Republic of Zambia

MINISTRY OF EDUCATION, SCIENCE, VOCATIONAL TRAINING AND EARLY EDUCATION

TECHNOLOGY STUDIES

GRADES 5 – 7

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Vision

"A Zambia where every learner is receiving quality education that is relevant to individual and societal needs and contributes to national development".

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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 Technical Subjects 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 2012.

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

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ACKNOWLEDGEMENTS

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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.

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AIMS OF TEACHING TECHNOLOGY STUDIES

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 Communication Technology* and *Design and Technology*. The general description of the two strands is outlined below.

	COMPONENT	DESCRIPTION
1	**DESIGN AND TECHNOLOGY**	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	**INFORMATION AND COMMUNICATION TECHNOLOGY**	One of the features of the rapidly changing world is the accumulation of vast amounts of information 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 data.

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 motivatedand 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 Lower and Upper Primary levels has been prescribed in the Zambia Education Curriculum Framework (ZECF) of 2012. The minimum learner-teacher contact time for Lower Primary school level (Grade 1 to 4) is **three (3) hours** per week, translating into **four (4) periods.** The duration for a single period is **30 minutes.**

The minimum learner-teacher contact time for Upper Primary school level (Grade 5 to 7) is **4.7 hours** per week, translating into **four (4) periods** 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 at both lower and upper sections, 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 Communication Technology and Design and Technology)* are taught in an integrative manner from Grade 1 to 4 by one teacher. The teacher should be conversant in both areas and lay a firm ground in the learners. However, it envisaged that each school will have separate special rooms for the two components where learners will have to go and learn as soon as they get to Grade 5. This will provide learners with an opportunity for hands-on activities.

Grade 5 Key Competences and Outcomes.

GRADE 5 LEVEL	
KEY COMPETENCES ▪ Show basic knowledge and skills in making and moulding bricks/blocks ▪ Demonstrate basic first aid skills. ▪ Demonstrate ability to create, name and save files	**GENERAL OUTCOMES** • Develop competencies in the application of basic ICTs in everyday activities. • Acquire knowledge, positive attitudes and values in designing and making artifacts.

Grade 5 Topics

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
5.1 Safety	5.1.1 Introduction to the work room 5.1.2 Storage of tools.	5.1.1.1 Apply workroom rules and safety Precautions 5.1.2.3 Outline different ways of storing tools.	• Open workshops workrooms, Safety rules. • Cabinet and tool box • Care of tools	• Observing safety rules while working	• Applying safety rules effectively
	5.1.3 First Aid box	5.1.3.1 Explain the importance of First Aid 5.1.3.2 Describe the content of the First Aid Box 5.1.3.3 Demonstrate the basic application of First Aid.	• Handling of accidental minor injuries. • Content such as Sterile bandages, burn dressing, bicarbonate of soda, scissors, adhesive plaster • Use of first-aid content: Sterile bandages, burn dressing, bicarbonate of soda, scissors, adhesive plaster	• Communicating knowledge on handling First-Aid. • Communicating contents in the first-aid box. • Demonstrating first-aid box.	• Applying first-aid during accidents. • Using of content in the first-aid box during emergency • Appreciating use of the first-aid everyday life.
5.4 Tools	5.4.1 The work bench	5.4.1.1Identify parts and use of the Workbench.	• Parts of the workbench: Table, bench stop, shelf/tool rack, well	• Identifying parts of the work bench and marking out tools.	• Applying knowledge on the use of the work bench, marking out and holding tools.

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
	5.4.2 Marking tools 5.4.3 Holding tools	5.4.2.1 Identify marking out tools. 5.4.3.1 Identify holding tools.	• Marking out tools: marking gauge, try-square, mortice and marking knife. • Holding tools: Vices, cramps.	• Identifying marking out and holding tools	
5.6 Material	5.6.1 Material preparation	5.6.1.1 Demonstrate the procedure of preparing materials before use.	• Preparing wood: cutting and planing procedure • Preparing metal: cutting and filing	• Show ability to cut timber and use the planing procedure to prepare wood. • Show knowledge of cutting and filing metals.	• Appreciating the process of planing and filing before using wood and metal.
	5.6.2 Joining materials	5.6.2.1 Apply basic methods of joining materials.	• Joining Wood: - Through housing, - Cross halving • Joining Metal: - Seaming • Joining Plastic: Gluing	• Using joints on wood, metal and plastics	• Applying joints to make simple articles.
	5.6.3 Building Materials	5.6.3.1 Describe materials used to construct various houses. 5.6.3.2 Demonstrate how to mould / make blocks and bricks.	• Clay, mud, poles, grass, iron sheets. • Blocks and bricks	• Identifying building materials to use for houses. • Measuring and mixing materials to mould.	• Appreciating use of different materials in structures. • Apply knowledge to mould blocks/bricks.
5.7 Window Manipulation	5.7.1 Window navigation	5.7.1.1 Demonstrate the navigation of windows.	• Navigating Windows. • Cursor shapes for Busy and Ready • Position point and	• **Closing** of windows forms. • **Maximizing** windows forms. • **Minimizing** of	• **Application** of maximize and minimize button. • **Awareness** of
	5.7.2 Cursor shapes	5.7.2.1 Identify and Explain the meaning of Cursor Status			

