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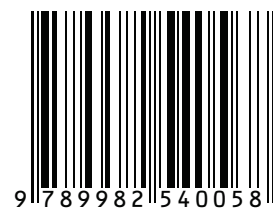


Republic of Zambia
Ministry of Education

TECHNOLOGY STUDIES SYLLABUS

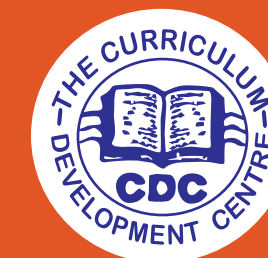
GRADE 4 - 6

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LUSAKA
2024



Republic of Zambia
MINISTRY OF EDUCATION

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GRADE 4 - 6



Developed by the Curriculum Development Centre

2024

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VISION

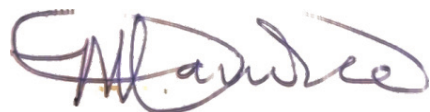
Quality, lifelong education for all which is accessible, inclusive and relevant to individual, national and global needs

PREFACE

The **Technology Studies Syllabus** has been developed with the need to provide a practical national curriculum for Zambian primary school learners. The syllabus aims to provide quality education that is aligned with the **Competence-based Curriculum** and 21st Century Skills. It also intends to impart the knowledge, skills, values and positive attitudes that are aimed at enabling children to live and grow into productive and useful members of their communities and society. This syllabus comprises of two subjects namely; **Information and Communications Technology (ICT)** and **Design and Technology**.

This syllabus has integrated necessary content from the two contributing subjects for the stimulation and accomplishment of the learners' technological skills. The syllabus content is designed to promote and support the foundation for the provision of Science, Technology, Engineering and Mathematics (STEM) Education at Primary School level. This subject sits well with current global trends of promoting technology in the global labour market.

The content provided in this syllabus is aimed at facilitating holistic development of children's *creativity, initiative, problem solving, physical, mental, emotional skills* among others. The suggested activities are designed to offer children hands-on experiences through manipulation of real objects and interaction with the immediate environment. Cross cutting issues and themes such as, *Entrepreneurship, Climate Change* and *Financial Education* have been incorporated in the syllabi to ensure that children cultivate a mind-set, skills, values and positive attitudes for sustainability. It is hoped that the syllabus will make learning at primary school level more meaningful and enjoyable as the content outlined allows for the smooth transition from primary to secondary school education.



Mr. Joel Kamoko
Permanent Secretary- Educational Services
MINISTRY OF EDUCATION

ACKNOWLEDGMENT

The development of the Technology Studies syllabus is a result of broad-based consultation involving several stakeholders within and outside the education system. Many individuals, institutions and organizations were consulted to gather their views on the existing syllabus and to accord them an opportunity to make suggestions for the reformed syllabus. The Ministry of Education wishes to express heartfelt gratitude to all those who participated for their valuable contributions which resulted in the development of this syllabus.

The Curriculum Development Centre worked closely with teachers, lecturers from colleges and public universities in Zambia, officers from the Examinations Council of Zambia and the Directorates of Primary Education and National Science Centre. Their valuable expertise and feedback were instrumental in shaping the structure and content of this syllabus. We sincerely appreciate their dedication, time and effort in helping the Ministry of Education to design and develop a comprehensive and relevant Technology Studies syllabus.

Last but not the least, I recognise the commitment and hard work of all the staff at the Curriculum Development Centre in ensuring that this syllabus comes to reality.



Dr. Charles Ndakala
Director- Curriculum Development
MINISTRY OF EDUCATION

INTRODUCTION

The **Technology Studies syllabus** is a combination of **Design and Technology (D&T)**, **Information and Communications Technology (ICT)** and cross cutting issues. This syllabus gives a detailed account of the intended learning in **Technology Studies** at upper primary school level (Grades 4 to 6). Learning about Technology involves applying knowledge of how to work more efficiently using *tools, materials and processes* to excel within the world of work. The learning area will seek to equip individual learners with *innovative, entrepreneurial, collaboration, communication and problem-solving skills* that enable them to adapt to emerging technologies and their impact on society. Through consistent learning and practise of concepts outlined in the syllabus, the learners will be able to improve their desired competences. Further, learning Technology Studies enables learners to demonstrate their creativity while exploring technological processes of investigation, exhibition of product ideas, making choices about designs or materials and using appropriate hand tools and equipment in product realisation.

