insulated panels and barriers around electrical and mechanical systems to protect against accidental contact.

4. **Disposal Units:**
   - Provide proper containers for disposal and segregation of bio-medical wastes especially.
   - Provide containers for safe disposal of needles and sharp tools.
   - Handwashing Stations: Include sink areas with antibacterial soap dispensers and touchless faucets.

5. **Health**
   - Emergency Protocols: Display first-aid procedures and maintain a stocked first-aid kit in the safety corner.
   - Provide shaded work areas and ensure proper ventilation to reduce the risk of heat exhaustion.

6. **Storage**
   - Chemical Storage Cabinets: Use lockable, ventilated storage units for fertilizers, pesticides, and other chemicals to prevent accidental exposure.
   - Keep/store sharp tools like pruners, shears, and shovels on pegboards with safety locks.

5. Integrating Artificial Intelligence

5.1. Importance of Artificial Intelligence

Artificial Intelligence has become an integral part of our lives and an imperative part of the workforce. According to the World Economic Forum (WEF) Future of Jobs Report 2025, 86% of employers expect AI and Information processing technologies to transform their business by 2030. Big Data, AI, FinTech lead the list of top 10 fastest-growing jobs. Our students must be prepared for this. The establishment of interactive and progressive educational spaces for building AI skills and for leveraging AI for other skills, will have a considerable impact on the efficiency and methods of delivering and absorbing knowledge. More importantly, students without access to AI education and appropriate AI-enabled infrastructure will face a more severe AI capability gap, making it a significant challenge for them to pursue many career options in future.

In alignment with the NEP 2020 and the Government of India's AI vision to foster AI literacy and future-ready skills, the Central Board of Secondary Education (CBSE) urges all its affiliated schools to establish AI infrastructure in the Composite Skill Labs.

5.2. Objectives of Enabling AI in Composite Skill Lab

The AI infrastructure will enable students to explore and ideate on leveraging emerging technologies in the skill subjects they are being taught. Thus, it will enable students to develop a strong foundation in real-world AI-enabled applications in different skill subjects.

- **Hands-on Experiential Learning** – Providing training on industry aligned practical AI skills and enhance employability beyond the traditional options.
- **AI for Social Good** – Encouraging students to develop AI-enabled solutions addressing real-world challenges across the three Forms of Work:
  - **Working with Life Forms** – Agriculture, Floriculture, Animal Husbandry etc.
  - **Working with Machines and Materials** – Mechatronics, Fashion Design, Coding, Electrical, Shaping Materials etc.
  - **Working in Human Services** – Healthcare, Finance, Tourism and Hospitality, Retail and E-Commerce, etc.
- **Nurture Entrepreneurial mindsets and capabilities** – Providing access to AI tools to explore options of creating technology-integrated business ideas and models. This will encourage students to explore diverse entrepreneurial options of self-employment, providing employment to others, setting up business etc.

5.3. Digital Infrastructure Requirement for AI Integration

The Composite Skill Labs with AI infrastructure will equip students with AI skills and ensure they become responsible AI innovators and problem-solvers, irrespective of the skill subject they pursue. Schools are encouraged to establish AI Infrastructure. Schools can also leverage ATL & Mechatronics tools/labs to integrate technology for problem-solving.

6. Leveraging/ Utilising existing Labs & Spaces

6.1. Leveraging Existing Labs & Spaces to Deliver Skill Education

The Composite Skill Lab is a space equipped to ensure that multi-sector skill subjects across three forms of work can be delivered to all students from classes VI - X. However, it is also recognised that the school has existing labs and spaces that can be leveraged for delivery of some skill subjects. In such cases, the requirement for the CSL remains but a school may be able to better utilise existing resources & spaces. Some broad guidelines on use of existing labs and spaces are as follows:

6.1.1. Open garden/green spaces

Agriculture & related skill subjects can be conducted in outdoor spaces. However, tools will need to be housed in the CSL and some projects may be conducted in the CSL. Using the existing spaces will help beautify them and make the work visible to all.

6.1.2. Atal Tinkering Labs/Agile ATL

The Atal Tinkering Lab or Agile ATL can be leveraged to deliver one form of work. The tools and equipment for ATL can be used to deliver skill subjects such as Mechatronics or Electronics. The ATL/Agile ATL cannot be converted into a CSL as they are government-funded projects and set up for a specific purpose.

6.1.3. IT Labs

The IT Lab is used for subjects such as ICT and Computer Science and Digital Literacy. It can be leveraged to execute courses from the sectors that require computers such as Coding, AI, Finance, Graphic Design, Animation, Multi-media etc. The IT Lab cannot be converted into a Composite Skill Lab.

6.1.4. Makers Space Labs

The Makers Space Lab probably comes closest to a CSL as it usually includes fabrication tools and equipment from shaping materials and welding to sewing and 3D printing. Therefore, it is possible to leverage the Makers Space Lab to deliver skill subjects and may be converted into a CSL, if specifications & requirements are met.

6.1.5. Home Science Lab

The Home science lab may be leveraged for skill subjects related to Food Production and Baking if it is equipped with the necessary equipment. This lab cannot be converted into a Composite Skill Lab as it has a specific use for specialisation in classes XI & XII.

6.1.6. Existing single-sector skill lab

Some schools are already imparting skill subjects such as beauty and wellness, automotive, retail, etc., in classes IX-XII and have labs equipped with tools. These may be leveraged for the relevant skill subject. If the lab has been set up through government funds or special funds for a specific purpose by CBSE, it cannot be converted to a CSL.

