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# SENIOR SCHOOL CURRICULUM DESIGN

**GRADE 10**

# WOOD TECHNOLOGY



KENYA INSTITUTE OF CURRICULUM DEVELOPMENT  
2024

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**KENYA INSTITUTE OF CURRICULUM DEVELOPMENT**  
*Nurturing Every Learner's Potential*

**SENIOR SECONDARY SCHOOL CURRICULUM DESIGN**

**GRADE 10**

**WOOD TECHNOLOGY**

**JUNE, 2024**

First Published in 2024

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## NATIONAL GOALS OF EDUCATION

Education in Kenya should:

**1. Foster nationalism and patriotism and promote national unity.**

Kenya's people belong to different communities, races and religions, but these differences need not divide them. They must be able to live and interact as Kenyans. It is a paramount duty of education to help young people acquire this sense of nationhood by removing conflicts and promoting positive attitudes of mutual respect which enable them to live together in harmony and foster patriotism in order to make a positive contribution to the life of the nation.

**2. Promote the social, economic, technological and industrial needs for national development.**

Education should prepare the youth of the country to play an effective and productive role in the life of the nation.

**a) Social Needs**

Education in Kenya must prepare children for changes in attitudes and relationships which are necessary for the smooth progress of a rapidly developing modern economy. There is bound to be a silent social revolution following in the wake of rapid modernization. Education should assist our youth to adapt to this change.

**b) Economic Needs**

Education in Kenya should produce citizens with the skills, knowledge, expertise and personal qualities that are required to support a growing economy. Kenya is building up a modern and independent economy which is in need of an adequate and relevant domestic workforce.

**c) Technological and Industrial Needs**

Education in Kenya should provide learners with the necessary skills and attitudes for industrial development. Kenya recognizes the rapid industrial and technological changes taking place, especially in the developed world. We can only be part of this development if our education system is deliberately focused on the knowledge, skills and attitudes that will prepare our young people for these changing global trends.

**3. Promote individual development and self-fulfilment**

Education should provide opportunities for the fullest development of individual talents and personality. It should help children to develop their potential interests and abilities. A vital aspect of individual development is the building of character.

**4. Promote sound moral and religious values.**

Education should provide for the development of knowledge, skills and attitudes that will enhance the acquisition of sound moral values and help children to grow up into self-disciplined, self-reliant and integrated citizens.

**5. Promote social equity and responsibility.**

Education should promote social equality and foster a sense of social responsibility within an education system which provides equal educational opportunities for all. It should give all children varied and challenging opportunities for collective activities and corporate social service irrespective of gender, ability or geographical environment.

**6. Promote respect for and development of Kenya's rich and varied cultures.**

Education should instill in the youth of Kenya an understanding of past and present cultures and their valid place in contemporary society. Children should be able to blend the best of traditional values with the changing requirements that must follow rapid development in order to build a stable and modern society.

**7. Promote international consciousness and foster positive attitudes towards other nations.**

Kenya is part of the international community. It is part of the complicated and interdependent network of peoples and nations. Education should therefore lead the youth of the country to accept membership of this international community with all the obligations and responsibilities, rights and benefits that this membership entails.

**8. Promote positive attitudes towards good health and environmental protection.**

Education should inculcate in young people the value of good health in order for them to avoid indulging in activities that will lead to physical or mental ill health. It should foster positive attitudes towards environmental development and conservation. It should lead the youth of Kenya to appreciate the need for a healthy environment.

## **LEARNING OUTCOMES FOR SENIOR SCHOOL**

By the end of senior school, the learner should be able to:

1. Communicate effectively and utilise information and communication technology across varied contexts.
2. Apply mathematical, logical and critical thinking skills for problem solving.
3. Apply basic research and scientific skills to manipulate the environment and solve problems.
4. Exploit individual talents for leisure, self-fulfilment, career growth, further education and training.
5. Uphold national, moral and religious values and apply them in day to day life.
6. Apply and promote health care strategies in day to day life.
7. Protect, preserve and improve the environment for sustainability.
8. Demonstrate active local and global citizenship for harmonious co-existence.
9. Demonstrate appreciation of diversity in people and cultures.
10. Manage pertinent and contemporary issues responsibly.

## **THE SENIOR SCHOOL IN THE COMPETENCY BASED CURRICULUM (CBC)**

**Senior School is the fourth level of Basic Education in the Competency Based Curriculum (CBC)** that learners shall come to after the Pre-Primary, Primary and Junior School (JS). The essence of Senior School is to offer learners a Pre- University/ Pre-career experience where the learners have an opportunity to choose pathways where they have demonstrated interest and/or potential at the earlier levels. Senior school comprises three years of education for learners in the age bracket of **15 to 18 years** and lays the foundation for further education and training at the tertiary level and the world of work. In the CBC vision, learners exiting this level are expected to be *engaged, empowered and ethical citizens* ready to participate in the socio-economic development of the nation.

At this level, learners shall take **SEVEN (07) learning areas (LAs)** as recommended by the *Presidential Working Party on Educational Reforms* (PWPER). These shall comprise **Four Compulsory** learning areas, and Three learning areas opted for by the learner according to their chosen Pathway. While English and Kiswahili are indicated as Compulsory, the learners who opt for these learning areas as their subjects of specialization shall go through a *differentiated curriculum* in terms of scope, experiences and assessment. Such learners shall; therefore, take *Advanced English* or *Kiswahili Kipevu* with additional two lessons. It is recommended that **AT LEAST TWO** learning areas should be from chosen Pathway. In exceptional cases, some learners may opt for **ONE** learning area from the chosen Pathway and a maximum of **TWO** learning areas from any of the three pathways; depending on the learner's career projections and with guidance by the principals at Senior School.



