



Republic of Zambia

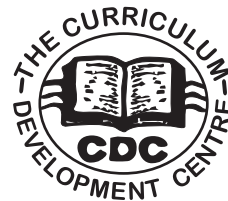
Ministry of Education, Science, Vocational Training and Early Education

---

# TECHNOLOGY STUDIES SYLLABUS

## GRADE 5 - 7

---



Prepared and Published by Curriculum Development Centre  
P.O. Box 50092  
Lusaka

© Curriculum Development Centre, 2013

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission of the copyright owner.

## **Vision**

Quality, life long education for all which is accessible, inclusive and relevant to individual, national and global needs and value systems

## Preface

This syllabus is a product of the recommendations made during the National Symposium held in June 2009, the Baseline Survey that was conducted by the Curriculum Development Centre in 2005 and the National Curriculum Framework Stakeholders meeting held at the Government Complex in April, 2012.

The teaching of Technology Studies at Primary School level is designed to lay a foundation for Design and Technology Subject at Secondary School level so as to prepare the learners for the demands in the changing technological world. In this regard, Technology Studies will equip learners with a variety of knowledge, skills and values that can prepare them for further education, entrepreneurship, life in general and the attainment of the Vision 2030.

Thus, the review was necessitated by the need to improve the quality of education at Primary School level as outlined and recommended in the policy document Educating Our Future (1996) and the Zambia Education Curriculum Framework (ZECF) of 2013.

It is my sincere hope that this syllabus will improve teaching and learning of Technology Subjects in Schools and have a positive impact on the quality of education and the national economy.



Chishimba Nkossa

**Permanent Secretary**

**MINISTRY OF EDUCATION, SCIENCE, VOCATIONAL TRAINING AND EARLY EDUCATION**

## Acknowledgements

The Technology Studies syllabus review exercise would not have been accomplished without the involvement, participation and commitment of many people. We want to thank all the people who took part in the review at different stages. Most importantly we thank Zambia Association for Technology Education (ZATE) for their numerous contributions towards the curriculum review process. We also wish to extend our gratitude to the Copper belt University (CBU) and Zambia Information and Communications Technology Authority (ZICTA) for their valuable contributions toward the Information and Communications Technology (ICT) component.

We wish to thank government departments and institutions of learning that were involved in the development and production of this syllabus in many varied ways.

Finally, we wish to acknowledge our indebtedness to the former Director of Standards and Curriculum Mrs. Florence Mfula, the former Chief Curriculum Specialist Ms Georgina Hamaimbo and the late Principal Curriculum Specialist Ms Mary M. Lungu for their valuable contributions in guiding the review exercise before they retired from the service.



C.N.M. Sakala (Mrs)

**Director – Standards and Curriculum**

**MINISTRY OF EDUCATION, SCIENCE, VOCATIONAL TRAINING AND EARLY EDUCATION**

## Contents

VISION	..	..	..	..	..	..	..	..	..	..	iii
PREFACE	..	..	..	..	..	..	..	..	..	..	iv
ACKNOWLEDGEMENTS	..	..	..	..	..	..	..	..	..	..	v
INTRODUCTION	..	..	..	..	..	..	..	..	..	..	vii
RATIONALE OF TECHNOLOGY STUDIES	..	..	..	..	..	..	..	..	..	..	viii
SUGGESTED TEACHING METHODOLOGY	..	..	..	..	..	..	..	..	..	..	ix
TIME ALLOCATION	..	..	..	..	..	..	..	..	..	..	x
OUTLINE OF THE SYLLABUS	..	..	..	..	..	..	..	..	..	..	x
GRADE 5	..	..	..	..	..	..	..	..	..	..	1
GRADE 6	..	..	..	..	..	..	..	..	..	..	7
GRADE 7	..	..	..	..	..	..	..	..	..	..	10
APPENDIX 1	..	..	..	..	..	..	..	..	..	..	13
- Suggested Projects for Grades V to VII	..	..	..	..	..	..	..	..	..	..	13
PROJECT EVALUATION SHEET	..	..	..	..	..	..	..	..	..	..	14
APPENDIX II	..	..	..	..	..	..	..	..	..	..	15
- Basic Equipment for Design Technology in Primary Schools	..	..	..	..	..	..	..	..	..	.....	15

## Introduction

Technology has existed throughout history. People apply knowledge, skills and use available resources to develop solutions that meet their needs and wants. Some of these solutions have been in form of products (e.g. shaping bones into fish hooks, making clay cooking pots) while other solutions have involved combining products into working systems (e.g. bow and arrow, moving water and a wheel, pestle and mortar).

Today people still have needs and wants. However, the knowledge, skills and resources used to find solutions are of a different kind because of accelerating development in technology. Today's society is more complicated and diverse. In this regard, economic and environmental factors, attitudes and values need to be taken into account when developing solutions.

Therefore, Technology Studies provides an opportunity for the learners to identify various *needs* and have hands-on experience to develop solutions that address their needs.