7. Annexure 1 - Tool Lists

The tool list in the annexure is designed for flexible use across classes VI–XII, supporting a gradual progression from basic exposure to advanced skill application. Schools may adapt its use based on grade level, ensuring age-appropriate learning and efficient resource utilization. Schools may choose the relevant skill sectors from the suggested list provided below

Projects mentioned in the Kaushal Bodh textbooks (classes VI-VIII)

Working with Life Forms	Working with Machines and Materials	Working in Human Services
➢ School Kitchen Garden	➢ Maker Skills	➢ School Museum
➢ Biodiversity Register	➢ Animation & Games	➢ Cooking without Fire
➢ Plant Nursery	➢ Tie & Dye	➢ Storytime with Puppets
➢ School Habitat Garden	➢ AI Assistant	➢ Family Health Handbook
➢ Hydroponics	➢ Working with Wood and Bamboo	➢ Water Audit
	➢ Home Automation	➢ Creating Advertisements

Skill Sectors combination across three forms of work

Working with Life Forms	Working with Machines and Materials	Working in Human Services
➢ Agriculture and Gardening	➢ Electronics / Mechatronics	➢ Healthcare
➢ Food Production	➢ Apparel	➢ Beauty & Wellness
	➢ Automotive	➢ Retail
	➢ Shaping Materials	
	➢ IT/ITeS	
	➢ AVGC& Media Content Creation	

The tool list for respective sectors is placed below for reference to develop labs for grade VI-XII.

7.1 Working with Life Form

Tool List – **Agriculture and Gardening**

S. No.	Item	Specifications	Quantity
1	Air Thermometer and hygrometer	Thermometer and hygrometer with LCD Portable Digital	1
2	Budding grafting knife	"Two stainless steel blades and one brass budder Comfortable nylon grip (Falcone Brand is best)"	2
3	Drip irrigation unit	16mm Main Supply Pipe 15 metres, 4mm Feeder Line Pipe - 10 meters, 4LPH Drip Emitters - 20pcs, 4mm Pin Connector - 20pcs 5. Emitter Stakes - 20pcs 6. Dummies - 5pcs, Tee Connector - 5pcs, Straight Connector - 10pcs, Elbow Connector - 5pcs, Straight Connector with Tap - 5pcs, End cap - 10pcs, Water Tap Connector, ' S' Hole Puncher, Teflon Tape and Installation Manual	1
4	Pot (Gamla)	4-to-6-inch diameter plastic made	5
5	Hand Hoe (Digging tool)	15 x 10 mm with wooden handle	2
6	Hand Rake	29.5 x 132.5 x 8.5 cm size with wooden handle 4ft long (12 tooths)	2
7	Hand trowel (gardening)	11.5-inch X 2.5 inch with plastic handle	4
8	Home garden hand gloves	Gardening gloves pairs	20
9	Hydroponic tray	HDPE material with dimensions of 2 x 1 ft and height 4 inch having drainage holes on the bottom	1
10	Measuring tape	50-meter measuring tape	1
11	Plastic beaker (for measuring liquids)	250 ml	1
12	Plastic bucket	15 lit capacity buckets	1
13	Plastic pan (Gamla)	Diameter 14 inch	2
14	Scissor	Stainless steel, Size: 200mm	1
15	Secateur	Blade: Stainless Steel Cutting Size: 15mm with lock nut (Falcon Brand)	2
16	Shovel or Spade	Medium size blade (6-9mm) with maximum 3 ft long handle	2
17	Sickle	Blade length 18 inch with wooden handle and curved blade	4
18	Soil test kit	Small soil test kit with chemicals in tablets form or three-way soil testing meter	1
19	Spray pump	Capacity: 2 Ltr. with pressure pump	2
20	Watering can 5 lit	Plastic watering can for plants	2
21	Weeding hook (Khurpi)	curved shape 5-inch size for removing weeds	2
22	Weighing scale	Kitchen grade, multipurpose weighing scale Capacity 2Kg x 10g	1
23	Portable Water Quality Testing Kit with result-recording materials.	Hands-on training: pH, salinity, hardness, nutrient testing Farm relevance: Directly impacts crop yield & irrigation planning.	1

* **Quantity (for a class of 40 students)**

Consumables

S. No.	Item	Specifications	Quantity
1	Black jaggery	To be used in organic fertilizers / Fertilizers at Home	1 kg
2	Cocopeat	blocks of 1 kg	2
3	Common edible salt	Kitchen salt	1 kg
4	Cow dung (needs to be collected before the practical)	To be used in organic fertilizers / Fertilizers at Home	2 kg
5	Cow urine (needs to be collected before the practical)	To be used in organic fertilizers / Fertilizers at Home	1 lit
6	Earthworms	For vermicomposting, to be collected prior to practical	As required
7	First aid kit	basic kit having necessary item like bandages, ointment, sanitizer, band aid, cotton roll etc. only	1
8	Grafting tape	Bundle of elastic tape 1 inch width	1
9	Green leaf manuring	(trainer to check within the vicinity of school site)	As required
10	Gunny bag	3 x 2 ft dimension	2
11	Markers (3-4 colours) etc.	Markers (5 each for 3-4 colours)	10
12	Mask	box of 100 masks (disposable)	1 set
13	Neem leaves	To be used in organic fertilizers / Fertilizers at Home	As required
14	Nursery bags	5x7 inch, 50 microns (250gm)	40
15	Organic compost or fertilizers (optional)	compost/vermicompost	2 kg
16	Plant saplings (Mango, Jamun, Rose, Duranta, Hibiscus, money plant etc.)	for practical of plant propagation	1 each
17	PVC pipe	3-inch diameter and 5 ft long piece	1
18	Rice bran	To be used in organic fertilizers/ Fertilizers at Home	As required
19	Rooting hormone powder	100 gm bottle	1
20	Sand		As required
21	Seeds (To be selected based on the geographical location)	Raw seeds of Maize and Spinach	Maize 250 gm and Spinach 50 gm