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
			select.	windows forms. • **Identification** of cursor shapes. • **Observation** of cursor shapes and events as they change.	maximized and minimized windows. • **Curiosity** in opening and closing windows form.
5.8 Programme running and exiting	5.8.1 Locating a cursor	5.8.1.1 Locate and move a cursor.	• Cursor symbol • Moving the cursor using the mouse and arrow keys.	• **Identification** of cursor symbol depending on location. • **Observation** of cursor shapes and events as they change. • **Manipulation** of cursor movement mouse and arrow keys.	• **Application** of cursor event using mouse movement and arrow keys. • **Awareness** of cursor events • **Problem solving** in locating the cursor using arrow keys or the mouse.
5.9 Lettering	Printing	5.9.1.1 Use stencils and cut out letters to print words.	• Printing the words • Stencils and cut out letters.	• Identifying correct stencils to print words. • Cutting out stencils for letters	• Appreciating the use of stencils in printing.
5.10 Drawing	5.10.1 Construction of Angles	5.10.1.1 Construct and bisect angles.	• Angles 120º, 90º, 45º	• Constructing angles	• Applying angles to draw shapes/designs.
	5.10.2 Construction of triangles	5.10.1.2 Construct triangles satisfying given measurements	• Equilateral, isosceles scalene	• Constructing triangles	• Appreciation triangles in designing.
	5.10.3 Construction of Rectangles and squares	5.10.1.3 Construct squares and rectangles given sides.	• Square, rectangles	• Constructing rectangles and	• Apply rectangles and

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
				squares.	squares in design.
	5.10.4 Construction of circles	5.10.4.1 Identify basic parts of the circle.	• Diameter, radius, centre-lines, centre	• Communicating basic parts of the circle.	• Appreciating properties of the circle.
		5.10.4.2 Construct circles satisfying given measurements.	• Construction of circles	• Constructing circles.	• Applying circles and arcs in design.
5.11 Graphics	5.11.1Graphic packages 5.11.2 Pattern creation	5.11.1.1 Open graphic package 5.11.1.2 Manipulate graphic image	• Opening graphic package and image • Resize, fill colour and change colour	• **Manipulation** of graphic images • **Demonstration** how to resize, fill colour and change colour. • **Identification** of resize, fill colour and change buttons.	• **Creativity** in creating graphic images • **Application** of graphic package to create graphic images. • **Inquisitiveness** in using graphic packages.
5.12Designing	5.12.1 Elements of designing Graphics	5.12.1.1 Add text to drawing	• Adding text to drawing	• Manipulation	• Application • Creativity
5.13Saving	5.13.1Saving files	5.13.1.1 Distinguish between Save and Save As 5.13.1.2 Name and save file in a Specific location.	• Save and save as • Naming and saving files.	• Manipulation • Demonstration • Identification	• Application • Creative thinking • Exploration
5.14 Design and Technology	5.14.1 Inventions in Technology	5.14.1.1 Identify factors that led to different types of inventions. 5.14.1.2 Apply the stages of design process in making an artifact.	• Existing problems such as: Technology advances, climate change, growing population, transport challenge. • Stages of the design process (problem identification, brief,	• Investigating factors that led to ancient inventions influencing technology advancement. • Observing stages involved in design process.	• Recognizing problems in the community and apply design process to suggest possible solutions.

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
			research, making, evaluation)		
5.15 Energy	5.15.1 Electricity	5.15.1.1 Demonstrate the generation of the hydro-electric power.	• Water, generator, turbines.	• Investigating effects of water, generators and turbines on hydro-electricity.	• Apply simple electrical mechanisms (generators) in designing systems.
		5.15.2 Observe safety precautions when using electricity.	• Safety precautions: (avoid naked wires, wet hands, insulation).	• Observing safety when working with naked wires.	
5.16 Entrepreneurship	5.16.1 Costing and Pricing.	5.16.1.1 Demonstrate how to cost and price crafts and services.	• Costing and pricing	• Investigating effects of correct costing and pricing on services.	• **Appreciation of** keeping different records of accounts.
	5.16.2 Record keeping	5.16.2.1 Demonstrate how to keep financial records.	• Financial records: Cash, Stock and Sales book.	• Investigating the importance of keeping financial records.	