Structure of the Syllabus

The **Technology Studies syllabus** has two main components namely Information and Communication Technology (ICT) and Design and Technology (D&T). Each of the components contributes thematic areas that run from grade 4 to grade 6 systematically. The components have been integrated to allow for easy planning on part of teachers and orderly acquisition of concepts from both learning areas on the part of learners. Subsequently, topics, sub topics, specific competences, learner's activities and expected standards follow in an orderly manner to facilitate effective learning. The expected standards are clearly indicated as benchmarks for the desired level of proficiency and achievement.

Suggested Teaching Methodology

The **Competence-based Curriculum** prioritises the application of skills and abilities, focusing on *what learners can do*, rather than solely on *the knowledge they acquire*. Therefore, in order for learners to attain the needed competences, the teacher should endeavor to utilise a variety of teaching/learning approaches which promote attainment of the needed competences. In this regard, the starting point for teaching and learning is to recognize that learners come to school with a wealth of knowledge and experience gained from families, communities and interactions with the environment. Thus, learning in school must build on the learner's prior experience. This is best achieved when learners are actively involved in the learning process through *hands-on activities*. 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:

- i. Interactive
- ii. Inquiry methods (Question and Answer)
- iii. Problem-Solving Methods

- iv. Project-Methods
- v. Experimental Method
- vi. Collaborative (Learners work together)
- vii. Constructivism Methods
- viii. Meta-cognitivist Methods
- ix. Reflective Methods
- x. Peer-Tutoring / Learning (Working in Pairs)
- xi. Field trip Method
- xii. Demonstration Method

In view of the above, the instructor should have reasons for choosing a particular teaching method and must employ strategies and techniques to make the lesson interesting.

Time Allocation

The standard period allocation for Technology Studies Grades 4 - 6 has been prescribed in the Zambia Education Curriculum Framework (ZECF) of 2023. The minimum learner-teacher contact time for Upper Primary School level (Grades 4-6) is **4 hours and 40 minutes** per week, translating into **four (7) periods** for the **learning area**. The duration of a single period at this level is **40 minutes**.

Assessment

This syllabus recommends both *Formative* and *Summative Assessments*. The *School Based Assessment (SBA)* is part of Formative assessment and it shall be practical and compulsory to all learners at Grade 4, 5 and 6 to enhance teaching and learning in the classroom. The host teacher will conduct the SBA component and present marks to the **Examinations Council Zambia (ECZ)** for inclusion to the final score of the Grade 6 Composite Examinations. The ECZ will guide on the percentage contribution of the SBA to the final mark.

GRADE 4

KEY COMPETENCES TO BE DEVELOPED

S/N	COMPETENCE	DESCRIPTORS
1	Analytical Thinking	<ul style="list-style-type: none"> Identify workshop equipment and use it appropriately in product realisation Identifying situations that need solutions in the immediate environment Classify materials according to their attributes and function Analyze existing products, materials, and technologies Dismantle products into constituent parts in order to understand production processes
2	Citizenship	<ul style="list-style-type: none"> Participate in responsible and ethical use of digital technologies Protect the environment for the safety of other citizens Participate in creating innovative and sustainable technologies that improve lives of citizens Demonstrate understanding of global trends through the use of social media platforms
3	Collaboration	<ul style="list-style-type: none"> Participate in cleaning the immediate environment Develop innovative solutions through working with others Share resources with others to enhance product delivery Share responsibilities in performing group tasks Participate in carrying out group research
4	Communication	<ul style="list-style-type: none"> Use media platforms such as Facebook, Messenger and WhatsApp to communicate information Illustrate design concepts using sketches Present design solutions using ICT devices Communicate ideas using signs and symbols Communicate information using drawings Use digital tools, such as CAD software, CorelDRAW, graphic design programs, and video conferencing, to communicate design ideas
5	Creativity and Innovation	<ul style="list-style-type: none"> Generate new ideas to solve existing problems Manipulate waste materials using processes that add value in order to create new products Design new products to meet real needs and improve lives Transform ideas into valuable, practical and viable solutions Refine existing products through processes that add value
		<ul style="list-style-type: none"> Analyse existing ideas Explore alternative solutions to problems