S. No.	Item	Specifications	Quantity
22	Soil samples (sand, clay, silt, loam)	It can be collected from the school garden.	As required
23	Sphagnum moss	Dry moss for air layering	250 gm
24	Used Newspaper		As required

***Quantity (for a class of 40 students)**

Advanced Tools for Specialisation (refer to curriculum)

S. No.	Item	S. No.	Item
1	Automatic shade system	15	Planting board
2	Crowbar	16	Pruning knife
3	Dibbler	17	Radiation measuring instrument
4	Digging fork	18	Rope
5	Digital electric temperature indicator	19	Sprayer
6	Duster	20	Sprinkler
7	Fan	21	Temperature & humidity control system
8	Fogging & Blackout	22	Thinning scissors
9	Garden hatchet	23	Transplanting travel
10	Hand cultivator	24	Trenching hoe
11	Lux/light meter	25	Ventilator
12	Misting	26	Water can
13	Mobile benches	27	Weeding fork
14	Pad	28	Wheel hoe

Tool List - **Food Production**

Tools

S. No.	Item	Specifications	Quantity
1	Digital Kitchen Balance	ISI Mark with 1 kg capacity	1
2	Dust Pan	Plastic; Size- medium	2
3	Electric/Gas Oven (Optional)		2
4	Frying Pan (medium)- With Handle	Stainless steel with copper bottom - medium size	2
5	Gas lighter	Stainless Steel	2
6	Glass container	Glass with plastic lid - half kg capacity	4
7	Grater/ Shredder	Stainless steel	2

S. No.	Item	Specifications	Quantity
8	Hand Operated Chikki Slicer (Roller), cutter	Stainless steel	2
9	Hindalium container with lid - 3 lit	Hindalium 3 ltr	2
10	Knives	Stainless Steel (Medium size)	4
11	Measuring Mug / Cup	Plastic/ Glass 250ml	2
12	Measuring Spoons	Plastic	2
13	Mixer (Mixture-Grinder)	ISI mark Mixer with two grinding containers 800 W	1
14	Plastic Bucket	Plastic -10 ltr capacity	2
15	Plastic Container	Food grade plastic (Set of 4)	6
16	Plastic Dustbin	Plastic	2
17	Polpat and Latan (Roller)	Wood	2
18	Pressure Cooker	Aluminium 5 Ltr Cooker	2
19	Scissors	1 medium 1 large	2
20	Set of cooking spoon	Stainless steel	2
21	Sieves	Stainless Steel	2
22	Sieves	Plastic with multiple sieving plates	2
23	Single Burner Stove	ISI Mark with pipe, clip	2
24	Pot Containers	Food grade stainless steel (Containers of 1 ltr and 2 ltr capacity)	2
25	Stainless steel Plates	Stainless Steel	4
26	Steel Bowls	Diameter 6"	4
27	Table Spoons	Stainless steel	12
28	Tong	Steel	2
29	Vegetable Peeler	Stainless steel	4
30	Water Container (Jug)	Stainless steel 1 litre capacity	2
31	Whisker	Stainless steel (any shape & size)	2
32	Pot Lifter	Stainless steel	1

***Quantity (for a class of 40 students)**

*Existing Home Science Lab may also be leveraged for skill subjects related to this sector.

Consumables

S. No.	Item	Specifications	Quantity
1	Aluminium foil	Aluminium, 10 metre	2
2	Apron (Cloth)	cotton (14 to 17 years children)	10
3	Dish towels	cotton	6
4	First-aid	general medicines, burn cream and band aids	2
5	Hand Gloves (Plastic)	medium size (Plastic) - For 14 to 17 years children	2
6	Head Caps (Cloth)	20 GSM - For 14 to 17 years children	30