Grade 6 Key Competences and General Outcomes.

GRADE 6 LEVEL	
KEY COMPETENCES	**GENERAL OUTCOMES**
• Show basic knowledge and skills in preparing and joining materials. • Show basic knowledge and skills of creating tables and formatting text. • Demonstrate basic knowledge and skills in constructing basic structures.	• Develop competencies in the application of ICTs in everyday activities. • Acquire knowledge, positive attitudes and values in designing and making artifacts.

GRADE 6 Topics

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
6.1 Formatting	6.1.1Text formatting 6.1.2 Text alignment	6.1.1.1 Identify different Text formats 6.1.1.2 Demonstrate formatting text 6.1.2.1 Identify different text alignments 6.1.2.2 Demonstrate alignment of text	• Normal, bold and Italic. • Underline text, remove under line, font size, font type and font colour. • Left, right and centre. • Left, right, centre icons and the tab key for text alignment.	• Formatting text • Identification of formatting drop down menu. • Demonstration of underlining, sizing of font and colour • Aligning text according to requirements and needs.	• Application of formatting buttons and keys. • Inquisitiveness on how to format text and align it. • Awareness that different buttons do different functions.
6.2 Materials	6.2.1 Joining materials	6.2.1.1 Apply basic methods of joining materials.	• Methods of joining wood (Common mortice and tenon, common bridle)	• Applying knowledge of mortice and tenon and common bridle to join wood	• Realizing of simple wooden artifacts.
	6.2.2 Gluing	6.2.2.1 Apply the gluing procedure when joining materials.	• Gluing procedure when using PVA and contact adhesives on wood, metal and plastics (Laminating)	• Distinguishing the strength of PVA and contact adhesive on materials.	• Realizing simple artifacts • Appreciate beauty and harmony of finished products.
	6.2.3 Finishes	6.2.3.1 Apply the procedure of finishing artifacts.	• Applying varnish such as varnish and paint.	• Investigate effects of certain finishes on materials / products.	
	6.2.4 Construction.	6.2.4.1 Identify basic building tools	• Wheel barrow, Trowel, spirit level.	• Recognizing basic building tools.	• Constructing simple

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
		6.2.4.2 Explain the basic stages in preparing land to construct a structure.	• Stages in preparing site: Clearing, setting, digging, construction.	• Communicating basic stages in land preparation for construction.	structures. • Applying basic knowledge to construct simple structures.
		6.2.4.3 Demonstrate the ability to construct a simple structure.	• Chicken run, user friendly pit latrine, kennel or a barn.	• Constructing simple structures.	
6.3 Lettering	6.3.1 Printing	6.3.1.1 Apply printing styles using a computer	• Normal • Tiling	• **Identification** of printing icons. • **Manipulation** of text for printing. • **Presentation** of well printed documents.	• **Creativity** in creating posters. • **Application** of word to print text. • **Awareness** of wastage in printing and environmental impact.
6.4 Editing	6.4.1 Text Editing	6.4.1.1 Manipulate text.	• Selecting, cutting, copying, deleting and pasting.	• Manipulation of text. • Identification of cutting, copying deleting. • Editing	• **Creativity** in creating posters. • **Application** of word to print text. • **Awareness** of wastage in printing and environmental impact.
6.5 Designing.	6.5.1 Design process.	6.5.1.1 Apply the design process in a problem solving situation.		• Identifying the problem in the community design process.	• Application of the design process in a problem solving situation.
6.7 Drawing.	6.7.1 Polygons	6.7.1.1 Construct regular polygons. - Hexagon - Octagon	• Hexagon when given a circle. • Octagon when given a	• Displaying knowledge to construct a hexagon	• Applying knowledge of hexagon and

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
			square.	and octagon.	octagon in designing artifacts.
	6.7.2 Isometric drawing	6.7.2.1 Construct simple objects in Isometric.	• Isometric drawings	• Constructing objects in Isometric views.	• Communicating in isometric views
6.9 Energy	6.9.1 Electricity	6.9.1.1 Construction of the simple circuits.	• Construction of simple circuits involving bulbs, switches, cells, basic circuit boards, bulb holder.	• Observing the use of insulation, circuits, bulbs, cells, switches, circuit boards and bulb holder in systems.	• Applying simple circuits to design artifacts / systems.
6.10 Entrepreneurship	6.10.1 Entrepreneurship as a career	6.10.1.1 Explain why entrepreneurship is a good career.	• Source of income, job creation, self-employment.	• Communicating importance of entrepreneurship as a good career.	• Enterprising

Grade 7 Key Competences and General Outcomes.