## PROPOSED LIST OF SUBJECTS AT SENIOR SCHOOL

Compulsory Subjects	Science, Technology, Engineering & Mathematics (STEM)	Social Sciences	Arts & Sports Science
1. English 2. Kiswahili/KSL 3. Community Service Learning 4. Physical Education  <i><b>NB: ICT skills will be offered to all students to facilitate learning and enjoyment</b></i>	5. Mathematics/Advanced Mathematics 6. Biology 7. Chemistry 8. Physics 9. General Science 10. Agriculture 11. Computer Studies 12. Home Science 13. Drawing and Design 14. Aviation Technology 15. Building and Construction 16. Electrical Technology 17. Metal Technology 18. Power Mechanics 19. Wood Technology 20. Media Technology* 21. Marine and Fisheries Technology*	22. Advanced English 23. Literature in English 24. Indigenous Language 25. Kiswahili Kipevu/Kenya Sign Language 26. Fasihi ya Kiswahili 27. Sign Language 28. Arabic 29. French 30. German 31. Mandarin Chinese 32. History and Citizenship 33. Geography 34. Christian Religious Education/ Islamic Religious Education/Hindu Religious Education 35. Business Studies	36. Sports and Recreation 37. <i>Physical Education (C)</i> 38. Music and Dance 39. Theatre and Film 40. Fine Arts

## **LESSON DISTRIBUTION AT SENIOR SCHOOL**

The number of lessons in each of the compulsory learning areas shall be 4; while the optional areas shall be 6 lessons each. A lesson shall be 40 minutes. The "free" lessons shall be used for development of ICT skills, Pastoral Instruction Programme (PPI), projects, collaborative study and further reading.

## **ESSENCE STATEMENT**

Wood Technology is an optional subject offered at the Senior School level, specifically within the Technical and Engineering track of the STEM pathway. It focuses on the processing of timber and related products to create useful items for society, allowing learners to explore the unique relationship between trees, wooden materials, nature, and humankind. This subject emphasizes the sustainable use and management of wood as a vital natural resource, crucial for addressing the challenges of the 21st century. Wood plays a significant role in habitats, construction, recreation, and oxygen production, contributing to global well-being. Therefore, it is essential for learners to become knowledgeable about wood, exploring its heritage and potential as a material for the future.

It supports Kenya Vision 2030's goal to become a newly industrializing, middle-income country and aligns with the 2019 Sessional Paper on 'Reforming Education and Training in Kenya for Sustainable Development'. The Competency-Based Curriculum (CBC) aims to equip students with the necessary knowledge, skills, values, and attitudes for the future, as detailed in the Basic Education Curriculum Framework (BECF).

Wood Technology is balanced between theory and practical work, engaging learners in projects that connect the subject to their local environment. These projects enhance creativity, critical thinking, and the ability to design and make useful items, while also highlighting the benefits of Wood Technology in daily life.

The curriculum is organized into four strands: Foundations of Wood Technology, Materials, Timber Processes and Products, and Related Drawing, spanning grades 10 to 12. Learners acquire the knowledge, skills, attitudes, and values necessary for further

training in tertiary institutions or entry into the workforce through apprenticeships. This prepares them for careers in wood science technology, carpentry and joinery, building construction, and manufacturing.

### **SUBJECT GENERAL LEARNING OUTCOMES**

By the end of senior school, the learner should be able to:

1. To gain a comprehensive understanding of the basic principles of wood technology, including the properties, classification, and sustainable use of wood as a natural resource.
2. To identify and work with various wood materials and composites, understanding their applications and the processes involved in their preparation and treatment.
3. To acquire practical skills in timber processing techniques, enabling them to design, produce, and evaluate a range of wood products while adhering to safety standards and sustainability practices.
4. To enhance their technical drawing skills, essential for creating accurate and detailed plans for wood products, thus bridging the gap between conceptual designs and finished projects.
5. To appreciate benefits of evolution of technology and its application in Wood Technology

## SUMMARY OF STRANDS AND SUB STRANDS

<b>Strands</b>	<b>Sub Strands</b>	<b>Suggested Number of Lessons</b>
1.0 Foundations of wood technology	1.1 Overview of Wood technology	6
	1.2 Wood workshop	12
	1.3 Hand Tools and Equipment	26
2.0 Materials	2.1 Growth of Timber Trees	12
	2.2 Timber conversion and seasoning	14
	2.3 Adhesives	12
3.0 Timber processes and products	3.1 Preparation of Wood	18
	3.2 Wood working joints	26
	3.3 Surface preparation	16
	3.4 Project Activity – Furniture Item	24
4.0. Related drawings	4.1 Drawing and sketching	14
<b>Total Number of Lessons</b>		<b>180</b>