At Primary School level, the Technology Studies syllabus has two (2) main components: *Information and Communications Technology* and *Design and Technology*. The general description of the two strands is outlined below.

	COMPONENT	DESCRIPTION
1	<b>DESIGN AND TECHNOLOGY</b>	This component will focus on the application of knowledge and use of available resources to meet people's needs by developing practical solutions to problems. At the heart of this, is the identification of problems through open-ended problem solving approach.
2	<b>INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	One of the features of the rapidly changing world is the use of technology that has an impact on all aspects of modern life. Therefore, learners need to be equipped with skills and knowledge to be competent in accessing and working with various forms of information and technology.

Thus, the purpose of Technology Studies is to contribute towards learners' technological literacy by giving them opportunities to:

- \* develop and apply scientific skills to solve technological problems;
- \* appreciate the interaction between people's values and attitudes, technology, society and the environment
- \* understand the concepts and knowledge used in technology and use them responsibly and purposely
- \* exploit locally available natural resources, materials to satisfy mans' needs and desires

## **RATIONALE OF TECHNOLOGY STUDIES**

Many people think that technology is about programming computers or wiring complicated circuits. Truthfully, this is an aspect of technology which is commonly referred to as Information Technology. However, Technology is about being creative in finding appropriate solutions to human problems and meeting our needs. Therefore, Technology Studies, more than any other learning area prepares learners for the world of work. With this in mind, it is important that the subject is introduced to learners at a tender age. This is the best time because at this age, learners have delight in exploring their surroundings; enjoy making, dismantling, examining and experimenting things. In fact, teachers can be amazed by the learners' ability for being creative, problem-solving and decision making. In this regard, **designing** and **making** is the main thrust of the subject because it provides an opportunity for learners to use available materials, put their capability to work and to develop products that meet their real needs and wants.

To this end, Technology Studies will develop learners who will have:

- \* an ability to solve problems by investigating, designing, developing, evaluating as well as communicating effectively using different modes
- \* a fundamental understanding of an ability to apply technological knowledge, skills and values, working as individuals and as a group
- \* a critical understanding of the relationship between technology, society, the economy and the environment
- \* a motivated and deeper appreciation for self-employment career opportunities, develop entrepreneurial characteristics and qualities for successful pursuit
- \* an appreciation for using Information Technology tools and information sources such as computer systems and software packages to support learning in a variety of ways.

## **KEY COMPETENCIES OF TECHNOLOGY STUDIES**

The key competencies of Technology Studies are outlined at the beginning of each level in the syllabus.



## SUGGESTED TEACHING METHODOLOGY

The approach to teaching and learning is the learner-centred. Therefore, in order to develop learners with understanding, skills and values that can contribute to the development of society, the starting point for teaching and learning is to recognize that learners come to school with a wealth of knowledge and experience gained from the family, community and through interaction with the environment. Thus, learning in school must build on the learner's prior knowledge and experience.

This is best achieved when learners are actively involved in the learning process through *hands on activities*. However, each learner has individual needs, pace of learning, experiences in life and abilities. To accommodate this, the teacher must determine the needs of the learners, and shape the learning experiences accordingly. Therefore, teaching methods must be varied but flexible within well-structured sequences of lessons and should include among others:

- \* Working in Pairs
- \* Group work
- \* Individual Work
- \* Field trip Method
- \* Project Method
- \* Discussion Method
- \* Guest Speaker
- \* Demonstration Method
- \* Team Teaching

The teacher should have reasons for choosing a particular teaching method and must employ strategies and techniques to make the lesson interesting. The syllabus outlines the learning outcomes. Thus, the teacher must decide, in relation to the learning outcomes to be achieved, when it is best to let learners *discover* or *explore* information for themselves; when they need *directed learning; reinforcement* or when the learners can be allowed to find their own way through a topic.

In this way, outcomes can be attained in a spiral manner considering that in any lesson, different outcomes can be covered through knowledge, skills and values. The objective is to ensure that learners are able to apply the knowledge gained in real life situations.

## TIME ALLOCATION

The standard period allocation for Technology Studies at Upper Primary level has been prescribed in the Zambia Education Curriculum Framework (ZECF) of 2013. The minimum learner-teacher contact time for Upper Primary school level (Grade 5 to 7) is **2 hours 40 minutes** per week, translating into **four (4) periods** per week for the **two (2)** components. The duration for a single period is **40 minutes**.

While information on the teaching of different skills, resources, teaching methods and evaluation would be found in the Teacher's Guide, teachers should be mindful of the Specific Outcomes which are preceded by the General Outcomes that are found in this syllabus. Therefore, scheming should be based on the Specific Outcome. In most cases, more lessons will be required before achieving a certain Specific Outcome.

## OUTLINE OF THE SYLLABUS

This syllabus seeks to instill a sense of appreciation of technology education to ensure that learners adapt and cope with changing situations. It will also provide learners with broader concepts and principles in Technology, which will allow them to expand their thinking capacity to tackle real-life situations effectively.