6	Critical Thinking	<ul style="list-style-type: none"> • Evaluate each other's work • Assess the credibility, relevance, and usefulness of information • Combine disparate elements to form a cohesive design solution. • Apply relevant knowledge to resolve design challenges
7	Digital	<ul style="list-style-type: none"> • Use ICT technologies to share information • Process information using ICT technologies • Generate drawings using different types of ICT gadgets such as computers and tablets • Make models using graphic software • Demonstrate proficiency in operating devices such as tablets, computers and other ICT technologies
8	Entrepreneurship	<ul style="list-style-type: none"> • Identify entrepreneurial activities within the environment. • Identify entrepreneurial activities within the environment. • Develop a business idea • Develop a business plan for identified entrepreneurial activities
9	Environmental Sustainability	<ul style="list-style-type: none"> • Recognize individual roles in protecting the environment • Participate in cleaning of the local environment • Use natural resources sustainably • Manage waste in a productive manner • Use eco-friendly materials in product design
10	Financial Education	<ul style="list-style-type: none"> ▪ Demonstrate ethical ways of earning money ▪ Prepare a Budget for a business enterprise ▪ Prepare a savings plan ▪ Explore low-risk investment options ▪ Utilise services provided by financial institutions
11	Problem Solving	<ul style="list-style-type: none"> • Identify problems in a given situation • Analyse existing situations to identify problems • Generate ideas to existing problems • Make products to address existing needs • Evaluate existing products • Generate innovative solutions to challenging situations

TOPIC	SUB-TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
4.1 INTRODUCTION TO TECHNOLOGY STUDIES	4.1.1 Career Prospects in Technology Studies	4.1.1.1 Explore career prospects in Technology Studies	<ul style="list-style-type: none"> Discussing components of Technology Studies (<i>ICT and D &T</i>) Identifying career prospects in Technology Studies (<i>architecture, civil engineering, computer programming, electrical engineering, surveying...</i>) Identifying entrepreneurial activities 	<ul style="list-style-type: none"> Career prospects in Technology Studies explored appropriately
4.2 SAFETY	4.2.1 Personal Safety	4.2.1.1 Apply safety precautions in a work environment	<ul style="list-style-type: none"> Discussing personal safety precautions in a work environment (<i>safety attire, behaviour in a work room, waste disposal...</i>) Identifying types of safety attire to be used in a work environment Applying safety precautions while in the work environment (<i>wearing safety attire, wearing antistatic wrist bands...</i>) 	<ul style="list-style-type: none"> Safety precautions applied in a work environment correctly
4.3 WORD PROCESSING	4.3.1 Introduction to Word Processing	4.3.1.1 Create a word document	<ul style="list-style-type: none"> Opening a word document Typing a word document Saving a word document (<i>Save, Save As</i>) 	<ul style="list-style-type: none"> A word document created accordingly

TOPIC	SUB-TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
			<ul style="list-style-type: none"> • Formatting text (<i>bold, italic, underline...</i>) 	
4.4 TOOLS AND EQUIPMENT	4.4.1 Work Bench	4.4.1.1 Use parts of a work bench	<ul style="list-style-type: none"> • Identifying parts of a work bench • Discussing functions of parts of a work bench • Using parts of a work bench when measuring, marking, cutting and holding materials 	<ul style="list-style-type: none"> • Parts of a work bench used accordingly
	4.4.2 Classification and Use of Tools and Equipment	4.4.2.1 Use tools and equipment to make products	<ul style="list-style-type: none"> • Classifying tools and equipment according to their use (<i>Measuring tools: Steel rule Measuring tape</i> <i>Marking out tools: Scriber, Marking gauge, Marking knife</i> <i>Cutting tools: Saws, Planes, Chisels</i> <i>Testing tools: Try square, Spirit level</i> <i>Holding tools: G-clamps, bench vice, sash clamps</i> <i>Driving tools: Hammer, mallet</i> <i>Building tools: Trowel, Building square</i>) • Using tools and equipment to make products 	<ul style="list-style-type: none"> • Tools and equipment used to make products correctly

