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CURRICULUM & ASSESSMENT

(MINISTRY OF EDUCATION)

CAREER TECHNOLOGY
COMMON CORE PROGRAMME (CCP)

CURRICULUM FOR JHS1 (B7) - JHS3 (B9)

SEPTEMBER, 2020

MINISTRY OF EDUCATION
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Career Technology Curriculum for JHS 1-JHS3 (B7- B9)

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FOREWORD

The Ministry of Education, acting through the National Council for Curriculum and Assessment (NaCCA) has, in recent times, been working on curriculum and assessment reforms to improve the quality and relevance of learning experiences in pre-tertiary schools in Ghana. This curriculum, known as the Common Core Programme (CCP), is a sequel to the Kindergarten-Primary standards-based school curriculum, the implementation of which commenced with the 2019/2020 academic year. The CCP is carefully designed for learners in JHS 1 to JHS 3 (Basic 7 to Basic 9) as part of a holistic learning experience that prepares them for post-secondary education, the world of work or both. The curriculum focuses on building character and nurturing values, in addition to ensuring a seamless progression for all learners in JHS and to create clear pathways for academic and career-related programmes.

In the twenty-first century, memorisation of facts and figures is no longer a sufficient learner attribute. Therefore, the CCP focuses on the acquisition of the 4Rs (Reading, wRiting, aRithmetic and cReativity) and core competencies to afford learners the ability to apply knowledge innovatively to solve everyday problems. Personal projects, community projects and community service have been integrated into the CCP as part of a comprehensive assessment programme, including assessment of knowledge, skills, attitudes and values that mainly emphasise what learners can do. It is hoped that the content of this curriculum will promote better high school education that meets the varied learning needs of the young people in the country and addresses the shortfalls in the current school curriculum in relation to learning and assessment.

The Ministry of Education is committed to ensuring that our schools develop globally competitive high school graduates who have the requisite employable skills and workplace ethos. The CCP curriculum will, therefore, play an important role in this regard. The Ministry will support the effective implementation of the CCP to include capacity development of all teachers to ensure improved learning experiences and outcomes for our young people.

Dr Matthew Opoku Prempeh (MP)
The Honourable Minister of Education

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INTRODUCTION

In the junior high school education, learners are expected to take a Common Core Programme (CCP) that emphasises a set of high, internationally-benchmarked career and tertiary education-readiness standards. Learners need to acquire these for post-secondary education, the workplace or both. The standards articulate what learners are expected to know, understand and be able to do by focusing on their social, emotional, cognitive and physical development. The (CCP) runs from JHS 1 (Basic 7) through to JHS 3 (Basic 9).

The common core attributes of the learner, which describe the essential outcomes in the three domains of learning (i.e. cognitive, psychomotor and affective), are at the centre of the CCP (see Figure 1). Inspired by the values which are important to the Ghanaian society, the CCP provides an education of the heart, mind and hands in relation to the learner's lifetime values, well-being, physical development, metacognition and problem-solving abilities. Ultimately, this will produce character-minded learners who can play active roles in dealing with the increasing challenges facing Ghana and the global society.

The features that shape the Common Core Programme are shown in Figure 1. These are:

- **learning and teaching approaches**—the core competencies, 4Rs and pedagogical approaches
- l**earning context**—engagement service and project
- **learning areas**—mathematics, science, computing, languages (English, Ghanaian Language, French and Arabic), career technology, social studies, physical and health education, creative arts and design and religious and moral education.

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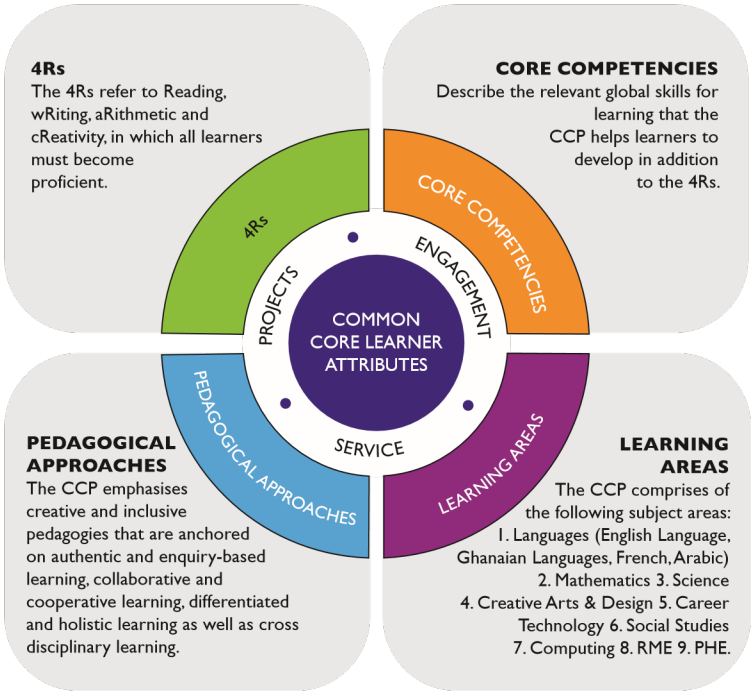

Figure 1: CCP Learner Attributes These are elaborated subsequently:

Learning and Teaching Approaches

- ***The core competencies:*** Describe the relevant global skills for learning that the CCP helps learners to develop in addition to the 4Rs. The global skills for learning allow learners to become critical thinkers, problem-solvers, creators, innovators, good communicators, collaborators, digitally literate, and culturally and globally sensitive citizens who are life-long learners with a keen interest in their personal development.
- ***Pedagogical approaches***: The CCP emphasises creative and inclusive pedagogies that are anchored on authentic and enquiry-based learning, collaborative and cooperative learning, differentiated learning, and holistic learning as well as cross disciplinary learning.
- ***The 4Rs across the Curriculum***: The 4Rs refer to Reading, wRiting, aRithmetic and cReativity, which all learners must become fluent in.