**Note:** The suggested number of lessons per sub strand may be more or less depending on the context

**STRAND 1.0: FOUNDATIONS OF WOOD TECHNOLOGY**

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
<p><b>1.0 Foundations of Wood Technology</b></p>	<p><b>1.1 Overview of Wood Technology</b> <b>(6 lessons)</b></p>	<p>By the end of the sub strand, the learner should be able to:</p> <p>a) explore the development of Wood Technology as an area of study,</p> <p>b) relate the benefits of studying Wood Technology to different careers for self-development,</p> <p>c) appreciate the role of wood technology in the development of the economy.</p>	<p>The learner is guided to:</p> <ul style="list-style-type: none"> <li>• brainstorm on the development of Wood Technology as an area of study,</li> <li>• search online on the evolution of Wood Technology,</li> <li>• discuss in groups the benefits and careers in Wood Technology,</li> <li>• participate in a career talk by resource persons from different wood related sectors,</li> <li>• discuss in groups, the importance of Wood Technology in economic development.</li> </ul>	<ol style="list-style-type: none"> <li>1. Why is wood technology important as an area of study?</li> <li>2. What are the careers related to wood technology</li> </ol>
<p><b>Core competencies to be developed:</b></p> <ul style="list-style-type: none"> <li>• Digital literacy: learner acquires digital skills when using digital devices to search for information on evolution of Wood Technology.</li> </ul>				

- Communication and Collaboration: learner develops speaking, listening and team working skills when participate in career talks.
- Self-efficacy: learner acquires intrinsic self-motivation when brainstorming on the Wood Technology as an area of study.

**Values:**

- Unity: learner cooperates with others when discussing the importance of Wood Technology in economic development.
- Respect: learner appreciates diverse opinions of others as they discuss the importance of Wood.
- Responsibility: learner use and care for digital devices when search for information online

**Pertinent and Contemporary Issues (PCIs):**

- Peer education: learner share information on the evolution of Wood Technology during discussions
- Cyber security: learner observe cyber regulations when searching for information online
- Social cohesion: learner socializes while working in groups when discussing the importance of Wood Technology in economic development.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
<b>1.0 Foundations of Wood Technology</b>	<b>1.2 Wood Workshop (12 lessons)</b>	By the end of the sub strand, the learner should be able to: a) describe features of a wood workshop, b) illustrate the layout of a wood workshop, c) explain reasons for observing safety in the wood workshop, d) appreciate the importance of different features in a Wood workshop.	The learner is guided to: <ul style="list-style-type: none"> <li>• brainstorm on features of a wood workshop,</li> <li>• visit workshops in the school and community to identify different features,</li> <li>• use digital devices to search for features of a wood workshop,</li> <li>• sketch and display the layout of a wood workshop,</li> <li>• discuss reasons for observing safety in the wood workshop.</li> </ul>	<ol style="list-style-type: none"> <li>1. Why is it important to have specific features in a wood workshop?</li> <li>2. Why should a wood workshop have a proper layout?</li> </ol>
<p><b>Core competencies to be developed:</b></p> <ul style="list-style-type: none"> <li>• Communication and Collaboration: learner develops speaking, listening and team working skills when brainstorming on features of workshop and discuss safety measures.</li> <li>• Digital Literacy: learner develops digital skills when interacting and manipulating digital devices to search for features of a wood workshop</li> </ul>				
<p><b>Values:</b></p> <ul style="list-style-type: none"> <li>• Respect: learner appreciates diverse opinions of others as they discuss reasons for observing safety in the wood workshop.</li> <li>• Unity: learner visit workshops as a team in the school and neighbourhood to identify different features of wood workshop.</li> </ul>				

- Patriotism: learner promotes good safety practices in the work environment.

**Pertinent Contemporary Issues(PCs)**

- Safety and security: learner observes safety for self and others in the workshop.
- Mentorship skills: learner learns from resource persons in neighbourhood workshops.

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Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
<b>1.0 Foundations of wood technology</b>	<b>1.3 Hand Tools and equipment</b>  <b>(26 lessons)</b>	By the end of the sub strand, the learner should be able to: <ol style="list-style-type: none"> <li>identify different types of hand tools and equipment in the workshop,</li> <li>classify different hand tools in the wood workshop,</li> <li>demonstrate safe use of hand tools and equipment in wood workshop,</li> <li>care and maintain hand tools during and after use in wood workshop,</li> <li>appreciate the importance of using the correct hand tools and equipment for a given task.</li> </ol>	The learner is guided to: <ul style="list-style-type: none"> <li>use visual aids to identify hand tools used in wood workshop,</li> <li>categorise the classes of woodworking hand tools; <i>measuring, marking out, cutting, sharpening, boring, planing, impelling, holding/clamping, tools shaping.</i></li> <li>brainstorm different types of equipment used in the workshop (<i>workbench, portable stands, bench hook</i>),</li> <li>sketch and label different types of hand tools,</li> <li>practice safe use of hand tools and equipment.</li> <li>discuss in groups how to care and maintain hand tools and equipment</li> </ul>	<ol style="list-style-type: none"> <li>Why is it important to use hand tools correctly.</li> <li>Why is it important to care for and maintain hand tools in a Wood workshop?</li> </ol>
<b>Core competencies to be developed:</b> <ul style="list-style-type: none"> <li>Communication and Collaboration: learner develops speaking, listening and teamwork skills when brainstorming different types of equipment used in the workshop</li> </ul>				

- **Critical thinking and Problem Solving:** learner develops evaluation and decision making skills when drawing and labelling different types of hand tools.
- **Digital literacy:** learner develops digital skills when interacting and manipulating digital devices to visual aids to identify hand tools used in wood workshop.