The topics, sub-topics and outcomes are arranged in order for easy of reference. Some topics may be similar but the levels of knowledge, skills and values to be attained are not the same. Hence, when preparing lessons teachers should strive at building on what the learners already know.

The syllabus has been outlined in such a manner that both components of the subject (*Information and Communications Technology* and *Design and Technology*) are taught in an integrative manner. It is also envisaged that each school will have separate special rooms for the two components where learners will have to go and learn from. This will provide them with an opportunity for hands-on activities.

## GRADE 5

### GENERAL OUTCOMES AND COMPETENCES

GENERAL OUTCOMES	KEY COMPETENCES
<ul style="list-style-type: none"><li>▪ Develop competencies in the application of basic ICTs in everyday activities.</li><li>▪ Acquire knowledge, positive attitudes and values in designing and making artifacts.</li></ul>	<ul style="list-style-type: none"><li>▪ Show basic knowledge and skills of joining various materials</li><li>▪ Demonstrate ability to construct simple electric circuits</li><li>▪ Demonstrate basic first aid skills.</li><li>▪ Demonstrate ability to create, name and save files</li></ul>

## GRADE 5

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
<b>5.1 TECHNOLOGY</b>	<b>5.1.1 Inventions in Technology</b>	5.1.1.1 Describe factors that lead to inventions	<ul style="list-style-type: none"> <li>Human problems that led to Technology advances: communication, transport , lack of electricity</li> </ul>	<ul style="list-style-type: none"> <li>Identification of problem solving situations in the community</li> </ul>	<ul style="list-style-type: none"> <li>Appreciation of technology in problem solving situations</li> </ul>
	<b>5.1.2 Safety</b>	5.1.2.1 Apply safety rules in the workroom	<ul style="list-style-type: none"> <li>Types of workrooms: Computer room, workshop</li> <li>Safety rules, storage of tools, Care of tools</li> </ul>	<ul style="list-style-type: none"> <li>Application of safety rules in the workrooms</li> <li>Identification of safety rules</li> </ul>	<ul style="list-style-type: none"> <li>Awareness of safety rules</li> <li>Caring for tools in the workroom</li> </ul>
	<b>5.1.3 First Aid</b>	5.1.3.1 Explain the importance of First Aid	<ul style="list-style-type: none"> <li>Handling of accidental minor injuries.</li> </ul>	<ul style="list-style-type: none"> <li>Application of First Aid in the workroom</li> </ul>	<ul style="list-style-type: none"> <li>Appreciation of first-aid in the workroom</li> </ul>
<b>5.2 TOOLS AND MATERIALS</b>	<b>5.2.1 The Work Bench</b>	5.2.1.1 Identify parts of the workbench	<ul style="list-style-type: none"> <li>Parts of the bench and their uses: bench stop, sawing board, vice, well</li> </ul>	<ul style="list-style-type: none"> <li>Identifying parts of the work bench</li> </ul>	<ul style="list-style-type: none"> <li>Awareness of parts of the bench</li> </ul>
	<b>5.2.2 Classification of Tools</b>	5.2.2.1 Classify tools used for making items	<ul style="list-style-type: none"> <li><i>Measuring:</i> Measuring Tape, Steel Rule</li> <li><i>Marking Out:</i> Marking Gauge, Marking Knife</li> <li><i>Testing:</i> Try Square, Spirit Level</li> <li><i>Cutting:</i> Saws, planes, chisels</li> <li><i>Holding:</i> Bench vice,</li> <li><i>Driving:</i> Hammer, Mallet</li> <li><i>Building Tools:</i> Trowel, Building square</li> </ul>	<ul style="list-style-type: none"> <li>Identification of types of tools</li> <li>Classification of hand tools</li> <li>Application of hand tools when making items</li> </ul>	<ul style="list-style-type: none"> <li>Precision when measuring and cutting materials</li> <li>Caring for tools in the workroom</li> </ul>