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Learning Context

The CCP places emphasis on engagement of learners in the classroom activities and projects (in and outside classroom). These projects can involve individual or group tasks which all learners are required to complete by the end of JHS 3 (Basic 9). The CCP project provides learners with contexts to demonstrate creativity and inventiveness in various areas of human endeavour. Community service offers opportunity for learners to nurture, love and care for, and solve problems in their community.

Learning Areas

The CCP comprises the following learning areas:

1. Languages (English Language, Ghanaian Languages, French, Arabic)
2. Mathematics
3. Science
4. Creative Arts and Design (CAD)
5. Career Technology
6. Social Studies
7. Computing
8. Religious and Moral Education (RME)
9. Physical and Health Education (PHE)

This document sets out the standards for learning Career Technology in the Common Core Programme (CCP). The standards in the document are posited in the expectation that the CCP, JHS 1-JHS3 (B7 – B9) will offer quality education for all types of learners. The design of this curriculum is based on the features of the CCP as shown in Figure 1. It emphasises a set of high internationally-benchmarked career and tertiary education readiness standards. Learners need to acquire these competencies in Career Technology for post-secondary education, workplace training or both. The curriculum has been designed to be user friendly because it provides a detailed preamble that covers the rationale, philosophy, aims, profile of expected learning behaviours (i.e., knowledge, skills, attitudes and values), pedagogical approaches, core competencies and the 4Rs, assessment practices and instructional expectations.

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RATIONALE

Universally, the development of a country hinges on industrial technology among others. Thus, Career Technology becomes the prospective backbone of the socio-economic and political development of every nation. Career Technology offers training for job opportunities as an integral part of everyday life. The course creates opportunities for creativity, innovation and skills development. It consists of a body of knowledge which attempts to explain, interpret concepts, ideas, and experiences which offer avenues for the creation of goods and services. With the introduction of Career Technology, Ghana as a country can significantly use the numerous professions to provide the needed employable jobs to boost the development of the country. The programme is intended to provide the required knowledge, skills and attitude to ensure competent training for learners from JHS 1 to JHS 3 (Basic 7 to Basic 9) levels of education in Ghana.

The expectation of Career Technology seeks to achieve the goals of the Education Strategic Plan (ESP 2018–2030). The Education Strategic Plan (ESP) 2018–2030 lays out Ghana's vision and goals for the Education Sector up to 2030, as well as detailed strategies for how these goals will be achieved. As part of the policy objectives, the teaching of Career Technology from JHS 1 to JHS 3 (Basic 7 to Basic 9) as a Common Core Programme has become a very meaningful aspect of the vision of education in Ghana. In response to the Education Strategic Plan 2018–2030, the Career Technology Course is thus expected to:

- Improve the nation's economy by bridging the connection between schooling, employment, productivity and trade.
- Enhance learners' outcomes in employment-related skills and competencies.

Career Technology employs pedagogical approaches or strategies of social constructivism, differentiation, scaffolding, inclusion, among others which are to cater for differences in ability and aspirations of learners. The main strengths of Career Technology as a Common Core Programme are:

- It provides learners with basic knowledge, skills and values to enable them function in society
- It creates opportunity for the development of special aptitudes and talents through elective courses
- Learners are able to solve real life problems since content is built around problems in the society
- Learners' understanding of concepts is reinforced since there is integration of subjects.

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PHILOSOPHY

Teaching Philosophy

Ghana as a developing country, believes that an effective Career Technology education should be inquiry-based to ensure sustainable development. Career Technology education must therefore, provide learners with opportunities to expand, change, enhance and modify the ways in which they view the scientific, technological, industrial, and economic world. It is pivoted on learner-centred technology, teaching and learning approaches that engage learners physically and cognitively to develop knowledge, skills and attitudes. This involves the acquisition of critical thinking, collaboration and communication, creativity and innovation, problem solving in an activity-driven environment.

Learning Philosophy

Career Technology as a subject, recognises the unique endowment of every learner. It promotes the development of individual talents based on creativity, innovation, critical thinking, and graphical expression of ideas of the learner's capacity as an individual. It offers learners the opportunity to work at their own pace without discrimination or comparison. Activities in Career Technology provide the learner with various options that promote brainstorming, decision making and expressive learning, self-assessment and evaluation. This approach of learner-centredness helps learners to appreciate every aspect of the subject.

Based on the interactive, exciting and stimulating nature of Career Technology, it enables learners to discover their talents and develop their lifelong, core competencies, functional and foundational skills. The learning environment (classroom, workshops, sites and laboratories) in Career Technology should encourage learners to participate and collaborate inclusively, understand and respect their skills, abilities and experiences as well as those of others. This sets a sustainable pace in achieving expected learning outcomes in the **4Rs**— **R**eading, w**R**iting, a**R**ithmetric and c**R**eativity.

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AIMS

General Aim

The Career Technology Curriculum is aimed at developing individuals to become creative, innovative, technologically minded, digital literates and problem solvers. They should have the ability to think critically and have both the confidence and competence to participate fully in Ghanaian society as responsible local and global citizens.