**Values:**

- **Responsibility:** learner cares for tools and equipment as they practice safe use.
- **Unity:** learner cooperates with others as they watch video clips and discusses uses of hand tools.

**Pertinent and Contemporary Issues (PCIs)**

Safety and security- learner observe safety for self when working with tools.

### Suggested Assessment Rubric

<b>Level</b> <b>Indicator</b>	<b>Exceeds Expectations</b>	<b>Meets Expectations</b>	<b>Approaches Expectations</b>	<b>Below Expectations</b>
Ability to identify features in a wood workshop	Identifies features in a wood workshop and is able to specify where each is to be placed	Identifies features in a wood workshop	Identifies features in a wood workshop but missed out on a few.	Identifies the features in a wood workshop but misses out on quite a number
Ability to illustrate the layout of a wood workshop	Illustrates the layout of the wood workshop and label the zones	Illustrates the layout of the wood workshop	Illustrates the layout of the wood workshop but misses out on a few details	Illustrates the layout of the wood workshop but misses out on many details
Ability to identify types of hand tools used in the wood workshop	Identifies types of hand tools used in the wood workshop giving more details	Identifies hand tools used in the workshop	Identifies hand tools used in the workshop but misses a few	Identifies hand tools used in the workshop but misses many
Ability to select the correct tool for a given task	Selects the correct tool for a given task and is able to tell which one is appropriate	Selects the correct tool for a given task	Select the correct tool for a given task but is not able to ascertain the appropriate type	Select the correct tool for a given task but at times confuses between some tools
Ability to use the correct tool for a given task	Uses the correct tool for a given task safely	Uses the correct tool for a given task	Uses the correct tool for a given task missing out some steps	Uses the correct tool for a given task missing out many steps.

## STRAND 2.0 MATERIALS

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Materials	2.1 Growth of timber trees (12 lessons)	By the end of the sub strand, the learner should be able to: a) describe the process of growing trees for timber production, b) classify timber trees according to their physical features c) illustrate a cross section of a tree trunk d) appreciate the importance of growing trees within the environment.	The learner is guided to: <ul style="list-style-type: none"> <li>brainstorm on the process of timber tree growth from seed to maturity.</li> <li>Take a walk to the surrounding to observe and classify trees into softwoods or hardwoods according to their physical features</li> <li>sketch and label parts of a tree trunk</li> <li>discuss the functions of parts of a tree trunk.</li> <li>prepare a tree nursery within the school compound and monitor their growth.</li> </ul>	<ol style="list-style-type: none"> <li>Why is the growing of timber trees important in the society?</li> <li>Which are the common species of trees for timber in Kenya?</li> </ol>
<p><b>Core competencies to be developed:</b></p> <ul style="list-style-type: none"> <li>Communication and collaboration: learner develops speaking, listening and teamwork skills when brainstorming on the process of timber tree growth from seed to maturity</li> <li>Critical thinking and problem solving: learner develops evaluation and decision making skills when sketching and labelling parts of a tree trunk</li> <li>Learning to learn: learner reflects on own work when preparing a tree nursery within the school compound.</li> </ul>				

**Values:**

- Responsibility: learner takes care of the tree nurseries within the school compound and monitors their growth.
- Patriotism: learner donates seedlings for environmental conservation.
- Unity: learner takes a walk to the surrounding to observe and classify trees into softwoods or hardwoods.

**Pertinent and Contemporary Issues (PCIs):**

- Social cohesion: learner tour and interact with their neighbourhood to observe and classify trees
- Identifying and nurturing of gifts and talents: learner sketch and label parts of a tree trunk

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Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
<b>2.0 Materials</b>	<b>2.2 Timber conversion and seasoning</b>  <b>(14 lessons)</b>	By the end of the sub strand, the learner should be able to: <ol style="list-style-type: none"> <li>describe the methods of timber conversion,</li> <li>illustrate methods of timber seasoning,</li> <li>appreciate the role of technology in enhancing safety during timber conversion.</li> </ol>	The learner is guided to: <ul style="list-style-type: none"> <li>brainstorm on methods of timber conversion (<i>through and through, quarter sawing, tangential sawing</i>)</li> <li>use digital and print media to search for methods of timber seasoning</li> <li>discuss in groups reasons for timber seasoning</li> <li>construct models to demonstrate proper stacking of timber.</li> <li>Visit a neighbouring saw mill to observe the conversion and seasoning of timber</li> </ul>	<ol style="list-style-type: none"> <li>How is timber converted?</li> <li>Why is seasoning of timber necessary?</li> </ol>
<p><b>Core competencies to be developed:</b></p> <ul style="list-style-type: none"> <li>Digital literacy: learner develops digital skills when interacting and manipulating digital devices to search for methods of timber seasoning</li> <li>Learning to learn: learner reflects on own work when brainstorming on methods of timber conversion</li> </ul>				

**Values:**

- Respect: learner appreciates diverse opinions of others as the learner discuss in reasons for timber seasoning
- Responsibility: learner takes care of visual aids used to detail the different methods of timber seasoning.

**Pertinent and Contemporary Issues (PCIs):**

- Safety and security: learner carry out timber stacking ready for air seasoning within the locality,
- Social cohesion: learner works in groups to brainstorm on the stages of timber processing from felling to seasoning.