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
	<b>5.2.3 Material Preparation</b>	5.2.3.1 Prepare materials before use.	<ul style="list-style-type: none"> <li>• Preparing wood: measuring, marking, cutting and planing procedure</li> <li>• Preparing metal: cutting and filing</li> </ul>	<ul style="list-style-type: none"> <li>• Planing wood to size</li> <li>• Cutting and filing metals to size</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of the stages of preparing material to size</li> </ul>
	<b>5.2.4 Joining Materials</b>	5.2.4.1 Join materials.	<ul style="list-style-type: none"> <li>• Joining Wood: Through housing, cross halving and nailing</li> <li>• Joining Metal: seaming</li> <li>• Joining Plastic: gluing</li> </ul>	<ul style="list-style-type: none"> <li>• Cutting housing and halving joints</li> <li>• Nailing wood</li> <li>• Gluing plastics</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of basic joints to articles</li> <li>• Observation of safety rules.</li> </ul>
	<b>5.2.5 Building Materials</b>	5.2.5.1 Describe materials used to construct various houses.	<ul style="list-style-type: none"> <li>• Traditional houses: Clay, mud, poles, grass</li> <li>• Conventional houses: Blocks, bricks, iron sheets</li> </ul>	<ul style="list-style-type: none"> <li>• Identification of traditional and conventional building materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of different materials in structures.</li> </ul>
<b>5.3 WINDOW MANIPULATION</b>	<b>5.3.1 Window Navigation</b>	5.3.1.1 Demonstrate the navigation of windows	<ul style="list-style-type: none"> <li>• Navigating Windows.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Closing</b> of windows forms.</li> <li>• <b>Maximizing</b> of windows forms.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Application</b> of maximise and minimise button.</li> </ul>
	<b>5.3.2 Cursor Shapes</b>	5.3.2.1 Identify and Explain the meaning of Cursor Status	<ul style="list-style-type: none"> <li>• Cursor shapes for busy and ready</li> <li>• Position point and select.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Minimizing</b> of windows forms.</li> <li>• <b>Identification</b> of cursor shapes</li> <li>• <b>Observation</b> of cursor shapes and events as they change.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Awareness</b> of maximised and minimised windows.</li> <li>• <b>Curiosity</b> in opening and closing windows forms</li> </ul>

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
5.4 PROGRAM RUNNING AND EXITING	5.4.1 Locating a Cursor	5.4.1.1 Locate and move a cursor.	<ul style="list-style-type: none"> <li>• Cursor symbol</li> <li>• Moving the cursor using the mouse and arrow keys.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Identification</b> of cursor symbol depending on location.</li> <li>• <b>Manipulation</b> of cursor movement mouse and arrow keys.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Application</b> of cursor mouse movement and arrow keys.</li> <li>• <b>Problem solving</b> in locating the cursor using arrow keys or the mouse</li> </ul>
5.5 DRAWING	5.5.1 Lettering	5.5.1.1 Print words	<ul style="list-style-type: none"> <li>• Printing words freehand and using alphabet stencils.</li> </ul>	<ul style="list-style-type: none"> <li>• Printing words using stencils</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of different ways of lettering</li> </ul>
	5.5.2 Angles	5.5.2.1 Construct and bisect angles	<ul style="list-style-type: none"> <li>• Construct and bisect: <math>60^{\circ}</math>, angles <math>90^{\circ}</math></li> </ul>	<ul style="list-style-type: none"> <li>• Construction of angles</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of constructing angles</li> </ul>
	5.5.3 Triangles	5.5.3.1 Construct triangles	<ul style="list-style-type: none"> <li>• Types and construction of triangles : Equilateral, Isosceles Scalene given sides</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of triangles when given the sides.</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of constructing triangles.</li> </ul>
	5.5.4 Quadrilaterals	5.5.4.1 Construct quadrilaterals	<ul style="list-style-type: none"> <li>• Types and construction of : Square, rectangles and kite given sides and diagonals</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of quadrilaterals when given the sides</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of constructing quadrilaterals.</li> </ul>
	5.5.5 Circles	5.5.5.1 Construct circles	<ul style="list-style-type: none"> <li>• Basic parts of a circle: radius, diameter, centre-lines, centre</li> <li>• Construct circles given the radius or diameter</li> </ul>	<ul style="list-style-type: none"> <li>• Identification of parts of the circle</li> <li>• Construction of circles</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of parts of the circle.</li> </ul>