Specific Aims

Furthermore, the subject aims to;

- Educate the learner in Career Technology through the Head, Heart and Hands (3-H) Therapy.
- Develop the learner's thinking capacity, reasoning power and an understanding of the environment.
- Provide learners with the opportunity to respond and act creatively according to intuition.
- Instil in the learner a lifelong independent and critical mind for analytical and problem-solving skills like critical analysis, creativity and innovation.
- Instil in learners the ability to challenge stereotypes about gender disability. religion, ethnicity, economic status etc. that limits in some career pathways.
- Develop the personality in terms of emotional balance, material, spiritual, cultural and intellectual life of an individual.
- Strengthen the learner's power of imagination, creative thinking, self- expression, critical analysis, synthesis and evaluation.
- Predispose the learner to the technical and vocational identities of Career Technology and entrepreneurial skills needed for industrialisation.
- Develop in the learner the sense of appreciation and appraisal of Career Technology skills of the specific areas for future development.

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OBJECTIVES OF THE CAREER TECHNOLOGY CURRICULUM

In this regard, the Career Technology Curriculum is designed to help learners to:

- Develop the spirit of curiosity, creativity, innovation and critical thinking for investigating and understanding their technological environment.
- Develop skills, habits of mind and attitudes necessary for scientific and technological inquiry.
- Communicate graphical, technological, engineering, industrial, scientific ideas effectively.
- Use technological, engineering, industrial, scientific, entrepreneurial, employment concepts in explaining their own lives and the world around them.
- Develop humane and responsible attitudes towards the use of resources in Ghana and elsewhere.
- Show concern and understanding of the interdependence of all living things, and manufactured products and the Earth on which they live.
- Design activities for exploring and applying scientific, technological, engineering, industrial, entrepreneurial, employment ideas and concepts.
- Develop skills for using science, technology, and entrepreneurship to enhance learning and living.
- Use resources and materials in their environments in a sustainable manner.
- Develop the ability to identify and address gender and inclusion issues related to career opportunities and choices.

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LEARNING DOMAINS (EXPECTED LEARNING BEHAVIOURS)

A central aspect of this curriculum is the concept of three integral learning domains that should be the basis for instruction and assessment. These are:

- Cognitive (Knowledge, Understanding and Application)
- Psychomotor (Practical Skills)
- Affective (Attitudes and Values).

Knowledge, Understanding and Application

Under this domain, learners acquire knowledge through learning experiences. They may also show understanding of concepts by comparing, summarising, re-writing, etc. in their own words and constructing meaning from instruction. The learner may also apply the knowledge acquired in some new contexts. At a higher level of learning behaviour, the learner may be required to analyse an issue or a problem. At a much higher level, the learner may be required to synthesise knowledge by integrating a number of ideas to formulate a plan, solve a problem, compose a story, or a piece of music. Furthermore, the learners may be required to evaluate, estimate and interpret a concept. At the highest level, learners may be required to create, invent, compose, design and construct. These learning behaviours: "knowing", "understanding", "applying", "analysing", "synthesising", "evaluating" and "creating" fall under the domain of "Knowledge, Understanding and Application".

In this curriculum, learning indicators are stated with action verbs to show what the learner should know and be able to do. For example, the learner will be able to describe something. Being able to "describe" something after teaching and learning has been completed means that the learner has acquired "knowledge". Being able to explain, summarise, and give examples, etc. means that the learner has understood the concept taught.

Similarly, being able to "develop", "defend", etc. means that the learner can "apply" the knowledge acquired in some new context. Each of the indicators in the curriculum contains an "action verb" that describes the behaviour the learner will be able to demonstrate after teaching and learning has taken place. "Knowledge, Understanding and Application" is a domain that should be the prime focus of teaching and learning in schools. Teaching in most cases tend to stress knowledge acquisition to the detriment of other higher-level behaviours such as applying knowledge.
Each action verb in any indicator outlines the underlying expected outcome. Each indicator must be read carefully to know the learning domain towards which to teach. The focus is to move teaching and learning from the level of mere acquisition of "knowledge" that involves memorisation of facts, reliance on formulas, remembering of facts learned without reviewing or relating them to the real world known as ***surface learning*** to a new position called ***deep learning***. Learners are expected to deepen their learning by applying their knowledge to develop critical thinking skills, to explain issues, and reasons to generate creative ideas to solve real life problems they would face in school and in their later adult lives. This is the position where learning becomes beneficial to the learner.

The explanations and the key words involved in the Profile Dimensions - "Knowledge, Understanding and Application" domain are as follows:

Knowing: The ability to remember, recall, identify, define, describe, list, name, match, state principles, facts and concepts. Knowledge is the ability to remember or recall concepts already learnt and this constitutes the lowest level of learning.

Understanding: The ability to explain, summarise, translate, rewrite, paraphrase, give examples, generalise, estimate or predict consequences based upon a trend. Understanding is generally the ability to grasp the meaning of some material that may be verbal, pictorial or symbolic.

Applying: This dimension is also referred to as "Use of Knowledge", and is the ability to use knowledge or apply knowledge, apply rules, methods, principles, theories, etc. to situations that are new and unfamiliar. It also involves the ability to produce, solve, plan, demonstrate, discover, etc.

Analysing: The ability to break down material/information into its component parts; to differentiate, compare, distinguish, outline, separate, identify significant points etc., ability to recognise unstated assumptions and logical fallacies; ability to recognise inferences from facts, etc.

Synthesising: The ability to put parts or ideas together to form a new whole. It involves the ability to combine, compile, compose, devise, plan, revise, organise, create, generate new ideas, and solutions.

Evaluating: The ability to appraise, compare features of different things and make comments or judgement, contrast, criticise, justify, support, discuss, conclude, make recommendations, etc. Evaluation refers to the ability to judge the worth or value of some material based on some guide.

Creating: The ability to use information or materials to plan, compose, produce, manufacture or construct other products.