TOPIC	SUB-TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
4.5 MATERIALS	4.5.1 Joining of Materials	4.5.1.1 Join materials	<ul style="list-style-type: none"> • Selecting tools for joining materials • Joining materials using <i>simple joints (nailing, butt, lap, housing, bolt and nut...)</i> • Applying joints in product making 	<ul style="list-style-type: none"> • Materials joined correctly
	4.5.2 Finishing Materials	4.5.2.1 Apply finishes to materials	<ul style="list-style-type: none"> • Exploring methods of finishing materials • Preparing materials in readiness for finishing (<i>sanding, grinding, polishing...</i>) • Applying finishes to products (<i>varnish, paint, wax...</i>) • Practising safety precautions when applying finishes 	<ul style="list-style-type: none"> • Finishes applied to materials appropriately
4.6 PRESENTATION	4.6.1 Basics of Presentations	4.6.1.1 Create presentations	<ul style="list-style-type: none"> • Exploring presentation software • Creating presentations with text and images • Exploring different slide layouts and designs. 	<ul style="list-style-type: none"> • Presentations created appropriately
4.7 ENERGY	4.7.1 Electricity	4.7.1.1 Make electrical Circuits	<ul style="list-style-type: none"> • Identifying components of an electrical circuit (<i>cells,</i> 	<ul style="list-style-type: none"> • Electrical Circuits made correctly

TOPIC	SUB-TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
			<p><i>switch, bulb...</i>)</p> <ul style="list-style-type: none"> • Sketching electrical components in a circuit (<i>cell, switch and bulb</i>). • Identifying terminals on the cells (<i>positive and negative</i>) • Connecting cells in series • Making circuits using electrical components 	
4.8 SPREAD SHEET	4.8.1 Basics of Spreadsheet	4.8.1.1 Use spreadsheet applications	<ul style="list-style-type: none"> • Exploring features of the spreadsheet (<i>insertion, active cell, rows, columns...</i>) • Navigating the ribbon of the spreadsheet • Identifying cells, rows and columns of a spreadsheet • Naming cells by column and row (<i>A1, C5, D6...</i>) • Entering data in cells 	<ul style="list-style-type: none"> • Spreadsheet application used accordingly

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
4.9 GRAPHIC COMMUNICATION	4.9.1 Lettering	4.9.1.1 Print letters and numbers	<ul style="list-style-type: none"> • Printing letters between construction lines • Printing numbers in upper and lower case between construction lines 	<ul style="list-style-type: none"> • Letters and numbers printed accordingly
	4.9.2 Types of Lines	4.9.2.1 Draw lines used in construction	<ul style="list-style-type: none"> • Drawing types of lines used in construction (<i>hidden line, centre line, outline...</i>) • Drawing lines used in construction using free hand • Drawing lines used in construction using drawing instruments (<i>perpendicular line, bisecting a line...</i>) 	<ul style="list-style-type: none"> • Lines used in construction drawn correctly
	4.9.3 Angles	4.9.3.1 Construct angles	<ul style="list-style-type: none"> • Identifying types of angles (<i>acute, right angle, obtuse, reflex</i>) • Constructing angles ($60^\circ, 90^\circ, 120^\circ \dots$) • Bisecting angles ($60^\circ, 90^\circ, 180^\circ \dots$) 	<ul style="list-style-type: none"> • Angles constructed accurately
	4.9.4 Triangles	4.9.4.1 Construct triangles from given data	<ul style="list-style-type: none"> • Naming types of triangles (<i>Equilateral, right-angled and Isosceles triangles</i>) • Analysing characteristics of types of triangles • Constructing types of triangles (<i>Equilateral, right-angled and Isosceles</i>) 	<ul style="list-style-type: none"> • Triangles constructed from given data accordingly