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Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Materials	2.3 Adhesives  (12 lessons)	By the end of the sub strand, the learner should be able to: a) identify types of adhesives used for bonding materials, b) describe the characteristics of adhesives used in Wood Technology, c) use adhesives to bond materials in wood technology. d) appreciate the importance and use of wood adhesives.	The learner is guided to: <ul style="list-style-type: none"> <li>● discuss types of adhesives used in bonding materials</li> <li>● use visual aids to view types of adhesives used in bonding materials</li> <li>● classify of adhesives used in Wood Technology</li> <li>● search online the characteristics of adhesives used in Wood Technology; internal and external use</li> <li>● watch a video clip on how adhesives are used in Wood Technology</li> <li>● prepare and apply adhesives on a surface ready for bonding</li> <li>● discuss safety precautions related to use and disposal of adhesives used in Wood Technology</li> <li>● visit to nearby workshop to observe the use of adhesives used in Wood Technology</li> </ul>	Why are wood adhesives important?
<b>Core competencies to be developed:</b>				



- **Communication and Collaboration:** learner develops speaking, listening and teamwork skills when discussing types of adhesives used in bonding materials
- **Learning to learn:** learner reflects on own work when visiting nearby workshop to observe uses of adhesives used in wood technology.
- **Digital literacy:** learner develops digital skills when interacting and manipulating digital devices to search online the characteristics of adhesives used in Wood Technology.

**Values:**

- **Responsibility:** learner takes care of adhesives when applying on a surface to avoid wastage.
- **Unity:** learner work together in groups to discuss types of adhesives used in bonding materials and classification of adhesives.
- **Respect:** learner appreciates diverse opinions of others as learner discusses safety precautions related to use and disposal of adhesives.

**Pertinent and Contemporary Issues (PCIs):**

- **Drug and substance abuse:** learner prepares and applies adhesives on a surface.
- **Environmental conservation:** learner manage the use and disposal of adhesive wastes

<b>Suggested Assessment Rubric</b>				
<b>Indicator</b>	<b>Exceeds Expectations</b>	<b>Meets Expectations</b>	<b>Approaches Expectations</b>	<b>Below Expectations</b>
Ability to illustrate parts of a tree in relation to the growth of a timber tree.	Illustrates the cross section of a tree trunk and states the function of each part	Illustrates the cross section of a tree trunk	Illustrates the cross section of a tree trunk but leaves out few parts	Illustrates the cross section of a tree trunk but leaves out many parts
Ability to arrange stacks of timber in readiness for air seasoning	Arranges stacks of timber in readiness for air seasoning allowing aeration in the stack	Arranges stacks of timber in readiness for air seasoning	Arranges stacks of timber in readiness for air seasoning leaving out piling sticks	Arranges stacks of timber in readiness for air seasoning but places some boards on the floor
Ability use of adhesives to bond materials.	Uses adhesives to bond materials and applies on exact position.	Uses adhesives to bond materials.	Uses adhesives to bond materials but misses exact position.	Uses adhesives to bond materials but fails to align materials for bonding

### STRAND 3.0: WOOD PROCESSES AND PRODUCTS

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
<b>3.0 Wood Processes and Products</b>	<b>3.1 Preparation of Wood</b>  <b>(18 lessons)</b>	By the end of the sub strand, the learner should be able to: <ol style="list-style-type: none"> <li>select appropriate tools and equipment for wood preparation,</li> <li>describe the processes involved in wood preparation,</li> <li>carry out different operations on prepared wood,</li> <li>appreciate the importance of wood preparation for a product.</li> </ol>	The learner is guided to: <ul style="list-style-type: none"> <li>discuss in groups tools and equipment used for wood preparation (<i>handsaw, tenon saw, jack plane, try square, marking gauge, bench hook</i>)</li> <li>brainstorm on the procedure of truing up the stock in preparation of wood</li> <li>search online on procedures of truing up stock (<i>face side, face edge, width/thickness, length</i>)</li> <li>execute different processes on timber; (<i>chamfering, beveling, rebating, grooving, housing, mitring, shaping, boring holes</i>)</li> <li>visit a nearby workshop to observe the preparation of wood.</li> </ul>	Why is it necessary to carry out wood preparations?
<b>Core competencies to be developed:</b> <ul style="list-style-type: none"> <li>Learning to Learn: learner reflects on own work when visiting a nearby workshop to observe the preparation wood practice.</li> </ul>				

- **Self-efficacy:** learner acquires intrinsic self-motivation when expressing their views as they discuss the procedure of truing up stock.
- **Digital literacy:** learner develops digital skills when interacting and manipulating digital devices to search online on procedures of truing up stock

**Values:**

- **Unity:** learner use and share available tools for wood preparation.
- **Respect:** learner appreciates each other's contribution when discussing the procedure of truing up the stock.