From the foregoing, creating is seen as the highest form of thinking and learning and is therefore the most important behaviour. This, unfortunately, is the area where most learners perform poorly. In order to get learners to acquire critical thinking skills right from the lower primary level, it is advised that teachers do their best to help the learners develop reasoning skills.

To be effective, competent and reflective citizens who will be willing and capable of solving personal and societal problems, learners should be exposed to situations that challenge them to raise questions and attempt to solve problems.

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Suggested Activities:

Teachers are to:

- select teaching and learning activities that will ensure maximum learner participation
- avoid rote learning and drill-oriented approaches and rather emphasise participatory teaching and learning with special focus on the cognitive, and psychomotor domains wherever appropriate.
- re-order the suggested teaching and learning activities and also add to them where necessary in order to achieve the best learning situation.
- help learners apply their knowledge in dealing with issues both in and out of school.
- help learners to be problem solvers.

In Career Technology, learners are expected to acquire valuable basic practical skills to serve as a foundation for further skills development. Observe and also ensure that learners exhibit skills and values in their behaviour and in career activities.

Evaluation:

Suggested mode of evaluating learners' performance in Career Technology lessons/activities are as follows:

1. **Concept/Ideas:** Originality, Creativity, Idea Development, Visualising, Pre-imaging, Sketching, etc.
2. **Planning/Preparation:** Acquisition of Tools, Props Materials, Costumes, Equipment and Instruments
3. **Process (Making/Production):** Selection and use of tools/instruments, materials etc. according to design specifications. Demonstration of core values and competence; observation of rules and guidelines
4. **Product/Artefact:** Finishing, Suitability, Usefulness, Aesthetic and Cultural Values
5. **Presentation/Exhibition:** Analysis, Appreciation, Appraisal, Critique, Judgement.

Teachers should:

- Design sets of tasks and assignments that will challenge learners to apply their knowledge to issues and problems
- Engage learners in creating new and original items/compositions
- Assist learners to develop positive attitudes for activities
- Emphasise the issues of conceptualisation, planning and making as key components in evaluating learners' work
- Guide learners to transform what they know, understand and can do into creating products

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- Observe and guide learners as they work independently or in groups in the performance of various tasks since both process and products are equally important
- Select and plan other learning activities to assist learners acquire, develop and demonstrate the subject specific practices and Core Competencies outlined under the specific indicators and exemplars of each content standard of the sub-strands/strands in addition to what have been suggested
- Bear in mind that the curriculum cannot be taken as a substitute for lesson plans. It is therefore, necessary that teachers develop a scheme of work and lesson plans for teaching the indicators and exemplars of this curriculum.

Note:

- Career Technology should be taught as a practical subject. It is basically for acquisition of practical skills. Learners are to be taught and evaluated practically.
- Though learners are to be taken through some theoretical lessons, these are to be reinforced through their learning of designing, idea conceptualisation, brainstorming and critical thinking to find solutions to identified problems.
- Learners must observe, listen, describe, reflect, brainstorm, discuss, design, make, test, evaluate and report.

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SKILLS AND PROCESSES

These are specific activities or tasks that indicate performance or proficiency in the learning of Career Technology. They are useful benchmarks for planning lessons, developing exemplars and are the core of inquiry-based learning.

Practical Skills

Practical skills refer generally to the psychomotor domain. This involves the demonstration of manipulative skills using tools/equipment and materials to carry out practical operations, pre-image to solve practical problems, and produce items. The teaching and assessment of practical skills should involve projects, case studies and creative practical tasks. The basic skills required for effective practical work are the following:

1. Handling of Tools/Equipment/Materials (manipulative skills)
2. Observation
3. Craftsmanship
4. Perception
5. Creativity
6. Communication

Handling of Tools/Equipment/Materials (Manipulative Skills**)**: The leaner should be able to handle and use tools/equipment/materials properly for practical skills through creative activities.

Observation: The learners should be able to use their senses to make accurate observation of skills and techniques during demonstrations. The learners in this case should be able to apply or imitate the techniques they have observed for performing other tasks.

Craftsmanship: This involves the skilful and efficient handling of materials and tools for accomplishing specific tasks according to the level of the learners.

Perception: The learners should be able to respond to their environment using all the senses (seeing, hearing, smelling, touching, tasting and movement or kinaesthetic. The learner should be encouraged to apply these senses to every project that is undertaken.

Originality/Creativity: The **l**earners should be encouraged to be creative or original and be able to use new methods in carrying out projects to be original in making own artefacts/products, and not to copy existing work. The teacher should help the learners to be creative and original by encouraging any little creative effort, technique and product they may develop.

Communication: The learners should be guided to develop effective oral and written communication skills necessary for group work, reporting and appreciation.

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Note: The action verbs provided under the various Profile Dimensions should help the teacher to structure the teaching such as to achieve the set objectives. Select from the action verbs provided for teaching, in evaluating learning before, during and after the instruction.

Attitudes and Values

To be effective, competent and reflective citizens, who will be willing and capable of solving personal and societal problems, learners should be exposed to situations that challenge them to raise questions and attempt to solve problems. Learners therefore, need to acquire positive attitudes, values and psychosocial skills that will enable them participate in debates and take a stand on issues affecting them and others.

The Career Technology curriculum intends to help learners to acquire the following:

i. Commitment: determination to contribute to national development.

ii. Tolerance: willingness to respect the views of others.

iii. Patriotism: readiness to defend the nation.

iv. Flexibility in ideas: willingness to change opinion in the face of more plausible evidence.

v. Respect for evidence: willingness to collect and use data in one's investigation, and also have respect for data collected by others.

vi. Reflection: the habit of critically reviewing ways in which an investigation or observation has been carried out to see possible faults and other ways in which the investigation or observation can be improved upon. vii. Comportment: conforming to acceptable societal norms. viii. Co-operation: the ability to work effectively with others.

ix. Responsibility: the ability to act independently and make decisions, and be morally accountable for one's action; capable of rational conduct.

x. Environmental Awareness: being conscious of one's physical and socio- economic surroundings.

xi. Respect for the Rule of Law: obeying the rules and regulations of the land.