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
5.6 GRAPHICS	5.6.1 Graphic Packages	5.6.1.1 Open graphic package	<ul style="list-style-type: none"> <li>Opening graphic package and image</li> </ul>	<ul style="list-style-type: none"> <li><b>Demonstration</b> how to resize, fill colour and change colour</li> </ul>	<ul style="list-style-type: none"> <li><b>Creativity</b> in creating graphic images</li> </ul>
	5.6.2 Pattern Creation	5.6.2.1 Manipulate graphic image	<ul style="list-style-type: none"> <li>Resize, fill colour and change colour</li> </ul>	<ul style="list-style-type: none"> <li><b>Identification</b> of resize, fill colour and change colour buttons</li> </ul>	<ul style="list-style-type: none"> <li><b>Application</b> of graphic package to create graphic images</li> </ul>
5.7 DESIGNING	5.7.1 Elements of Designing Graphics	5.7.1.1 Add text to drawing	<ul style="list-style-type: none"> <li>Adding text to drawing</li> </ul>	<ul style="list-style-type: none"> <li>Manipulation of text to drawing</li> </ul>	<ul style="list-style-type: none"> <li>Creative thinking in designing text</li> </ul>
5.8 SAVING AND OPENING	5.8.1 Saving Files	5.8.1.1 Distinguish between Save and Save As	<ul style="list-style-type: none"> <li>Save and Save As</li> </ul>	<ul style="list-style-type: none"> <li><b>Manipulation</b> of the Save As and Open dialogue boxes</li> <li><b>Demonstration</b> of saving, naming and opening files</li> <li><b>Identification</b> of Save As and Open dialogue box buttons</li> </ul>	<ul style="list-style-type: none"> <li><b>Creative</b> thinking</li> <li><b>Exploration</b> of Save as ... window.</li> </ul>
		5.8.1.2 Name and save file in a Specific location.	<ul style="list-style-type: none"> <li>Naming and saving files.</li> </ul>		
	5.8.2 Opening Files	5.8.2.1 Opening saved files	<ul style="list-style-type: none"> <li>Locating and opening saved files</li> </ul>		
5.9 ENERGY	5.9.1 Electricity	5.9.1.1 Describe the source of light in a home	<ul style="list-style-type: none"> <li>Source of light: Rural areas Urban areas</li> </ul>	<ul style="list-style-type: none"> <li>Identification of sources of light</li> </ul>	<ul style="list-style-type: none"> <li>Awareness of sources of light</li> </ul>
		5.9.1.2 Explain the generation of hydroelectricity in Zambia	<ul style="list-style-type: none"> <li>Hydroelectricity generation: Water, generator, turbines.</li> </ul>	<ul style="list-style-type: none"> <li>Identification of hydroelectricity in Zambia</li> </ul>	<ul style="list-style-type: none"> <li>Appreciation of hydroelectricity in Zambia</li> </ul>
		5.9.1.3 Identify electrical installation components in a home	<ul style="list-style-type: none"> <li>Electrical installations in a home: socket outlets, bulb holders, switches, meter box</li> </ul>	<ul style="list-style-type: none"> <li>Identification of domestic electrical components</li> </ul>	<ul style="list-style-type: none"> <li>Awareness of electrical components</li> </ul>
		5.9.1.4 Make a simple electric circuit	<ul style="list-style-type: none"> <li>Simple electric circuit: batteries, bulb, bulb holder, simple switch, cables</li> </ul>	<ul style="list-style-type: none"> <li>Construction of a simple electric circuit</li> </ul>	<ul style="list-style-type: none"> <li>Creative thinking when making simple circuits</li> </ul>

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
<b>5.10 ENTREPRENEURSHIP</b>	<b>5.10.1 Costing and Pricing</b>	5.10.1.1 Cost and price artifacts	<ul style="list-style-type: none"> <li>• Costing and pricing items</li> </ul>	<ul style="list-style-type: none"> <li>• Costing and pricing of items</li> </ul>	<ul style="list-style-type: none"> <li>• Appreciation of keeping record keeping</li> <li>• Awareness of different records of accounts.</li> </ul>
	<b>5.10.2 Record keeping</b>	5.10.2.1 Keep financial records.	<ul style="list-style-type: none"> <li>• Financial records: Cash, Stock and Sales book.</li> </ul>	<ul style="list-style-type: none"> <li>• Identification of financial records.</li> </ul>	



## GRADE 6

### GENERAL OUTCOMES AND COMPETENCES

GENERAL OUTCOMES	KEY COMPETENCES
<ul style="list-style-type: none"><li>▪ Develop competencies in the application of ICTs in everyday activities.</li><li>▪ Acquire knowledge, positive attitudes and values in designing and making artifacts.</li></ul>	<ul style="list-style-type: none"><li>▪ Show basic knowledge and skills in preparing and joining materials.</li><li>▪ Demonstrate basic skills in making and moulding bricks and blocks</li><li>▪ Show basic knowledge and skills of creating tables and formatting text.</li><li>▪ Demonstrate basic knowledge and skills in constructing basic structures.</li></ul>