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
			<ul style="list-style-type: none"> • Designing products using triangles • Applying triangles in product development 	
	4.9.5 Quadrilaterals	4.9.5.1 Construct quadrilaterals	<ul style="list-style-type: none"> • Identifying types of quadrilaterals (<i>square, rectangle, kite, rhombus and trapezium</i>) • Analysing characteristics of quadrilaterals • Constructing quadrilaterals (<i>square, rectangle, kite, rhombus and trapezium</i>) • Designing products using quadrilaterals 	<ul style="list-style-type: none"> • Quadrilaterals constructed accordingly
	4.9.6 Circles	4.9.6.1 Construct circles	<ul style="list-style-type: none"> • Identifying parts of a circle (<i>radius, diameter, centre-line, centre, circumference</i>) • Constructing circles given the radius or diameter • Recording dimensions of a circle in millimetres or centimetres • Making designs using circles 	<ul style="list-style-type: none"> • Circles constructed correctly
	4.9.7 Graphic Software	4.9.7.1 Use graphic software in product design	<ul style="list-style-type: none"> • Identifying graphic software (<i>CorelDRAW, paint, photoshop, publisher...</i>) • Exploring tools for drawing and editing shapes. • Creating graphic images (<i>stickers, logos...</i>). 	<ul style="list-style-type: none"> • Graphic software used in product design correctly

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
4.10 TECHNOLOGY	4.10.1 Technological Innovations	4.10.1.1 Explore technological Innovations	<ul style="list-style-type: none"> • Exploring technological Innovations • Performing reverse engineering on innovations (<i>dis-assembling and assembling products</i>) 	<ul style="list-style-type: none"> • Technological Innovations explored appropriately
4.11 CODING	4.11.1 Block- Based Coding	4.11.1.1 Use Block-based coding Platforms	<ul style="list-style-type: none"> • Using block-based coding platforms (<i>scratch, code monkey, codingal...</i>) • Exploring programming concepts (<i>sequence, loops, events...</i>) 	<ul style="list-style-type: none"> • Block-based coding platforms used accordingly
4.12 STRUCTURES	4.12.1 Types of Structures	4.12.1.1 Classify Structures	<ul style="list-style-type: none"> • Researching on types of structures (<i>frame, shell...</i>) • Classifying structures according to their attributes • Drawing different types of structures (<i>house, cup, bicycle, bridge...</i>) 	<ul style="list-style-type: none"> • Structures classified accordingly
4.13 INTERNET	4.13.1 Internet	4.13.1.1 Use the Internet	<ul style="list-style-type: none"> • Using internet browsers (<i>chrome, safari, Firefox, Edge...</i>) • Practising safety and responsible internet usage (<i>passwords, privacy...</i>) • Searching tasks on specific topics. 	<ul style="list-style-type: none"> • Internet used accordingly

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
4.14 ENTREPRENEURSHIP	4.14.1 Business Idea	4.14.1.1 Develop a business idea	<ul style="list-style-type: none"> • Identifying needs in the immediate environment • Analysing factors to consider when selecting a product or service to be offered • Costing a product • Forming companies (<i>sole trader, partnership...</i>) • Suggesting a name of the company/business • Identifying the location of the business/company 	<ul style="list-style-type: none"> • Business idea developed appropriately

GRADE 5

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
5.1 SAFETY	5.1.1 Care and Maintenance of tools and Equipment	5.1.1.1 Maintain tools and equipment	<ul style="list-style-type: none"> • Sorting damaged/broken tools • Cleaning tools and equipment • Oiling specific tools (<i>Hand drill, Rip saw blades, wheelbarrow...</i>) • Fixing broken equipment (<i>desks, chairs, shelves, cabinets...</i>) • Sharpening tools • Storing tools and equipment in safe places 	<ul style="list-style-type: none"> • Tools and equipment maintained properly
5.2 WORD PROCESSING	5.2.1 Formatting	5.2.1 Format a word document	<ul style="list-style-type: none"> • Formatting text • Formatting images and objects 	<ul style="list-style-type: none"> • Word document formatted correctly
5.3 TOOLS AND EQUIPMENT	5.3.1 Hand tools	5.3.1.1 Use hand tools to make products	<ul style="list-style-type: none"> • Identifying hand tools for making products (<i>saws, planes, files, hammers...</i>) • Utilising hand tools to make products • Practising safety precautions when using hand tools 	<ul style="list-style-type: none"> • Hand tools to make products used correctly
5.4 MATERIALS	5.4.1 Joining Materials	5.4.1.1 Join materials	<ul style="list-style-type: none"> • Identifying the following joints (<i>mortise and tenon, halving, dovetail, seam, rebate...</i>) • Joining materials using various joints (<i>mortise and tenon,</i> 	<ul style="list-style-type: none"> • Materials joined correctly