The teacher should ensure that learners cultivate the above attitudes and skills as basis for living in the nation as effective citizens.

Values

At the heart of this curriculum is the belief in nurturing honest, creative and responsible citizens. As such, every part of this curriculum, including the related pedagogy, should be consistent with the following set of values:

Respect: This includes respect for the nation of Ghana, its institutions and laws and the culture and respect among its citizens and friends of Ghana.

Diversity: Ghana is a multicultural society in which every citizen enjoys fundamental rights and responsibilities. Learners must be taught to respect the views of all persons and to see national diversity as a powerful force for nation development. The curriculum should promote social cohesion.

Equity: The socio-cultural and economic development across the country is uneven. Consequently, it is necessary to be deliberate in addressing the specific needs of learners and to ensure an equitable distribution of resources. Ghana's learners have varied needs influenced by their gender, abilities, economic status, geographical background etc. which require the provision of equal opportunities for all to promote life-long learning.

Commitment to achieving excellence: Learners must be taught to appreciate the opportunities provided through the curriculum and persist in doing their best in any field of endeavour as global citizens. The Career Technology curriculum encourages innovativeness through creative and critical thinking and the use of contemporary technologies.

Teamwork/Collaboration: Learners are encouraged to be committed to team-oriented working and learning environments. This also means that learners should have an attitude of tolerance to live peacefully with all persons.

Truth and Integrity: Learners will be helped to develop learners into individuals who will consistently tell the truth irrespective of the consequences. In addition, be morally upright with the attitude of doing the right thing even when no one is watching. They will be true to themselves and be willing to live the values of honesty and compassion. Equally important, is the practice of positive values as part of the ethos or culture of the workplace, which includes integrity and perseverance. These values underpin the learning processes to allow learners to apply skills and competencies in the world of work.

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ASSESSMENT IN THE CCP

Assessment is a process of collecting and evaluating information about learners and using the information to make decisions to improve their learning. Assessment may be formative, summative, diagnostic, or evaluative depending on its purpose. It is integral to the teaching-learning process, promotes student learning and improves instruction. In CCP, it is suggested that assessment involves assessment for learning, assessment of learning and assessment as learning, which are described in the subsequent paragraphs.

In Career Technology, it must be emphasised that all forms of assessment are based on the 3 domains of learning. In developing assessment procedures, try to select indicators in such a way that you will be able to assess a representative sample from a given strand. Each indicator in the curriculum is considered a criterion to be achieved by the learners. When you develop assessment items or questions that are based on a representative sample of the indicators taught, the assessment is referred to as a "Criterion-Referenced Assessment". In many cases, a teacher cannot assess all the indicators taught in a term or year. The assessment procedure you use i.e. class assessments, homework, projects and group work presentations must be developed in such a way that the various procedures complement each other to provide a representative sample of indicators taught over a period of time.

Assessment for Learning (AfL)

Assessment for Learning (AfL) is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learner is in their learning, where they need to be (the desired goal), and how best to get them there. AfL is one of the most suitable methods for improving learning and raising standards (Black and William, 1998). Assessment for Learning also refers to all the activities undertaken by teachers and/or by their learners, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged. AfL can be achieved through processes such as sharing criteria with learners, effective questioning, and feedback.

AfL, therefore, provides timely feedback to ensure individual learners are assisted during the teaching and learning process using various strategies and questioning to measure the learning that has actually taken place. It is a continuous process that happens at all stages of the instructional process to monitor the progress of a learner and to offer feedback or change teaching strategies to achieve [performance standards of a lesson.

Assessment of Learning (AoL)

Assessment of learning provides a picture of the achieved standards of the teacher and performance of students at the terminal stage of the learning process. This information provides data for accountability and educational decisions such as grading, selection and placement, promotion and certification. Through AoL, stakeholders such as parents and guardians are informed about the extent students have attained expected learning outcomes at the end of their grade or programme.

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Assessment as Learning (AaL)

Assessment as Learning develops and supports students' sense of ownership and efficacy about their learning through reflective practices. This form of self-assessment helps in building the competencies of learners to achieve deeper understanding of what their own learning and what they are taught.

Assessment as Learning is about the ongoing self-assessment by students in order to monitor their own learning, which is "characterised by students reflecting on their own learning and making adjustments so that they achieve deeper understanding." *(Western and Northern Canadian Protocol for Collaboration in Education [WNCP], 2006, p.41)*

Learners must be guided through the process of understanding their own cognitive processes so that students learn to monitor their own learning and make adjustments

What do we assess?

- Emphasis in assessment in the CCP is on the Common Core Learner Attributes, which are essential outcomes in the three domains of learning (i.e. cognitive, psychomotor and affective).
- Knowledge and skills with emphasis on the 4Rs in the learning areas
- Core competencies with emphasis on attitudes and values developed through the learning and its context as well as the pedagogical approaches.
- The process is illustrated diagrammatically in Figure 2.