## GRADE 6

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
6.1 FORMATTING	6.1.1 Text Formatting	6.1.1.1 Identify different Text formats 6.1.1.2 Demonstrate formatting text	<ul style="list-style-type: none"> <li>• Normal, bold and Italic.</li> <li>• Underline text, remove under line, font size, font type and font colour.</li> <li>• Left, right and centre.</li> <li>• Left, right, centre icons and the tab key for text alignment.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Formatting</b> text</li> <li>• <b>Identification</b> of formatting drop down menu.</li> <li>• <b>Demonstration</b> of underlining, sizing of font and Colour</li> <li>• <b>Aligning</b> text according to requirements and needs.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Application</b> of formatting buttons and keys.</li> <li>• <b>Inquisitiveness</b> on how to format text and align it.</li> <li>• <b>Awareness</b> that different buttons do different functions.</li> </ul>
	6.1.2 Text Alignment	6.1.2.1 Identify different text alignments 6.1.2.2 Demonstrate alignment of text			
6.2 MATERIALS	6.2.1 Joining Materials	6.2.1.1 Make mortice and tenon joints	<ul style="list-style-type: none"> <li>• Methods of joining wood: Common Mortice and Tenon, bridle joints</li> </ul>	<ul style="list-style-type: none"> <li>• Cutting bridle and mortice and tenon joints</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of cutting wood joints</li> </ul>
	6.2.2 Gluing	6.2.2.1 Join materials with glue	<ul style="list-style-type: none"> <li>• Gluing procedure when using PVA and contact adhesives on wood, metal and plastics (laminating)</li> </ul>	<ul style="list-style-type: none"> <li>• Joining materials (wood, metal and plastic) using glue</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of methods of gluing wood</li> <li>• Appreciation of beauty of finished products.</li> </ul>
	6.2.3 Finishes	6.2.3.1 Apply finishes to artifacts	<ul style="list-style-type: none"> <li>• Applying finishes: varnish and paint.</li> </ul>	<ul style="list-style-type: none"> <li>• Application of finishes</li> </ul>	
	6.2.4 Building Construction.	6.2.4.1 Mould clay bricks.	<ul style="list-style-type: none"> <li>• Moulding of clay bricks</li> <li>• Methods of drying clay bricks</li> </ul>	<ul style="list-style-type: none"> <li>• Moulding of clay bricks</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of methods of moulding</li> </ul>
		6.2.4.2 Explain the basic stages in preparing land to construct a structure	<ul style="list-style-type: none"> <li>• Stages in preparing site: Clearing, setting, digging, construction.</li> </ul>	<ul style="list-style-type: none"> <li>• Preparation and construction of simple structures</li> </ul>	<ul style="list-style-type: none"> <li>• Constructing simple structures.</li> </ul>
	6.2.4.3 Construct simple structures.	<ul style="list-style-type: none"> <li>• Construct simple structures: chicken run, pit latrine, kennel or a barn.</li> </ul>			

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
<b>6.3 LETTERING</b>	<b>6.3.1 Printing</b>	6.3.1.1 Apply printing styles using a computer	<ul style="list-style-type: none"> <li>• Printing styles: Normal and Tiling</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Identification</b> of printing icons.</li> <li>• <b>Manipulation</b> of text for printing.</li> <li>• <b>Presentation</b> of well printed documents.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Creativity</b> in creating posters.</li> <li>• <b>Application</b> of word to print text.</li> <li>• <b>Awareness</b> of wastage in printing</li> </ul>
<b>6.4 EDITING</b>	<b>6.4.1 Text Editing</b>	6.4.1.1 Manipulate text.	<ul style="list-style-type: none"> <li>• Selecting, cutting, copying, deleting and pasting.</li> </ul>	<ul style="list-style-type: none"> <li>• Manipulation of text</li> <li>• Identification of cutting, copying deleting</li> <li>• Editing</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Creativity</b> in creating posters.</li> <li>• <b>Application</b> of word to print text.</li> <li>• <b>Awareness</b> of cutting, copying, deleting and pasting text.</li> </ul>
<b>6.5 DRAWING</b>	<b>6.5.1 Polygons</b>	6.5.1.1 Construct regular polygons.	<ul style="list-style-type: none"> <li>• Regular polygons: Hexagon and Octagon</li> <li>• Construction given a side (<i>General Method only</i>)</li> </ul>	<ul style="list-style-type: none"> <li>• Constructing hexagons and octagons.</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of the construction polygons</li> </ul>
	<b>6.5.2 Isometric Drawing</b>	6.5.2.1 Construct simple objects in Isometric.	<ul style="list-style-type: none"> <li>• Basic principles of isometric drawings</li> </ul>	<ul style="list-style-type: none"> <li>• Isometric drawing</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of isometric views</li> </ul>
<b>6.6 ENERGY</b>	<b>6.6.1 Electricity</b>	6.6.1.1 Construction of the simple circuits	<ul style="list-style-type: none"> <li>• Construction of simple circuits in series and parallel</li> <li>• Symbols for bulbs, batteries, switch, circuit</li> </ul>	<ul style="list-style-type: none"> <li>• Circuit boards and bulb holder in systems.</li> <li>• Identification of electrical symbols</li> </ul>	<ul style="list-style-type: none"> <li>• Appreciation of simple circuits to design artifacts / systems.</li> </ul>
<b>6.7 ENTREPRENEURSHIP</b>	<b>6.7.1 Costing and Pricing</b>	6.7.1.1 Cost and price services	<ul style="list-style-type: none"> <li>• Costing Services: Doing things for other people e.g. hairdresser, barber, fixing a door or window</li> </ul>	<ul style="list-style-type: none"> <li>• Costing services</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of costing services</li> </ul>

## GRADE 7

### GENERAL OUTCOMES AND COMPETENCES

GENERAL OUTCOMES	KEY COMPETENCES
<ul style="list-style-type: none"><li>▪ Develop competencies in the application of ICTs in everyday activities.</li><li>▪ Acquire knowledge, positive attitudes and values in designing and making artifacts.</li></ul>	<ul style="list-style-type: none"><li>▪ Show basic knowledge and skills in designing and producing an artifact.</li><li>▪ Demonstrate ability to evaluate an artifact.</li><li>▪ Show basic knowledge and skills in navigating windows on the computers.</li><li>▪ Demonstrate basic knowledge and skills in running and managing entrepreneurial ventures.</li></ul>