**Pertinent and Contemporary Issues (PCIs):**

- **Life skills:** learner acquires skills of decision making and problem solving while handling timber.
- **Environmental conservation:** learner exhibits skills on how to minimize wastage.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
<b>3.0 Wood Processes And Products</b>	<b>3.2 Wood working joints</b>  <b>(26lessons)</b>	By the end of the sub strand, the learner should be able to; <ol style="list-style-type: none"> <li>identify different types of joints in wood work,</li> <li>classify types of joints in wood work,</li> <li>prepare joints used in wood work,</li> <li>identify fasteners used in strengthening woodworking joints,</li> <li>appreciate the role of wood working joints in making of wood product.</li> </ol>	The learner is guided to: <ul style="list-style-type: none"> <li>discuss different types of joints in wood work</li> <li>discuss classification of wood joints (<i>lengthening, widening and framing</i>).</li> <li>sketch woodworking joints (<i>lengthening, widening and framing</i>)</li> <li>use video clips to show how to prepare and assemble different woodworking joints</li> <li>use visual aids to identify different fasteners used in wood working joints (<i>screws nails dowels</i>)</li> <li>visit nearby wood workshops to observe the application of wood joints.</li> </ul>	<ol style="list-style-type: none"> <li>How are wood joints constructed?</li> <li>Why are wood fasteners important?</li> </ol>
<p><b>Core competencies to be developed:</b></p> <ul style="list-style-type: none"> <li><b>Communication and Collaboration:</b> learner develops speaking, listening and teamwork skills when discussing classification of wood working joints.</li> <li><b>Critical Thinking and Problem Solving:</b> learner develops evaluation and decision making skills when discussing ways of strengthening joints using fasteners.</li> </ul>				

- Digital Literacy: learner develops digital skills when interacting and manipulating digital devices when watching video clips on how to prepare and assemble different woodworking joints

**Values:**

- Responsibility: learner avoid wastage of fasteners in joint construction
- Respect: learner appreciate each other's contribution when discussing classification of wood working joints

**Pertinent and Contemporary Issues (PCIs):**

- Community involvement: learner visit local workplaces to observe application of wood joints and fasteners.
- Safety and security: learner handles tools to fabricate and strengthen joints.

Strand	Sub strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
<b>3.0 Wood Processes and Products</b>	<b>3.3 Surface preparation</b>  <b>(16 lessons)</b>	By the end of the sub strand, the learner should be able to: a) explain the reasons for finishing a wood product, b) select materials and tools for surface preparation, c) prepare a wood surface to receive clear varnish, d) appreciate the importance of preparing of wood surfaces to receive finishes.	The learner is guided to: <ul style="list-style-type: none"> <li>• discuss in groups reasons for finishing a product.</li> <li>• discuss in groups materials, tools that are required for surface preparation( <i>scraper, sand paper, files hot iron and cloth</i>)</li> <li>• visit a neighborhood workshop to learn the preparation of surface (<i>Scraping, raising the grain, hand sanding</i>)</li> <li>• search online for materials required for surface preparation.</li> <li>• Apply clear varnish on a wood product</li> </ul>	Why is surface preparation in wood finishing important?
<p><b>Core competencies to be developed:</b></p> <ul style="list-style-type: none"> <li>• Communication and collaboration: learner develops speaking, listening and teamwork skills when discussing reasons for finishing a product.</li> <li>• Digital Literacy: learner develops digital skills when interacting and manipulating digital devices to search online for materials required for surface preparation</li> </ul>				

**Values:**

- Respect: learner accommodates opinions of others during discussions on materials, tools that are required for surface preparation.
- Love: learner interact and share tools while carrying out the operations of preparing the surface for wood finishes.
- Responsibility: learner takes care of tools to carry out the preparation of surface for wood finishes.

**Pertinent and Contemporary Issues (PCIs):**

- Environmental conservation: learner manages waste from finishes and surface preparation materials.



Strand	Sub strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
<b>3.0 Wood Processes and Products</b>	<b>3.4 Project Activity – Furniture Item (24 lessons)</b>	By the end of the sub strand, the learner should be able to: a) construct a furniture item using hand tools b) appreciate the skills learned by completing a woodwork project	The learner is guided to: <ul style="list-style-type: none"> <li>• discuss the procedure of carrying out the project(<i>stool, bench, coffee table, chair, shoe rack, bedside cabinet, book rack</i>)</li> <li>• select appropriate materials and tools for making the project</li> <li>• prepare materials to required sizes using hand tools- (<i>cutting, planing, marking, )</i></li> <li>• mark and cut joints on the prepared work pieces</li> <li>• assemble the parts using wood glue (<i>trial, dry &amp; final assembly</i>)</li> <li>• finish the project by sanding</li> </ul>	How do you carry out a woodwork project?
<p><b>Core competencies to be developed:</b></p> <ul style="list-style-type: none"> <li>• Communication and Collaboration: learner develops speaking, listening and teamwork skills when discussing the procedure of carrying out a woodwork project</li> <li>• Critical Thinking and Problem Solving: learner develops evaluation and decision making skills when selecting appropriate materials and tools for making the project</li> </ul>				
<p><b>Values:</b></p> <ul style="list-style-type: none"> <li>• Responsibility: learners observe safety as they work with tools and equipment when carrying out the project</li> <li>• Respect: learner appreciate each other’s contribution during the project making process</li> </ul>				

**Pertinent and Contemporary Issues (PCIs):**

- Safety and security: learner prepare materials to required sizes using hand tools
- Life skills: learner acquires skills of decision making and problem solving while carrying out the project.