***Quantity (for a class of 40 students)**

7.2 Working with Machines and Materials

Tool List - Electronics/Mechatronics

Tools

S. No.	Item	Specifications	Quantity
1	Arduino UNO along with Cable	ATmega328P – 8-bit AVR family microcontroller, equivalent or better. Operating Voltage: 5V Digital I/O Pins: 14 (of which 6 provide PWM output) PWM Digital I/O Pins: 6 Accessories: Case shell enclosure, compatible USB cable (length - 6 inch or more)	4
2	Breadboard	Solderless 400-pin breadboard	4
3	DC Motor	12V DC Gear 150 RPM	4
4	DHT 11 sensor	Operating Voltage: 3.5V to 5.5V Operating current: 0.3mA (measuring) 60uA (standby) Output: Serial data Temperature Range: 0°C to 50°C Humidity Range: 20% to 90% Resolution: Temperature and Humidity both are 16-bit Accuracy: ±1°C and ±1%	4
5	Digital MultiMeter	Digital Multimeter Voltage Current Resistance-7 functions + 19 ranges to cover DC voltage 200mV to 1kV,	4
6	Digital Pen Electric Tester	Voltage tester	4
7	ESP32	I2C, 1 wire, plug and play	4
8	Hand Tools Set	(Bits, Hammer, Hex, Keys, Knife, pliers, Ratchet, Screwdriver, Sockets, Spanners, Drilling machine and Bench Grinder)	2 sets
9	Handsaw	Size 6 inch	4
10	Hot Glue Gun	Works with standard 0.5-inch glue sticks. Temperature - 230 to 280 degrees Celsius.	4
11	Humidity Sensor	Operating range: 20 – 95 % RH Temperature: 0 - 60 Celsius Power supply: 1.5V AC (Max sine) Operating frequency: 500Hz - 2kHz	4

S. No.	Item	Specifications	Quantity
12	I2C Module	Operating Voltage: 5V DC I2C control using PCF8574 Can have 8 modules on a single I2C bus I2C Address: 0X20~0X27 (the original address is 0X20, you can change it yourself via the onboard jumper pins)	4
13	IR Sensor	Board Size 3.2 x 1.4cm Working voltage 3.3 to 5V DC Operating voltage 3.3V: ~23 mA, to 5V: ~43 mA Detection range 2cm – 30cm (Adjustable using potentiometer) Active output level the output is “0” (Low) when an obstacle is detected	4
14	L298P Motor Driver	L298P Motor Driver Shield or relative Driver Shield	4
15	LCD Display	Dot matrix LCD display. 16 characters X 2 lines. I2C	4
16	MQ-5		4
17	PIR Sensor		4
18	Pliers: 4.5-inch size	Long Nose Plier External Straight	4
19	Precision Screwdriver Set	6 Piece Precision Screwdriver Set Types: PH0, PH1, Flat head - 1.4mm, 2mm, 2.4mm, 3mm	1
20	Relay	5V 10A - 2 Channel Relay Module. Compatible with Arduino.	4
21	Screwdriver	40 pc multi-purpose screwdriver set	4
22	7 Segment Display	LED 4-Digit Display Module Voltage Rating: 2.4V to 5.5V 4-Pin interface: Vcc, Gnd, Data, Clock	4
23	Servo Motor	Position Servo Angle based Metal Gear Small Servo Metal Gear Continuous Metal Gear Servo 360 Small Servo Plastic Gear	4
24	Soil Moisture Sensor	FC-28 with LM293 comparator Operating Voltage: 3.3V to 5V.	4
25	Soldering Helping hand	Specifications: Adjustable crocodile holding clamps/clip. Soldering iron holder. LED light. Magnifying lens.	4

S. No.	Item	Specifications	Quantity
26	Soldering Kit	Variable Wattage of Soldering Iron: 15-30 watts/230 volts 4 Equipment Soldering Iron Temperature Range: 280°C to 450°C Desoldering Pump, Soldering Flux (Paste) 100 grams, Desoldering Copper Braid (Solder Wick) - 1.5m*2mm Compatible Soldering Tip - Bevel, Chisel, Conical - 5 each per kit. Soldering Wire: 20/22 AWG soldering Wire with rosin core flux (100 Grams)	4
27	Ultrasonic Sensor Module HC04	Working Voltage - DC 5V Working current - 15 mA Working Frequency - 40 Hz Range - 1 cm to 4 m Effectual Angle - <15° Measuring Angle - 30° Resolution - 0.3 cm	4
28	Water Pump	DC12V 3W Submersible Water Pump	4
29	Wire Strippers	Wire Stripper Cutter Plier with Spring -26x6x20 cm (L x W x H)	4

***Quantity (for a class of 40 students)**

Consumables

S. No.	Item	Specifications	Quantity
1	9V Battery	9-12V 2000 to 2500 mAh rechargeable battery with two chargers. Equivalent or better	5
2	A4 Size Sheet	70-75 GSM 1 Bundle - 500 Sheets	1
3	Active Buzzer	Medium Buzzer 5 Volts	8
4	Battery clip/Cap	9V battery connector	5
5	Berg Strips	Female Berg Strip, 2.54mm pitch, 40 pins single row, breakable pin	8
6	Berg Strips	Male Berg Strip, 2.54mm pitch, 40 pins single row, breakable pin	8
7	Capacitor	ceramic 0.1 mf, electrolytic 10 mfd.	16
8	Cardboard	1 Roll Medium Size	2
9	Chart Papers	Big Size Sheets	40
10	Coin Cell	3.3 Volts	40