TOPIC	SUB-TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
			<i>halving, dovetail, seam, rebate...</i>) <ul style="list-style-type: none"> • Practising safety precautions when joining materials • Repairing and maintaining items 	
5.5 PRESENTATION	5.5.1 Multimedia Presentations	5.5.1.1 Develop multimedia presentations	<ul style="list-style-type: none"> • Adding multimedia elements (<i>audio, video</i>) to presentations. • Adding animation effects and transitions to a presentation 	<ul style="list-style-type: none"> • Multimedia presentations developed appropriately
5.6 ENERGY	5.6.1 Design Circuits	5.6.1.1 Construct circuits in series and parallel	<ul style="list-style-type: none"> • Identifying Circuit Symbols (<i>Bulb, battery, wire, switch...</i>) • Sketching symbols of electrical components. • Designing circuit diagrams (<i>in series and parallel</i>) using circuit symbols • Making series and parallel circuits 	<ul style="list-style-type: none"> • Circuits constructed in series and parallel correctly
5.7 SPREADSHEET	5.7.1 Addition and Subtraction in Spreadsheet	5.7.1.1 Perform addition and subtraction in spreadsheet	<ul style="list-style-type: none"> • Using addition, subtraction and equal signs (+, -, =) to perform calculations in spreadsheet • Adding at least two real numbers in spreadsheet • Subtracting at least two real numbers in spreadsheet 	<ul style="list-style-type: none"> • Addition and subtraction in spreadsheet performed correctly

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
5.8 GRAPHIC COMMUNICATION	5.8.1 Polygons	5.8.1.1 Construct regular polygons	<ul style="list-style-type: none"> Identifying types of polygons (<i>Pentagon, Hexagon, Heptagon and Octagon</i>) Constructing regular polygons using the general method (<i>pentagon, hexagon, octagon...</i>) Designing products using polygons Applying regular polygons in product development 	<ul style="list-style-type: none"> Regular polygons constructed correctly
	5.8.2	5.8.2.1 Construct irregular polygons	<ul style="list-style-type: none"> Analysing characteristics of irregular polygons Constructing irregular polygons (<i>given sides, angles...</i>) Applying irregular polygons in product development 	<ul style="list-style-type: none"> Irregular polygons constructed correctly
	5.8.3 Pictorial Drawing	5.8.3.1 Construct objects in pictorial view	<ul style="list-style-type: none"> Identifying objects in isometric and oblique view Constructing an isometric box Constructing objects in isometric Constructing objects in oblique Drawing pictorial objects using Free Hand 	<ul style="list-style-type: none"> Objects in pictorial view constructed appropriately
		5.8.3.2 Apply Rendering on pictorial drawings	<ul style="list-style-type: none"> Rendering different materials (<i>wood, glass, metal, concrete...</i>) Rendering pictorial drawings 	<ul style="list-style-type: none"> Rendering on pictorial drawings applied appropriately

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
	5.8.4 Image Editing tools	5.8.4.1 Edit images	<ul style="list-style-type: none"> • Exploring image editing tools (<i>paint, adobe photoshop, CorelDRAW...</i>) • Editing images (<i>static images</i>) • Creating illustrations on digital images 	<ul style="list-style-type: none"> • Images edited correctly