## GRADE 7

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
7.1 DRAWING	7.1.1 Introduction to Orthographic Projection	7.1.1.1 Convert simple solids from Isometric to Orthographic Projection.	<ul style="list-style-type: none"> <li>Views in Orthographic: Front Elevation, Plan, End View or Elevation</li> </ul>	<ul style="list-style-type: none"> <li>Interpretation of views in orthographic projection</li> <li>Interpretation of building drawings.</li> </ul>	<ul style="list-style-type: none"> <li>Awareness of orthographic projection</li> <li>Appreciation of orthographic projection.</li> </ul>
	7.1.2 Basic Building Drawing.	7.1.1.2 Draw elevations of a simple conventional house.			
7.2 CONSTRUCTION	7.2.1 Joining Materials	7.1.2.1 Join materials.	<ul style="list-style-type: none"> <li>Methods of joining materials: Butt joint, Lap joint, Nailing (Wire nail)</li> </ul>	<ul style="list-style-type: none"> <li>Application of butt joint and lap joints</li> <li>Joining materials using nails .</li> </ul>	<ul style="list-style-type: none"> <li>Awareness of methods of joining materials</li> </ul>
	7.2.2 Building Materials	7.2.2.1 Burn clay bricks	<ul style="list-style-type: none"> <li>Burning clay bricks construct a kiln, cover the sides, set the fire</li> </ul>	<ul style="list-style-type: none"> <li>Application of methods of burning clay bricks</li> </ul>	<ul style="list-style-type: none"> <li>Awareness of methods of burning clay bricks.</li> </ul>
7.3 CALCULATOR	7.3.1 System Calculator	7.3.1.1 Use the system calculator to perform elementary operations	<ul style="list-style-type: none"> <li>Changing calculator type (standard, scientific)</li> <li>Calculations.</li> <li>Copying from calculator to word</li> </ul>	<ul style="list-style-type: none"> <li><b>Demonstration</b> on the use of calculator</li> <li><b>Manipulation</b> of the calculator keys.</li> <li><b>Computation</b> of various operations using the calculator.</li> </ul>	<ul style="list-style-type: none"> <li><b>Application</b> of calculator to carry out arithmetic problems.</li> <li><b>Interpretation</b> of keys on the calculator.</li> <li><b>Awareness</b> that the calculator as an aid arithmetic operations.</li> </ul>

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
7.4 ENERGY	7.4.1 Electricity	7.4.1.1 Design and make a switch to a simple circuit.	<ul style="list-style-type: none"> <li>Designing switches</li> <li>Part of the circuit used to turn on or off the bulb</li> </ul>	<ul style="list-style-type: none"> <li>Application of switches in a simple circuit</li> </ul>	<ul style="list-style-type: none"> <li>Appreciation of principles in making switches</li> </ul>
7.5 THE INTERNET	7.5.1 Internet risks	7.5.1.1 Identify the risks associated with the internet.	<ul style="list-style-type: none"> <li>Web risk awareness (cyber crimes, undesirable materials)</li> </ul>	<ul style="list-style-type: none"> <li><b>Communication</b> with internet to search for information</li> <li><b>Analysis</b> of web risks and implications.</li> <li><b>Identification</b> of search engines.</li> <li><b>Interpretation</b> of passwords.</li> </ul>	<ul style="list-style-type: none"> <li><b>Responsibility</b> in browsing the web.</li> <li><b>Awareness</b> that the web can have some risks.</li> <li><b>Safety consciousness</b> about risks on the internet.</li> </ul>
		7.5.1.2 Protect oneself from financial risk	<ul style="list-style-type: none"> <li>Not disclosing of identity, and passwords on line or phones and ATM cards.</li> </ul>		
7.6. SEARCHING AND RETRIEVING INFORMATION	7.6.1. External Storage Devices	7.6.1.1 Search and retrieve information from external storage devices	<ul style="list-style-type: none"> <li>CD ROM and flash Disc</li> </ul>	<ul style="list-style-type: none"> <li><b>Identification</b> of external storage devices</li> <li><b>Demonstration</b> on how to get data from external drives.</li> <li><b>Application</b> of external drives</li> </ul>	<ul style="list-style-type: none"> <li><b>Application</b> of external drives</li> <li><b>Awareness</b> of the limitations of external drives.</li> <li><b>Appreciation</b> of external drives importance.</li> </ul>
	7.6.2 The World Wide Web (www)	7.6.2.1 Search for specific information from the internet	<ul style="list-style-type: none"> <li>World Wide Web</li> <li>Selecting relevant Information (sifting)</li> </ul>		
7.7 ENTREPRENEURSHIP	7.7.1 Entrepreneurship as a Career	7.7.1.1 Explain the entrepreneurial career options:- Technology studies	<ul style="list-style-type: none"> <li>Career options: Carpentry, Welding, Brick making.</li> </ul>	<ul style="list-style-type: none"> <li>Identification of entrepreneurial career options</li> </ul>	<ul style="list-style-type: none"> <li>Awareness of entrepreneurship as an alternative career</li> </ul>

## APPENDIX I: SUGGESTED PROJECTS FOR GRADES V TO VII

The following table is given as a guide only and does not have to be strictly followed. It may be amended to fit into local requirements.