S. No.	Item	Specifications	Quantity
11	Conductive Tape or Aluminium Foil	Copper Tape with medium thickness - Box of 12 pieces or Aluminium Foil used in kitchen for food wrapping 1 KG Roll	1
12	Cotton Thread	1 Roll - 50 meters.	2
13	Diode	1N4007	16
14	General Purpose Solderable Board	FR2 A Grade Material (140 x 90 mm)	16
15	Hand Tools Set	(Bits, Hammer, Hex, Keys, Knife, pliers, Ratchet, Screwdriver, Sockets, Spanners, Drilling machine and Bench Grinder)	2 sets
16	Hook Up Wire	Red & Black set 100 Meters each	2
17	Jumper Cable	Male-Male - 20 per 10 Students	80
18	Jumper Cable	Male-Female - 20 per 10 Students	80
19	Jumper Cable	Female-Female - 20 per 10 Students	80
20	LED	Regular 5mm 3–5-volt Range	80
21	Paper Cutter	With extra blades	2
22	Potentiometer	10K ohm with power cut switch on/off	5
23	Pulley	1 Inch with hook	4
24	Resistor Kit	One kit contains - 30 carbon film resistors of 20 different resistance values each, assorted, packaged together and labelled. Values: 0Ω, 1.5Ω, 4.7Ω, 10Ω, 47Ω, 100Ω, 220Ω, 330Ω, 470Ω, 680Ω, 1kΩ, 2.2kΩ, 3.3kΩ, 4.7kΩ, 10kΩ, 22kΩ, 47kΩ, 100kΩ, 330kΩ, 1MΩ	2
25	Safety Mask	Filtering efficiency ranging 80 percent when tested against 0.3-micron sodium chloride particle	100
26	Sand Paper	Grit Values - 80, 100, 120, 200, 300. 5 Nos of each	2
27	Toggle switch		6
28	Transistor	BC547, Bc548.	16

***Quantity (for a class of 40 students)**

*Please note that existing ATL/Agile ATL/Tinkering Labs may be leveraged for skill subjects such as electronics, mechatronics, automation, IoT, etc.

Tool List - Apparel

Tools

S. No.	Item	Specifications	Quantity
1	Blocks Set	Wood Block Stamps (Pack of 5), Wooden Blocks for Block Printing Stamp Set	2
2	Compass	Compass with rubber top	3
3	Dress Form (optional)	Any size and shapes	2
4	Embroidery Hoops (L, M&S)	4 Pieces of adjustable Wooden Embroidery Hoop Ring Frame: Size - 6, 8, 10, and 12 Inch	4
5	Fashion magazine	Any fashion magazine	**2**
6	French Curve (optional)	Metal/Wood/Plastic	2
7	Gridding Scale	Fashion Design Kit Gridding Scale, 18 inches	2
8	Iron	600W Dry Iron/Steam Iron	1
9	Iron Table (optional)		1
10	Measuring tape	Soft Sewing Tailor Tape for body measure, Dress-Making Measure Ruler	10
11	Needle Set	30Pcs Assorted Hand Sewing Needles for Embroidery, Mending, Craft, Quilting	2
12	Paint Brush Set	Nylon Paint Brush Combo 6 Flat & 6 Round	2
13	Paint Tray	Plastic Exel Small Tray for Home/Office/Kitchen, Set of 2 pc Tray 2	2
14	Pins	Multi Coloured Pearl Head Pins for Tailoring, Dressmaking, Crafting, Sewing, Decorating - Pack of 80	1
15	Scissors	Fabric Cutting Scissor- All Purpose Scissor	2
16	Sewing Machine (optional)	Manual/Automatic	2
17	Steel Tweezer	Stainless steel tweezer Suturing Forceps 6"	2

***Quantity (for a class of 40 students)**

Consumables

S. No.	Item	Specifications	Quantity)
1	A3 Ivory Sheet	Ivory Paper 210 GSM Pack Of 2 (50 Sheets)	1
2	Beads	Multicolour Seed Beads Set - 8/0 Size (Bead Size 3mm)	1
3	Brown Paper	Brown Paper Roll 100GSM (28 Inch * 5Meter)	1
4	Buttons	Wooden Buttons Used in Sewing- bigger size- Set of 100	1
5	Candle	Unscented Pure Wax Stick Candle Pack of 20 (White)	2
6	Chart Paper	A1 Full-Size Pastel Chart Sheets, 220 GSM, Plain/Unruled	1
7	Cotton Fabric	20 Mtr - width 50 cms (any color)	20
8	Cotton Fabric	5 Mtr - width 50 cms - assorted colours	5
9	Craft Glue	MR 20 GM Craft Glue	5
10	Crayons	Extra Long Wax Crayons - 26 Shades	2
11	Embroidery Threads	Embroidery Thread Set in Multiple Colors	1
12	Eraser	1 Packet - Pack of 20 Erasers	1
13	Fabric Dye	Tie Dye Colour - 25g	2
14	Fabric Glue	Fabric Glue (80g)	5
15	Gloves	Plastic Gloves Disposable (80 Pieces) 11"X 12,	1
16	Hooks and eyes	100 Sets 17mm Silver Metal Hook and Eye Closures	1
17	Pastel Sheets	A4 100 Coloured Sheets (10 Sheets each colour)	1
18	Pencils	2 Packets - HB Pencil - 10 Pcs Pack	2
19	Poster Colours	Acrylic Colours Kit | 10 Colours x 15 ml	2
20	Rubber bands, strings, or thread.	Cotton or plastic dori to tie	1
21	Ruler - 10 Cm	Transparent 10 cm Scale- Set of 4	1
22	Ruler - 30 Cm	Transparent 30 cm Scale	2
23	Sequin	Multi Colour Sequins 100 gm Box for embroidery	1
24	Sharpeners	1 Packet - Pack of 20 Sharpeners	1
25	Sponge	2Pc Rectangle Artist Sponge Painting Tool	5
26	Stitching Thread	100% Spun Polyester 3 Ply Sewing & Stitching Multicolour Box Thread (150 m Pack of100)	1
27	Tissue Paper	2 Ply Toilet Paper Tissue Roll- Pack of 6	2