**Suggested Assessment Rubric**

<b>Level</b> <b>Indicator</b>	<b>Exceeds Expectation</b>	<b>Meets Expectation</b>	<b>Approaches Expectation</b>	<b>Below Expectation</b>
Ability to select appropriate tools and equipment for wood preparation	Selects all tools and equipment for wood preparation	Selects 4 -5 tools and equipment for wood preparation	Selects 2-3 tools and equipment for wood preparation	Selects 1 tool and equipment for wood preparation
Ability to carry out different operations on prepared wood	Carries out all operations on prepared wood	Carries out all operations on prepared wood	Carries out some operations on prepared wood	Carries out a few operations on prepared wood
Ability to prepare three categories of joints used in wood work	Prepares three categories of joints used in woodwork and states the application of each	Prepares the three categories of joints used in wood work	Prepares two category of joints used in wood work	Prepares one category of joints used in wood work
Ability to select materials and tools for preparing a surface to receive a finish	Selects five materials and tools for preparing a surface to receive a finish	Selects three or four materials and tools for preparing a surface to receive a finish	Selects two materials and tools for preparing a surface to receive a finish	Selects one material and tool for preparing a surface to receive a finish

**STRAND 4.0: RELATED DRAWING AND DESIGN**

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
4.0 Related Drawing	2.1 Drawing and sketching  (14lessons)	By the end of the sub strand the learner should be able to: a) identify different types of pictorial drawings used in wood technology b) draw shapes of items to be made in isometric projection c) draw orthographic views from isometric projections d) make freehand sketches of items for designs purposes e) embrace the use of drawing in design of items to be produced in the workshop.	The learner is guided to: <ul style="list-style-type: none"> <li>• use digital device to identify different types of pictorial drawings (<i>oblique, isometric, perspective</i>)</li> <li>• use drawing instruments to make isometric drawings</li> <li>• interpret drawings from isometric to orthographic projection</li> <li>• make freehand sketches of possible designs for use in production</li> </ul>	<ol style="list-style-type: none"> <li>1. What is the importance of drawing in wood technology?</li> <li>2. How can you make use of drawings in the design process?</li> </ol>
<p><b>Core competencies to be developed:</b></p> <ul style="list-style-type: none"> <li>• Digital literacy: learner develops digital skills when interacting and manipulating digital devices when identifying types of pictorial drawings.</li> <li>• Critical thinking and problem solving: learner develops evaluation and decision making skills when using drawing instruments to make isometric drawings</li> </ul>				
<p><b>Values:</b></p> <ul style="list-style-type: none"> <li>• Responsibility: learner takes care of drawing instruments when drawing.</li> <li>• Love: learners share drawing instruments and other materials used in drawing</li> </ul>				

**Pertinent and Contemporary Issues (PCIs):**

- Analytical thinking: learner makes isometric drawings and interprets orthographic projections from isometric drawings.
- Social cohesion: learner works in groups when using digital devices.

**Suggested Assessment Rubric**

<b>Level</b> <b>Indicator</b>	<b>Exceeds Expectations</b>	<b>Meets Expectations</b>	<b>Approaches Expectations</b>	<b>Below Expectations</b>
Ability to identify types of pictorial drawings	Identifies three types of pictorial drawings and specifies the oblique types of drawings (cavalier and cabinet)	Identifies three types of pictorial drawings	Identifies two type of pictorial drawing	Identifies one type of pictorial drawing
Ability to draw shapes of items in isometric projection	Draws shapes of items in isometric projection and includes all the details	Draws shapes of items in isometric projection.	Draws shapes of items in isometric projection leaves some details	Draws shapes of items in isometric leaves many details
Ability to interpret drawings from isometric to orthographic projection.	Interprets drawings from isometric to orthographic projection and includes all the details including linework	Interprets drawings from isometric to orthographic projection	Interprets drawings from isometric to orthographic projection but misses to include some details	Interprets drawings from isometric to orthographic projection but misses many details

**APPENDIX: LIST OF ASSESSMENT METHODS, LEARNING RESOURCES AND NON-FORMAL ACTIVITIES**

<b>Strand</b>	<b>Sub strand</b>	<b>Suggested assessment methods</b>	<b>Suggested learning resources</b>	<b>Suggested non-formal activities</b>
<b>1.0 Foundations of wood technology</b>	1.1 Overview of Wood technology	<ul style="list-style-type: none"> <li>• Oral tests</li> <li>• Observation</li> <li>• Checklist</li> </ul>	<ul style="list-style-type: none"> <li>• Digital devices such as; computer, laptop, smart phone, tablets among others</li> <li>• Resource person</li> <li>• Charts</li> </ul>	Learners visit a nearby workshop in the locality to familiarize with wood workshop.
	1.2 Wood workshop	<ul style="list-style-type: none"> <li>• Oral tests</li> <li>• Observation</li> <li>• Practical work</li> </ul>	<ul style="list-style-type: none"> <li>• Digital devices such as; computer, laptop, smart phone, tablets among others</li> <li>• Charts and photos</li> </ul>	Learners visit a nearby workshop in the locality to observe the organization of wood workshop.
	1.3 Hand Tools and Equipment	<ul style="list-style-type: none"> <li>• Oral tests</li> <li>• Observation</li> <li>• Checklist</li> <li>• Practical work</li> <li>• Oral tests</li> </ul>	<ul style="list-style-type: none"> <li>• Digital devices such as; computer, laptop, smart phone, tablets among others</li> <li>• Hand tools such as; <i>Measuring, Marking out, Cutting tools, Sharpening tools, Boring tools, Planing tools, Impelling tools, Holding/clamping tool, Percussion tools,</i></li> </ul>	<ul style="list-style-type: none"> <li>• Learners visit a nearby workshop in the locality to observe the use hand tools and equipment,</li> <li>• Discussion by a resource person on uses of tools and equipment,</li> </ul>