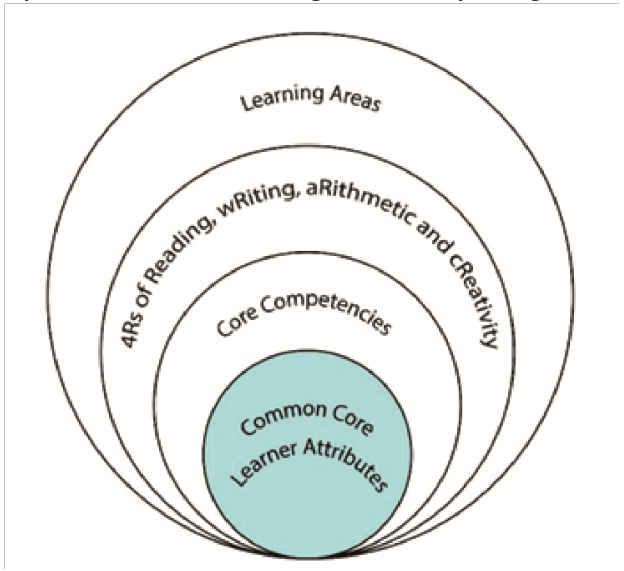

Figure 2 Essential Assessment Features

How do we monitor progress?

School-Based Assessment (SBA) covers all forms/modes of assessment including AfL, AaL and AoL (see Table 1), that can be undertaken by any school-level actor (learner, teacher, head teacher) to monitor the learner's achievement over a period of time. Data collection and keeping records of the data are central to the conduct of SBA.

Table 1 Modes of Assessment

Assessment for Learning	Assessment of Learning	Assessment as Learning
Class exercises	Class Assessment Task (CAT)	Portfolio
Quizzes	End of term assessment	Journal entries
Class tests (written, oral, aural and/or practical)	End of year assessment	Project work
Class Assessment Task (CAT)		Checklist
		Questionnaire

The following are samples of relevant records that can be kept on the student's learning.

- Student's Progress Record (Cumulative Record)
- Student's Report Card
- School-Based Assessment Termly Recording Register

Details of guidelines on SBA can be found in *the National Pre-tertiary Learning Assessment Framework (NPLAF)* document (Ministry of Education, 2020a) and *the School-Based Assessment Guidelines* (Ministry of Education, 2020b).

Reporting School-Based Assessment (SBA) in the CCP

The CCP uses a criterion-referenced model of presenting and reporting school-based assessment data. School-based assessment throughout the three-year duration of CCP, is done against criteria linked to performance standards and not against the work of other learners. The CCP provides levels of proficiency to be attained and descriptors for all grade levels of the programme (see Table 2). These levels and descriptors cannot be changed by individual schools and are, therefore, common to all learners as well as learning areas nationwide. For each assessment criterion or (benchmark for the level of proficiency), a number of descriptors are defined as shown in Table 2.

Table 2: Benchmarks, levels of proficiency and the grade level descriptors

Level of Proficiency	Benchmark	Grade Level Descriptor
1: Highly proficient (HP)	80% +	Learner shows high level of proficiency in knowledge, skills and values and can transfer them automatically and flexibly through authentic performance tasks.
2: Proficient (P)	68-79%	Learner demonstrates sufficient level of proficient knowledge, skills and core understanding; can transfer them independently through authentic performance tasks.
3: Approaching Proficiency (AP)	54-67%	Learner is approaching proficiency in terms of knowledge, skills and values with little guidance and can transfer understanding through authentic performance tasks.

4: Developing (D)	40-53%	Learner demonstrates developing level of knowledge, skills and values but needs help throughout the performance of authentic tasks.
Level of Proficiency	**Benchmark**	**Grade Level Descriptor**
5: Emerging (E)	39% and below	Learner is emerging with minimal understanding in terms of knowledge, skills, and values but needs a lot of help.

The grading system presented, shows the letter grade system and equivalent grade boundaries. In assigning grades to pupils' test results, or any form of evaluation, the above grade boundaries and the descriptors may be applied. The descriptors Highly Proficient [HP], Proficient [P], Approaching Proficiency [AP], Developing [D], Emerging [E]), indicate the meaning of each grade.

In addition to the school-based assessment (SBA), a national standards assessment test is conducted in Basic 8 to provide national level indicators on learners' achievement.

CREATIVE PEDAGOGICAL APPROACHES

These are the methods, strategies and relevant teaching and learning resources for ensuring that every learner benefits from the teaching and learning process. The curriculum emphasises the:

1. creation of learning-centred classrooms through the use of creative approaches to ensure learner empowerment and independent learning;
2. positioning of inclusion and equity at the centre of quality teaching and learning;
3. use of differentiation and scaffolding as teaching and learning strategies for ensuring that no learner is left behind;
4. use of Information Communication Technology (ICT) as a pedagogical tool;
5. identification of subject specific instructional expectations needed for making learning in the subject relevant to learners;
6. integration of assessment as learning, for learning and of learning into the teaching and learning process and as an accountability strategy; and
7. questioning techniques that promote deep learning.

Learning-Centred Pedagogies

The learner is at the centre of learning. At the heart of the CCP curriculum is the learning progression and improvement of learning outcomes for Ghana's young people with a focus on the 4Rs—Reading, wRiting, aRithmetic and cReativity. It is expected that at each curriculum phase, learners would be offered the essential learning experiences to progress seamlessly to the next phase. Where there are indications that a learner is not sufficiently ready for the next phase a compensatory provision through differentiation should be provided to ensure that such a learner is ready to progress with their cohort.

The curriculum encourages the creation of a learning-centred classroom with the opportunity for learners to engage in meaningful "hands-on" activities that bring home to the learner what they are learning in school and what they know from outside of school. The learning-centred classroom is a place for the learners to discuss ideas through the inspiration of the teacher. The learners then become actively engaged in looking for answers, working in groups to solve problems. They also research information, analyse and evaluate information. The aim of the learning-centred classroom is to enable learners to take ownership of their learning. It provides the opportunity for deep and profound learning to take place.