S. No.	Item	Specifications	Quantity)
28	Tracing Paper	Butter Paper / Translucent Sketching and Tracing Paper (1 Packet- 50 Sheets)	1
29	Zip lock bag	Plastic Zip Lock Pouch Bags (8 X 11 Inches, Transparent) -50 Pieces	1
30	Zipper	Colourful 8-Inch Nylon Zippers (Set of 25)	1

***Quantity (for a class of 40 students)**

Tool List - Automotive

Tools

S. No.	Item	Specifications	Quantity
1	Adjustable Wrench: 10"	10"	4
2	Adjusting Spanner	10"	2
3	Allen Keys	Set of 5: 3mm, 4mm, 5mm, 6mm, 8mm	2
4	Battery Charger		1
5	Circlip Pliers - Internal / External	7"	2
6	Cylinder Bore Gauge with Dial Gauge		1
7	Engine Compression Gauge		1
8	Extension Rod Set	Set of 2: 3” & 6”	2
9	Feeler Gauge	26 blades-0.04 to 0.63 mm	1
10	Funnel with Filter		2
11	Garage Lamp		1
12	Hammer Ball Pein	250 Gm	3
13		500 Gm	3
14	Impact Screw Driver: Imported (For 2-wheeler)		1
15	Jumper Cable	1000 amp	1
16	Locking Plier (Vice Grip Plier)	10"	2
17	Nose Pliers	4"	3
18	Nylon Hammer	25 mm	2
19		40 mm	2
20	Old 2-Wheeler		1
21	Open End Spanner Set:	Set of 10 (different sizes: 6x7, 8x9, 10x11, 18x19, 17x19, 22x27, 27x32)	2

S. No.	Item	Specifications	Quantity
22	Pliers - Combination	6"	3
23	PU Recoil Hose 5 X 8 with Blow Gun:	Pipe	1
24	PU Recoil Hose 8 X 12 with QRC	Pipe	1
25	Ratchet Handle	8"	2
26	Ring Spanner Set	Set of 10 (different sizes: 6x7, 8x9, 10x11…18x19, 17x19, 22x27 & 27x32)	2
27	Screwdriver - Flat	4" (No. 902)	3
28		6" (No. 842)	3
29		8" (No. 862 200)	3
30		10" (No. 826)	3
31		12" (No. 828)	3
32	Screwdriver - Star	4’ (No - 860)	3
33		6’ (No - 860150)	3
34		8’ (No - 833)	3
35		10’	3
36		12’	3
37	Socket Single Hex Set	Set of 10 (different sizes: 8, 10, 12, 13, 14, 17, 19, 22, 27, 32)	2
38	Soldering Iron with 250gm Soldering metal, stand & Stripper		2
39	Spark Plug Socket Wrench: 16 mm	16 mm	2
40	Tyre Pressure Gauge		1
41	T-Spanners	8 mm	2
42		10 mm	2
43		12 mm	2

***Quantity (for a class of 40 students)**

Furniture

S. No.	Item	Specifications	Quantity
1	Engine/General Work Bench: Overall	Size: L-1200 X W-685 X H- 830 mm, Lockable Drawer	1

2	Hydraulic RAMP:	Top Size: 600 mm x 1800 mm, Working Height: 800 mm, Shut Height: 200 mm, Mode of Working: manually operated. One Hand pump with valve arrangement can be used to operate two ramps	1

***Quantity (for a class of 40 students)**

Tool List – Shaping Materials

Tools

S. No.	Item	Specifications	Quantity
1	Vernier Calipers	Dual Metric-Imperial Scale, Metal Construction | 0-6 inch / 0-150 mm measurement	4
2	Meter Scale	Steel Rule Graduated both in Metric and English Unit 0-6 inch / 0-150 mm measurement	7
3	Meter Tape	5m:25mm Steel Inchi Measuring Tape - 5m with a Non Slip Rubber Covered ABS case	7
4	Surveyor Tape	30m:13 mm Fibra Fiberglass Measuring Tape	7

***Quantity (for a class of 40 students)**

Tool List - IT/ITeS

Existing IT Lab (if fully equipped with at least 20 functional computers with following specs) may be leveraged.

Tools

S. No.	Item	Specifications	Quantity
1	Computer	Desktop or laptop or equivalent	20
2	Display	19.5" LED Monitor (at least 1366x768 resolution)	
3	Memory (RAM)	Minimum 8 GB DDR4 (4 GB is too limiting even for basic multitasking today)	
4	Operating System	Ubuntu Linux 20.04 LTS or higher or licensed Windows 10/11 (64-bit)	
5	Peripherals	Keyboard and Optical Mouse Basic headphones with mic (for virtual learning or assessments)	
6	Ports & Connectivity	At least 2 USB 3.0 ports HDMI or VGA out Ethernet port (RJ45) + Wi-Fi (802.11ac)	
7	Power Backup	UPS with at least 15–30 minutes backup per system	
8	Processor (CPU)	Intel Core i3 (11th Gen or later) or AMD Ryzen 3 (3000 series or later)	
9	Software	Open-source document, spreadsheet & presentation suite, code.org or scratch, open-source design apps	