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
5.9 TECHNOLOGY	5.9.1 Sustainable Technology	5.9.1.1 Use sustainable Technology	<ul style="list-style-type: none"> • Researching on sustainable technologies (<i>solar power, wind power, hydropower, green buildings, biodegradable plastics...</i>) • Researching on unsustainable technologies (<i>fossil fuel energy, single-use plastics, non-rechargeable batteries, e-waste...</i>) • Disposing e-waste • Using sustainable technologies in product making (<i>models of houses with solar panels, wind turbine, birdhouses, mini hydroponic...</i>) 	<ul style="list-style-type: none"> • Sustainable Technology used accordingly
5.10 CODING	5.10.1 Block-Based Coding	5.10.1.1 Animate situations	<ul style="list-style-type: none"> • Exploring animation concepts (<i>sequencing, timing, loops, events...</i>) • Animating situations (<i>stories, games...</i>) 	<ul style="list-style-type: none"> • Situations animated accordingly
5.11 STRUCTURES	5.11.1 Designing Structures	5.11.1.1 Make strong and stable structures	<ul style="list-style-type: none"> • Discussing causes of structural failure (<i>overloading, poor material selection, poor design...</i>) 	<ul style="list-style-type: none"> • Strong and stable structures made correctly

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
			<ul style="list-style-type: none"> • Designing strong and stable structures • Strengthening and stabilising structures (<i>ties, struts, cross member, widening the base, lowering the centre of mass, making the base heavier...</i>) • Making stable structures (<i>desks, chair, TV stand...</i>) 	
	5.11.2 Site Preparation	5.11.2.1 Prepare a site for construction	<ul style="list-style-type: none"> • Investigating the site (<i>checking soil type, slope, drainage system...</i>) • Clearing the site (<i>clearing shrubs/vegetation, slashing, removing loose rocks...</i>) • Leveling the site 	<ul style="list-style-type: none"> • Site for construction prepared properly
5.12 INTERNET	5.12.1 Online Communication	5.12.1.1 Use online communication tools responsibly	<ul style="list-style-type: none"> • Exploring social media platforms and their features (<i>Facebook, WhatsApp, Messenger...</i>) • Practising online etiquette • Creating accounts on social media platforms • Communicating using online tools (<i>email, video conferencing...</i>) 	<ul style="list-style-type: none"> • Online communication tools used responsibly

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
5.13 ENTREPRENEURSHIP	5.13.1 Marketing	5.13.1.1 Design a Marketing plan	<ul style="list-style-type: none"> Identifying products/services to be offered Identifying potential customers 	<ul style="list-style-type: none"> Marketing plan designed correctly
			<ul style="list-style-type: none"> Identifying competitors Pricing a product Designing promotion materials 	

GRADE 6

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
6.1 SAFETY	6.1.1 First Aid	6.1.1.1 Apply First Aid	<ul style="list-style-type: none"> • Researching on first aid • Identifying items in the First Aid Kit • Demonstrating the use of First Aid Kit contents (<i>Surgical blade, scissors, plaster...</i>) • Making First Aid Carrier (<i>Box, bag...</i>) • Role-playing how to care for an injured person 	<ul style="list-style-type: none"> • First Aid applied accordingly
6.2 WORD PROCESSING	6.2.1 Document Collaboration	6.2.1.1 Perform collaborative document editing and version control	<ul style="list-style-type: none"> • Exploring document collaborative tools (<i>Docs, sheets, only office...</i>) • Collaborative document editing • Exploring version history and revision tracking features 	<ul style="list-style-type: none"> • Collaborative document editing and version control performed accordingly
6.3 TOOLS AND EQUIPMENT	6.3.1 Building Tools	6.3.1.1 Classify building tools	<ul style="list-style-type: none"> • Identifying building tools (<i>spirit level, building square, trowel, wooden float...</i>) • Classifying building tools according to use (<i>laying tools, wall straightening, finishing tools...</i>) • Using building tools to build a structure 	<ul style="list-style-type: none"> • Building tools classified accordingly