The teacher as a facilitator needs to create a learning environment that:

1. makes learners feel safe and accepted,
2. helps learners to interact with varied sources of information in a variety of ways,
3. helps learners to identify a problem suitable for investigation through project work,
4. connects the problem with the context of the learners' world so that it presents realistic opportunities for learning,

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5. organises the subject matter around the problem, not the subject,
6. gives learners responsibility for defining their learning experience and planning to solve the problem,
7. encourages learners to collaborate in learning,
8. expects all learners to demonstrate the results of their learning through a product or performance.

It is more productive for learners to find answers to their own questions rather than teachers providing the answers and their opinions in a learning-centred classroom.

Inclusion

Inclusion is ensuring access and learning for all learners, especially, those disadvantaged. All learners are entitled to a broad and balanced curriculum in every school in Ghana. The daily learning activities to which learners are exposed should ensure that the learners' right to equal access and accessibility to quality education is met. The curriculum suggests a variety of approaches that addresses learners' diversity and their special needs in the learning process. When these approaches are effectively used in lessons, they will contribute to the full development of the learning potential of every learner. Learners have individual needs and learning experiences and different levels of motivation for learning. Planning, delivery and reflection on daily learning experiences should take these differences into consideration.

The curriculum therefore, promotes:

1. learning that is linked to the learner's background and to their prior experiences, interests, potential and capacities.
2. learning that is meaningful because it aligns with learners' ability (e.g. learning that is oriented towards developing general capabilities and solving the practical problems of everyday life); and
3. the active involvement of the learners in the selection and organisation of learning experiences, making them aware of their importance and also enabling them to assess their own learning outcomes.

Differentiation and Scaffolding

Differentiation is a process by which differences (learning styles, interest and readiness to learn) between learners are accommodated so that all learners in a group have the best chance of learning. Differentiation could be by content, tasks, questions, outcome, groupings and support. Differentiation as a way of ensuring each learner benefits adequately from the delivery of the curriculum can be achieved in the classroom through (i) Task (ii) Support from the Guidance and Counselling Unit and (iii) Learning outcomes.

Differentiation by task involves teachers setting different tasks for learners of different abilities. For example, in sketching the plan and shape of their classroom some learners could be made to sketch with free hand while others would be made to trace the outline of the plan.

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Differentiation by support involves the teacher giving needed support and referring weak learners to the Guidance and Counselling Unit for academic support.

Differentiation by outcome involves the teacher allowing learners to respond at different levels. Weaker learners are allowed more time for complicated tasks.

Scaffolding in education refers to the use of a variety of instructional techniques aimed at moving learners progressively towards stronger understanding and ultimately greater independence in the learning process.

It involves breaking up the learning task, experience or concepts into smaller parts and then providing learners with the support they need to learn each part. The process may require a teacher assigning an excerpt of a longer text to learners to read and engaging them to discuss the excerpt to improve comprehension. The teacher goes ahead to guide them through the key words/ vocabulary to ensure learners have developed a thorough understanding of the text before engaging them to read the full text.

Common scaffolding strategies available to the teacher are:

1. give learners a simplified version of a lesson, assignment, or reading, and then gradually increases the complexity, difficulty, or sophistication over time;
2. describe or illustrate a concept, problem, or process in multiple ways to ensure understanding;
3. give learners an Exemplar(s): or model of an assignment they will be asked to complete;
4. give learners a vocabulary lesson before they read a difficult text;
5. describe the purpose of a learning activity clearly and the learning goals they are expected to achieve; and
6. describe explicitly how the new lesson builds on the knowledge and skills learners were taught in a previous lesson.

Information Communication Technology

Information Communication Technology (ICT) has been integrated into the Career Technology curriculum as part of the core of education, alongside reading, writing and numeracy. Thus, the curriculum is designed to use ICT as a teaching and learning tool to enhance deep and independent learning. For instance, the teacher in certain instances is directed to use multimedia to support the teaching and learning process.

ICT has the potential to innovate, accelerate, enrich, and deepen skills. It also motivates and engages learners to relate school experiences to work practices. It provides opportunities for learners to fit into the world of work.

Some of the expected outcomes that this curriculum aims to achieve are:

1. improved teaching and learning processes;
2. improved consistency and quality of teaching and learning;
3. increased opportunities for more learner-centred pedagogical approaches;

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4. improved inclusive education practices;
5. improved collaboration, creativity, higher order thinking skills; and
6. enhanced flexibility and differentiated approach of delivery.

The use of ICT as a teaching and learning tool is to provide learners access to large quantities of information online and offline. It also provides the frame- work for analysing data to investigate patterns and relationships in the computing context. Once learners have made their findings, ICT can help them organise, edit and print the information in many different ways.

Learners need to be exposed to various ICT tools around them including calculators, radios, cameras, phones, television sets and computers and related software like Microsoft Office packages—Word, PowerPoint and Excel as teaching and learning tools. The exposure that learners are given from JHS 1-JHS3 (Basic 7 – Basic 9) to use ICT in exploiting learning will build their confidence and will increase their level of motivation to apply ICT use in later years, both within and outside of education. ICT use for teaching and learning is expected to enhance the quality and competence level of learners.

CORE COMPETENCIES

In using this curriculum, we hope that certain core competencies will be developed in learners to help them develop our country, Ghana. These competencies include:

Critical Thinking and Problem Solving (CP)

This skill develops learners' cognitive and reasoning abilities to enable them analyse and solve problems. Critical thinking and problem-solving skill enable learners to draw on their own experiences to analyse situations and choose the most appropriate out of a number of possible solutions. It requires that learners embrace the problem at hand, persevere and take responsibility for their own learning.