10	Storage	256 GB SSD (preferred over HDD for speed) (If budget-constrained, a 128 GB SSD + external HDD is acceptable)	
11	Structured Cabling and Network Testing Kit	Containing an RJ45 crimping tool, cable stripper/cutter, punch-down tool, LAN/network cable tester, connector accessories and other basic tools required for structured cabling practice	
12	Webcam	(720p minimum) for online classes/exams	

***Quantity (for a class of 40 students)**

Tool list – AVGC & Media Content Creation

S. No.	Tool / Equipment	Specification	Quantity
1	Graphics Desktop Computers	Intel i3 / Ryzen 3, 8–16GB RAM	10
2	Standard Desktop / Laptop Systems	Basic systems for theory & browsing	5
3	Drawing Tablets (Pen Tablet)	Entry level tablets	5
4	Headphones	Basic studio headphones	10
5	Microphones	USB / Lavalier microphones	3
6	Multimedia Speaker System	Classroom speaker system	1
7	DSLR / Mobile Video Camera	Entry DSLR or smartphone camera	1
8	Tripod Stand	Adjustable tripod	1
9	Web Cameras	USB webcams	2
10	LED Lights	Basic LED panels	2
11	Green Screen Cloth	Fabric background for VFX	1
12	Projector / LED Display	Short throw projector or 55–65 inch display	1
13	Whiteboard with Marker Set	Teaching board	1
14	Animation Software	Blender (Open Source)	Installed
15	Graphic Design Software	GIMP / Krita / Inkscape	Installed
16	Video Editing Software	Shortcut / DaVinci Resolve	Installed
17	Audio Editing Software	Audacity	Installed
18	Game Development Software	Godot / Unity	Installed
19	High-Speed Internet Connection	Minimum 50–100 Mbps	1
20	External Storage	2 TB backup drives	2

***Quantity (for a class of 40 students)**

7.3 Working with Human Services

Tool List - Healthcare

Tools

S. No.	Item	Specifications	Quantity
1	AAA Batteries 912 no.	10.5 mm (0.41 in) in diameter and 44.5 mm (1.75 in) in length; pack of 10	1
2	Blood pressure machine	20 x 15 x 9 Centimetres. Digital machine	2
3	Cotton	Cotton roll	2
4	CPR Mannequin		1
5	Digital Thermometer	2.2 x 2.2 x 2.2 cm dimension. plastic digital thermometer	2
6	Gloves	Multipurpose Disposable Hand Gloves Pack of 100	1
7	Glucometer	12.1 x 5.7 x 22.5 Centimetres, glucometer strips, lancet device	1
8	Growth Stature meter	200CM Roll Ruler Wall Mounted Growth Stature Meter	1
9	Hand Sanitizers	500 ml bottle	1
10	Hot Water Bag		1
11	Mercury thermometer	10 Centimetres high mercury thermometer. Outside glass	1
12	PPE Kits	40GSM Disposable Surgical Isolation Gowns	4
13	Pulse Oximeter	10 x 3 x 2 cm dimensions. 2 AAA batteries needed	2
14	Red Colour	Normal red colour for coloring purpose only 1 tube of 125 ml colour	1
15	Reflex Check Hammer		1
16	Scissors	Everyday use scissors	1
17	Sterilium	500 ml disinfectant	1
18	Syringes	Generic Dispo Vân Reusable Multiple Function Plastic Syringe	6
19	Towels	Cotton towel 30cmX30 cm	4
20	Weighing Scale	24 x 3.5 x 29 Centimetres (Analog)	1
21	Digital Vital Signs Monitoring Kit	Hands-on BP, pulse, SpO2, temperature training	1

***Quantity (for a class of 40 students)**

Consumables

S. No.	Item	Specifications	Quantity
1	Trash Bags	1 roll of trash bag (50 pcs)	1
2	Bar soap	Handwashing soap - Normal	1
3	Liquid Handwash Soap	Hand Wash - 110 ml	2
4	Multipurpose Cleaner (Disinfectant)	Surface Cleaner Spray, 200 ML	1
5	First Aid Kit	Elastic Gauze Bandage Elastic Adhesive Plaster Adhesive Plaster Cotton Roll Antiseptic Cream Antiseptic Lotion Sterile Gauze Swab Gauze Bandage Sugar Salt	1
6	Patient Record Sheets	Print out (Size - A4)	1 per student
7	WHO's steps to wash your hands [Poster]	Poster (Size - A3)	1
8	Instructional posters or visuals on biomedical waste categories	Poster (Size - A3)	1
9	BMI Chart	Poster (Size - A3)	1
10	Blood Sugar Range Chart	Poster (Size - A3)	1
11	Blood Oxygen Saturation Chart	Poster (Size - A3)	1
12	Blood Pressure Interpretation Chart	Poster (Size - A3)	1
13	Eye Chart	Poster (Size - A3)	1

***Quantity (for a class of 40 students)**

Advanced Tools for Specialisation (refer to curriculum)

S. No.	Name	S. No.	Name
1	Aprons for GDA	8	Large bottle for water
2	Bell	9	Medicines/ORS
3	Blanket	10	N95 Masks
4	Clipboard for writing	11	Nebulizer
5	Clock	12	Side tray/table
6	Hospital Bed with sheets and pillow	13	Small stool
7	Hospital stretchers	14	Wheelchair