**Materials for Projects:** Teachers are expected to be resourceful and use their initiatives to encourage learners to improvise materials in their area. The use of locally available materials to make items will be highly appreciated.

Learners can be encouraged to use the Project Evaluation Sheet on page 14 in order to evaluate their work.

GRADE	PROJECTS	LEATHER WORK	BAMBOO WORK	BUILDING CONSTRUCTION
V	<ul style="list-style-type: none"> <li>• Toys</li> <li>• Pencil Stand</li> <li>• Blackboard eraser</li> <li>• Comb</li> <li>• Bow and arrow</li> <li>• Broom</li> </ul>	<ul style="list-style-type: none"> <li>• Belt</li> <li>• Bangles</li> <li>• Purse</li> <li>• Wallet</li> <li>• Handbag</li> <li>• Watchstrap</li> <li>• Shoe repairing</li> <li>• Sandals</li> </ul>	<ul style="list-style-type: none"> <li>• Ruler</li> <li>• Cup</li> <li>• Musical Instrument</li> <li>• Lamp Shade</li> <li>• Broom</li> </ul>	<ul style="list-style-type: none"> <li>• Makeshift (Shelter) or stand</li> <li>• Chicken run</li> <li>• Latrine</li> <li>• Piggery</li> <li>• Workshop</li> <li>• Kennel</li> <li>• Food barn (Storage) for local crops</li> <li>• Construction of houses from carton boxes or manilla paper.</li> </ul>
VI	<ul style="list-style-type: none"> <li>• Nail box</li> <li>• Pencil Tray</li> <li>• Coat hanger</li> <li>• Wire cars</li> <li>• Wire bicycles</li> <li>• Wire aeroplanes</li> </ul>			
VII	<ul style="list-style-type: none"> <li>• Brick mould</li> <li>• Candle stand</li> <li>• Sawing board</li> <li>• Stool</li> <li>• Bookshelf</li> <li>• Egg stand</li> </ul>			

## PROJECT EVALUATION SHEET

<b>How well did I work on the project?</b>				
		<b>YES</b>	<b>NO</b>	<b>REASON FOR MY ANSWER</b>
1.	I managed my time well.			
2.	I selected and used my equipment.			
3.	I kept my work area tidy.			
4.	I worked well with others.			
5.	I have enjoyed my work.			
6.	I did some research on the project			
7.	I have learnt something new from the project			
8.	If I were to make the project again, I would make some modifications			
9.	I made some changes on my drawings			
10.	I want to tell others about my success.			



## APPENDIX II

### BASIC EQUIPMENT FOR DESIGN TECHNOLOGY IN PRIMARY SCHOOLS

<i>A Graphic Communications Equipment</i>		
A3 Drawing Boards	300 mm Rule	Compass and Dividers
Drawing Boards Clips	A3 Tee Squares	Set Squares
<i>B Tools and Equipment</i>		
<i>Measuring and Marking Out Tools</i>		
Measuring Tape	<b>Punches:</b> Centre and dot	Marking Knife
Steel Rules	<b>Gauges:</b> Marking, Mortice	Pencil
Try Squares, Sliding Bevel		Compass
<i>Cutting Tools</i>		
<b>Saws:</b>	<b>Planes:</b>	<b>Files:</b> Flat, Half round, Triangular, Square rasp
<b>Bench:</b> Rip, Cross cut	Jack, smoothing, spoke shaves	
<b>Back:</b> Tenon, Dovetail	<b>Chisels (Wood):</b> Mortice, Paring,	Building Equipment; Trowel, Spirit Level,
<b>Frame:</b> Coping, Bow, hacksaw,	Bevel edged	Sheel Barrow, Spade/Shovel, Pick
	<b>Metal:</b> Flat cold, Half round, Cross cut	
<i>Driving Tools</i>		
<b>Hammers:</b>	<b>Mallets:</b>	<b>Screwdrivers:</b>
Claw, Ball pein, Cross pein,	Carpenter's, Bossing, Rubber	Flat, Phillips
<i>Holding Tools</i>		
<b>Vices:</b> Wood bench vice, Metal bench vice,	G- Cramp, Sash Cramp	<b>Boring:</b> Ratchet brace, Twist bits,
Hand vice	Bench holdfast	Centre bit, Countersunk, Auger bit
		<b>Drills:</b> Hand drill, Breast drill