GRADE 7 LEVEL	
KEY COMPETENCES	**GENERAL OUTCOMES**
▪ Show basic knowledge and skills in designing and producing an artifact. ▪ Show basic knowledge and skills in navigating windows on the computers. ▪ Demonstrate basic knowledge and skills in running and managing entrepreneurial ventures.	• Develop competencies in the application of ICTs in everyday activities. • Acquire knowledge, positive attitudes and values in designing and making artifacts.

GRADE 7 Topics

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
7.1 Drawing	7.1.1 Introduction to orthographic projection 7.1.2 Basic building drawing.	7.2.1.1 Convert simple solids from isometric to orthographic projection. 7.1.2.1 Draw elevations of a simple conventional house.	• Front Elevation, plan, End Elevation	• Constructing of solids into orthographic projection • Interpreting building elevations on paper.	• Appreciating and communicating orthographic projection • Applying orthographic drawing to design simple conventional houses.
7.2 Materials	7.2.1 Joining materials	7.2.1.1 Apply basic methods of joining materials.	• Butt joint • Lap joint • Screws	• Applying knowledge of butt joint, lap joint and screws to join wood.	• Realizing simple wood artifacts.
7.3 Calculator	7.3.1 System calculator	7.3.1.1 Use the system calculator to perform elementary operations	• Changing calculator type (standard, scientific) • Calculations. • Copying from calculator to word	• **Demonstration** on the use of calculator • **Manipulation** of the calculator keys. • **Computation** of various operations using the calculator.	• **Application** of calculator to carry out arithmetic problems. • **Interpretation** of keys on the calculator. • **Awareness** that the calculator is just a tool and to aid arithmetic operations.
7.4 Energy	7.4.1 Electricity	7.4.1.1 Demonstrate ability to use a	• Heater, fan, bell.	• Communicating the	• Applying heater,

THEME	SUB TOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
		simple circuit.		use of heater, fan and bell.	fan and bell to design artifacts / systems.
7.5 The Internet	7.5.1 Internet risks	7.5.1.1 Identify the risks associated with the internet. 7.5.1.2 Protect oneself from financial risk.	• Web risk awareness (cyber crimes, undesirable materials) • Not disclosing of identity, and passwords on line or phones and ATM cards.	• **Communication** with internet to search for information. • **Analysis** of web risks and implications. • **Identification** of search engines. • **Interpretation** of passwords.	• **Responsibility** in blousing the web. • **Awareness** that the web can have some risks on the internet. • **Safety consciousness** about risks on the internet.
7.6 Searching and Retrieving Information	7.6 1 External storage devices 7.6.2 The World Wide Web (www)	7.7.1.1 Save and retrieve information from external storage devices 7.7.2.1 Search for specific information from the internet	• CD ROM and flash Disc • World Wide Web • Selecting relevant information (sifting)	• Identification of external storage devices • Demonstration on how to get data from external drives. • Application of external drives.	• Application • Productivity • Awareness • Appreciation
7.7 Designing.	7.7.1 Design and making	7.7.1.1 Demonstrate the ability to produce a portfolio	• Stages in design process	• Monitoring portifolio to realize an artifact.	• Realizing an artifact from a portfolio to solve a problem.
7.8 Entrepreneurship	7.8.1 Entrepreneurship as a career	7.8.1.1 Form small entrepreneurship groups for small scale businesses.	• Entrepreneurship groups	• Communicating business ideas	• Enterprising groups to earn money through marketing / advertising their produce.

PROJECT EVALUATION SHEET.

How well did I work on the project?				
		YES	**NO**	**REASON FOR MY ANSWER**
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 I - TOOLS AND EQUIPMENT.

FOR PRIMARY SCHOOLS

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

G5	G6	G7
Introduction to workroom		
Storage of tools		
First Aid Box		

APPENDIX II - SCOPE and SQUENCE.

The work bench		
Marking tools		
Holding tools		
Material preparation		
Joining materials	Joining materials - Rivets, gluing	Basic methods of joining - Butt, Lap, Screws
	Applying common finishes	
Building materials	Construction - basic tools, simple structure	
Inventions in Technology - factors that led to inventions	Basic stages in design process	Artifact production with portfolio
Use of stencil		
Construction of basic angles	Polygons	Introduction to orthographic drawing
	Isometric drawing	Basic building drawing
Electricity safety and hydro electricity.	Construction of simple circuits	Use a simple circuits
Costing and Pricing	Entrepreneurship as a career	Formation of small Entrepreneurial groups
Record keeping		