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
6.4 MATERIALS	6.4.1 Building Materials	6.4.1.1 Classify building Materials	<ul style="list-style-type: none"> Identifying building materials (<i>sand, quarry, clay, stones, bricks cement, lime...</i>) Classifying building materials (<i>fine aggregates, coarse aggregates, binders, bricks...</i>) 	<ul style="list-style-type: none"> Building materials classified accordingly
		6.4.1.2 Make bricks	<ul style="list-style-type: none"> Kneading the clay Moulding clay bricks Curing of clay bricks 	<ul style="list-style-type: none"> Bricks made accordingly
6.5 PRESENTATION	6.5.1 Animations	6.5.1.1 Create interactive presentations	<ul style="list-style-type: none"> Creating custom animations and transitions. Using motion paths and effects. Developing Interactive presentations (<i>hyperlinks, menus...</i>) 	<ul style="list-style-type: none"> Interactive presentations created appropriately
6.6 ENERGY	6.6.1 Installation of electrical components	6.6.1.1 Install electrical components	<ul style="list-style-type: none"> Identifying types of switches (<i>single pole-single throw, single-pole-double throw...</i>) Designing and making switches Designing circuits (<i>using: cells, bulbs and switches</i>) Installing electrical components Practising safety when installing electrical components 	<ul style="list-style-type: none"> Electrical components installed correctly

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
6.7 SPREADSHEET	6.7.1 Multiplication and division in spreadsheet	6.7.1.1 Perform multiplication and division in spreadsheet	<ul style="list-style-type: none"> Using multiplication and division signs (*, /) Multiplying at least two real numbers in spreadsheet Dividing at least two real numbers in spreadsheet Multiplying and adding at least two real numbers in spreadsheet Dividing and subtracting at least two real numbers in spreadsheet 	<ul style="list-style-type: none"> Multiplication and division in spreadsheet performed correctly
6.8 GRAPHIC COMMUNICATION	6.8.1 Orthographic Projection	6.8.1.1 Construct Orthographic views	<ul style="list-style-type: none"> Identifying orthographic projection views (<i>Front, plan, End</i>) Converting pictorial drawing to orthographic views Dimensioning of the elevations 	<ul style="list-style-type: none"> Orthographic views constructed correctly
	6.8.2 Modeling	6.8.2.1 Create 3D models	<ul style="list-style-type: none"> Exploring 3D modeling software (<i>Paint 3D, sketch up, blender...</i>) Creating 3D models of simple objects. Applying textures to 3D models Applying 3D animation and rendering. 	<ul style="list-style-type: none"> 3D models created accordingly

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
6.9 DESIGNING	6.9.1 Product Design	6.9.1.1 Design products to solve real life problems	<ul style="list-style-type: none"> Identifying situations that need solutions in the immediate environment Designing products to solve problems Developing products Evaluating product designs 	<ul style="list-style-type: none"> Products designed appropriately to solve real life problems
6.10 CODING	6.10.1 Block Based Coding	6.10.1.1 Create simple computer programs	<ul style="list-style-type: none"> Creating simple computer programs (<i>animations, games...</i>) using block-based coding. 	<ul style="list-style-type: none"> Simple computer programs created accordingly
6.11 STRUCTURES	6.11.1 Building Structures	6.11.1.1 Construct buildings	<ul style="list-style-type: none"> Making designs of buildings (<i>floor plan</i>) Setting out the structure using the square method. Mixing building materials in correct proportions Constructing the building using bricks and mortar (<i>pit latrine, chicken run, kennel...</i>) Practising safety precautions when constructing buildings 	<ul style="list-style-type: none"> Buildings constructed accordingly
6.12 INTERNET	6.12.1 Digital Citizenship	6.12.1.1 Apply digital citizenship ethics	<ul style="list-style-type: none"> Discussing digital rights and responsibilities. Exploring online privacy and 	<ul style="list-style-type: none"> Digital citizenship ethics applied accordingly

TOPIC	SUB -TOPIC	SPECIFIC COMPETENCE	LEARNING ACTIVITIES	EXPECTED STANDARD
			security issues. • Utilising strategies to evade Cyberbullying	
6.13 ENTREPRENEURSHIP	6.13.1 Business Plan	6.13.1.1 Develop business plans	• Researching on the main parts of a Business plan (<i>Name of the business, location, product/service, marketing</i>) • Developing a Business plan (<i>Writing a Business plan</i>)	• Business plans developed appropriately

REFERENCES

Curriculum Development Centre, (2023). Environmental Health and Pollution Management Education Framework, Ministry of Education, Lusaka: Zambia

Ministry of Education, (2023) Zambia Education Curriculum Framework

Ministry of Finance and National Development, (2022). Eighth National Development Plan, Republic of Zambia