Tool List - Beauty & Wellness

Tools

S. No.	Item	Specifications	Quantity
1	Blackhead Remover	Stainless steel, anti-slip grip	20
2	Complete Make up Brushes Set	10–20 pcs set, synthetic bristles (face & eye brushes)	20 sets
3	Curling Iron	Ceramic barrel (19–25 mm), temperature control	5 - 10
4	Induction (any brand) to boil water for pedicure	1200–1800W, temperature control, auto shut-off	5-6
5	Cutting Scissors	Stainless steel, 5.5–6.5-inch professional	20
6	Cutting Sheets	Waterproof, reusable salon cape	20-25
7	Double Wax heater	Dual pot (500–1000 ml), thermostat control	10
8	Eyebrow Pencil Sharpener	Dual-size cosmetic sharpener	20
9	Facial Steamer	Ozone steamer, adjustable arm, 500–700 ml	10
10	Foot Scraper	Stainless steel / dual-sided	20-25
11	Hair Brush	Paddle + round brush, heat resistant	20 sets
12	Hair Clips set	Sectioning clips (6–12 pcs per set)	20 sets
13	Hair cutting comb	Fine & wide teeth, anti-static	20
14	Hair Dryer	1200–2000W, 2 heat & speed settings	10
15	Hairdresser chair/stool	Adjustable hydraulic chair / swivel stool	10–12 chairs + 10 stools (based on room size)
16	Hand mirrors	Medium size, unbreakable	25
17	Makeup Catalogues	Printed/laminated reference charts	5–10
18	Makeup Palette	Multi-shade (foundation/eyeshadow/contour)	20
19	Manicure set	6–10 tools (cutter, filer, cuticle tools)	20 sets
20	Pedicure set	Foot file, brush, separator, tools	20 sets
21	Shampoo Bowl set	Portable/reclining basin with drainage	4–5
22	Small Scissors	Precision trimming scissors	20

S. No.	Item	Specifications	Quantity
23	Small size Hair Rollers Wires	Velcro/wire rollers (assorted sizes)	20 sets
24	Spray Bottle	300–500 ml mist spray bottle	20
25	Straightening Iron	Ceramic/titanium plates, temp control	5
26	Tail Comb	Sectioning comb with pointed tail	20
27	Advanced Skin Therapy Multi-Function Unit	Multi-function Device for performing hydra dermabrasion, Oxygen infusion & RF/ultrasonic skin tightening through Single console	1

***Quantity (for a class of 40 students)**

Consumables

S. No.	Name	Specifications
1	Apron (Cloth)	Cotton (14 to 17 years children)
2	Dustbin	Medium size
3	Mop	Standing mop
4	Shampoo	Any brand
5	Thread	Cotton
6	Towels	Cotton (small and medium size)
7	Wax strips	Non-woven fabric

Tool List - Retail

Tools

S. No.	Item	Specifications	Quantity
1	Barcode Scanner Machine	Handheld laser/CCD scanner, USB connectivity, plug & play	8-10
2	Billing software & laptop/Billing machine	POS software with GST billing, laptop/desktop with printer support	5–6 systems
3	Dummy products for display	Empty/replica FMCG packaging (grocery, personal care, etc.)	100-200 units
4	Gondola	Double-sided retail display racks (metal/wood, adjustable shelves)	4-6
5	Shelves for stacking products	Wall-mounted/standalone storage shelves	6-8
6	Signage Board	Acrylic/printed boards (offers, sections, branding)	8-10
7	Receipt Printer	Thermal printer (USB/Bluetooth)	5-6
8	Weighing Machine	Digital weighing scale (5–30 kg capacity)	2-3
9	CCTV (Demo Purpose)	Basic camera setup for retail security demo	1-2
10	Display Stand (Promotional)	Standees/endcap display units	3-4
11	POS Billing and Inventory Management Terminal	Basic stock + billing integration. Builds billing competency alongside customer handling	1

***Quantity (for a class of 40 students)**

Suggested Equipment's for AI Integration

Desktop

Operating System	Schools can have the Linux operating system or the Licensed version of Windows 11 or above, whichever is feasible
Browser	Latest Mozilla Firefox/Microsoft Edge/Google Chrome. (Should be regularly updated, to overcome security threats)
Processor	Intel® Core™ i7 13700 (13th Generation or higher) or AMD Ryzen™ 7 8700G Pro (8000-Series Pro or Higher) or equivalent
RAM	16 GB DDR5-5600 MHz RAM or more
Storage	1 TB PCIe® NVMe™ SSD generation 4 or 1 TB internal SSD
Monitor/Display	15-18" LCD monitor (HDMI compatible)
Other	Internal or external Full HD Webcam, external hard drive for backups.
Recommended Quantity	Three to five Desktops

Laptop

Operating System	Recommended Operating System: Linux Schools can also have the Licensed version of Windows 11 or above. (whichever is feasible for schools)
Processor	Intel® Core™ Ultra 5 processor 135H with Intel vPro® Enterprise OR R7 8840U Pro AMD OR Equivalent
RAM	16 GB DDR5-5600 MT/s or more
Storage	1 TB PCIe® NVMe™ SSD generation 4 Or 1 TB internal SSD
Monitor/Display	15-18" LCD monitor (HDMI compatible)
Other	Internal Webcam (internal), storage cupboard with locks, carrying case, external hard drive for backups.
Recommended Quantity	Three to five Laptops

8. List of References and Sources

Documents referred to:

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   https://dsel.education.gov.in/sites/default/files/guidelines/ncf_2023.pdf

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   https://ncert.nic.in/

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