			<p><i>Shaping tools, Finishing tool</i></p> <ul style="list-style-type: none"> <li>• Equipment such as; <i>Basic safety gears, Fire fighting equipment, Benches, Sawing stools, Bench hooks, Shooting boards, Mitre boards, Jigs and fixtures,</i></li> </ul>	<ul style="list-style-type: none"> <li>• Parental empowerment and engagement.</li> </ul>
<b>2.0 Materials</b>	2.1 Growth of Timber Trees	<ul style="list-style-type: none"> <li>• Oral tests</li> <li>• Observation</li> <li>• Checklist</li> <li>• Written test</li> <li>• Rubrics</li> </ul>	<ul style="list-style-type: none"> <li>• Digital devices such as; computer, laptop, smart phone, tablets among others</li> <li>• Resource person</li> <li>• photos</li> </ul>	<ul style="list-style-type: none"> <li>• Clubs and societies,</li> <li>• Field visit activities,</li> <li>• Discussion by a resource person on growth of timber trees.</li> </ul>
	2.2 Timber conversion and seasoning	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Checklist</li> <li>• Written test</li> <li>• Rubrics</li> <li>• practical work</li> </ul>	<ul style="list-style-type: none"> <li>• Digital devices such as; computer, laptop, smart phone, tablets among others</li> <li>• Photos</li> <li>• Assorted Pieces of wood (hard and soft)</li> <li>• Career brochures, career magazines</li> </ul>	Learners visit a nearby workshop in the locality to observe timber conversion and seasoning.

	2.3 Adhesives	<ul style="list-style-type: none"> <li>• Oral tests</li> <li>• Observation</li> <li>• Checklist</li> <li>• Written test</li> </ul>	<ul style="list-style-type: none"> <li>• Assorted types adhesives</li> <li>• Digital devices such as; computer, laptop, smart phone, tablets among others</li> </ul>	Discussion by a resource person on use of adhesives.
<b>3.0 Timber processes and products</b>	3.1 Preparation of Wood	<ul style="list-style-type: none"> <li>• Oral tests</li> <li>• Observation</li> <li>• Practical work</li> <li>• Oral tests</li> <li>• Observation</li> </ul>	<ul style="list-style-type: none"> <li>• Cutting tools</li> <li>• Smoothing tools</li> <li>• Assorted Pieces of wood (hard and soft)</li> <li>• Career brochures, career magazines</li> <li>• Digital devices such as; computer, laptop, smart phone, tablets among others</li> </ul>	<ul style="list-style-type: none"> <li>• Learners visit a nearby workshop in the locality to observe wood preparation,</li> <li>• Discussion by a resource person on growth of timber trees</li> </ul>
	3.2 Wood working joints	<ul style="list-style-type: none"> <li>• Oral tests</li> <li>• Observation</li> <li>• Checklist</li> <li>• Written test</li> <li>• Practical work</li> </ul>	<ul style="list-style-type: none"> <li>• Assorted Pieces of wood (hard and soft)</li> <li>• Career brochures, career magazines</li> <li>• Adhesives</li> <li>• Fasteners</li> </ul>	<ul style="list-style-type: none"> <li>• Learners visit a nearby workshop in the locality to observe the use of joints in making furniture,</li> <li>• Discussion by a resource person on use of joints.</li> </ul>

	3.3 Surface preparation	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Checklist</li> <li>• Written test</li> <li>• Rubrics</li> <li>• Practical work</li> </ul>	<ul style="list-style-type: none"> <li>• Cutting tools</li> <li>• Smoothing tools</li> <li>• Digital devices such as; computer, laptop, smart phone, tablets among others</li> </ul>	<ul style="list-style-type: none"> <li>• Learners visit a nearby workshop in the locality to familiarize with cutting and smoothing tools,</li> <li>• Discussion by a resource person on surface preparation.</li> </ul>
	3.4 Project Activity – Furniture Item	<ul style="list-style-type: none"> <li>• Written test</li> <li>• Oral assessment</li> <li>• Project report as learners progress with making the furniture item</li> </ul>	<ul style="list-style-type: none"> <li>• Digital devices</li> <li>• Relevant textbooks and reference materials</li> <li>• Assorted tools and materials</li> </ul>	<ul style="list-style-type: none"> <li>• Clubs and societies,</li> <li>• Parental empowerment and engagement,</li> <li>• Learners visit a nearby workshop in the locality to familiarize with use of different tools.</li> </ul>
<b>4.0. Related drawings</b>	4.1 Drawing and sketching	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Oral tests</li> <li>• Checklist</li> <li>• Written test</li> <li>• Rubrics</li> </ul>	<ul style="list-style-type: none"> <li>• Drawing papers</li> <li>• Drawing equipment,</li> <li>• Digital devices,</li> </ul>	<ul style="list-style-type: none"> <li>• Learners take a walk around the school to observe and record the use of isometric and</li> </ul>



			<ul style="list-style-type: none"><li>• Computer Aided Design (CAD) software</li></ul>	orthographic projection in real life situation, <ul style="list-style-type: none"><li>• Discussion by a resource person on the use of CAD.</li></ul>
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