Creativity and Innovation (CI)

Creativity and innovation promote the development of entrepreneurial skills in learners through their ability to think of new ways of solving problems and developing technologies for addressing the problem at hand. It requires ingenuity of ideas, arts, technology and enterprise. Learners having this skill are also able to think independently and creatively.

Communication and Collaboration (CC)

This competence promotes in learners the skills to make use of languages, symbols and texts to exchange information about themselves and their life experiences. Learners actively participate in sharing their ideas. They engage in dialogue with others by listening to and learning from them. They also respect and value the views of others.

Cultural Identity and Global Citizenship (CG)

This competence involves developing learners to put country and service foremost through an understanding of what it means to be active citizens. This is done by inculcating in learners a strong sense of social and economic awareness. Learners make use of the knowledge, skills, competencies and attitudes acquired to contribute effectively towards the socioeconomic development of the country and on the global stage. Learners build skills to critically identify and analyse cultural and global trends that enable them to contribute to the global community

Personal Development and Leadership (PL)

This competence involves improving self-awareness and building self-esteem. It also entails identifying and developing talents, fulfilling dreams and aspirations. Learners are able to learn from mistakes and failures of the past. They acquire skills to develop other people to meet their needs. It involves recognising the importance of values such as honesty and empathy and seeking the well-being of others. Personal development and leadership enable learners to distinguish between right and wrong. The skill helps them to foster per- severance, resilience and self-confidence. It helps them acquire the skill of leadership, self-regulation and responsibility necessary for lifelong learning.

Digital Literacy (DL)

Digital Literacy involves developing learners to discover, acquire, and communicate through ICT to support their learning. It also makes them use digital media responsibly.

NB: Refer to Appendix 1 for details of the core competencies.

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INSTRUCTIONAL EXPECTATIONS OF CAREER TECHNOLOGY

Career Technology teachers are expected to respect each learner's unique individual ability and put in place appropriate teaching and learning strategies to meet the unique needs of the individual learner. The approach is intended to create the awareness that each learner has distinctive skills, talents and capabilities. This approach requires the application of a range of different pedagogical strategies that place emphasis on the needs of individual learners. The most important thing is that they are always ready to participate in Career Technology lessons. The expectations of Career Technology instructions could be achieved through the following:

Classroom, workshop/site and laboratory discussions, to guide learners to be aware that creative activities are used to solve identified problems. For example:

1. The Career Technology products are used to provide food, clothing, shelter and furniture for our homes, schools, churches, mosques, palaces and work places. The Career Technology subjects can provide job opportunities for various endeavours in life.
2. Lead learners to identify problems in their environment; home, school and community that affect the individual, family, community and the country.
3. Guide learners to discuss the effects of these problems on their education, health and sanitation, cultural beliefs and practices, job creation and employment, etc.
4. Lead learners to investigate the causes of these problems through interviews, visits, observations, reading and group or class discussions, etc.
5. Guide learners through brainstorming, discussions, exploration with available tools, materials, instruments and techniques (individually or in groups) to design and create projects to help solve identified problems.
6. Get learners to plan, display and share their artefacts through exhibitions and performances with peers and other members of the community.
7. Guide learners to appreciate, appraise and critique their works, document the outcomes, reflect creatively on their findings and use the feedback to make modifications or undertake new projects.

SUGGESTED TIME ALLOCATION

For effective teaching and learning of the Career Technology subject, a total of **Four (4)** periods a week with each period consisting of **50** minutes (all making 200 minutes) is allocated. It is suggested that teachers be given **Two (2)**-double periods (100 minutes) for two days in a week on the school time table to handle the subject. The six (6) Strands with all their Sub-strands should be harmonised and every aspect given the needed attention. It is suggested that teachers of Career Technology teach one strand after the other in alternate weeks. This means, teaching and learning of the Career Technology curriculum in the subsequent weeks must be in line to ensure full coverage of the curriculum.

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SUGGESTIONS FOR HANDLING THE CAREER TECHNOLOGY (CT) CURRICULUM.

Effective and efficient use of time allotted to the CT subject:

The Career Technology Curriculum has been allotted Four (4) periods (50 minutes per period) making a total of 200 minutes per week. It is however, suggested that teachers be given **two-double periods** (100 continues minutes per session, times two, making 200 minutes) per week to enable them deliver the practical lessons and to be able to fully cover the curriculum. Under no circumstance that the CT periods be diverted or given to any subject/programme. Metro/Municipal/District Directors of Education, School Improvement Support Officers (SISO), Head Teachers and CT Teachers should therefore, ensure that the periods allotted to the subject are strictly adhered to and used judiciously.

Teachers required to handle the CT subject

The Career Technology Curriculum has been designed to be handled by one teacher. However, two or more teachers will be required initially to handle the subject since teachers need to be trained to handle both Home Economics and Pre-Technical Skills aspects.

It is hoped that effective in-service training and pre-service training will be organized for teachers to be able to individually handle the subject effectively.

Metropolitan/Municipal/District Directors of Education (MMDDE) should make sure that, at least two teachers are made available in a school to be able to handle the subject with ease, until such a time that CT teachers are effectively trained to single-handedly handle the subject effectively and efficiently.

ORGANISATION AND STRUCTURE OF CAREER TECHNOLOGY CURRICULUM

The Career Technology Curriculum has been structured into four columns, namely; Strands, Sub-strands, Content Standards and Indicators with Exemplars.

Organisation

The curriculum is organised under the following key headings:

Strands are the broad learning areas of the content to be studied.

Sub-strands are the sub-divisions of the broad learning areas or strands.

Content standards are the expected level of knowledge, skill and/or attitude that a learner must attain at each grade level.

Indicators are the distinct outcomes that learners must exhibit for each content standard at each level of learning.

Exemplars clearly explain the distinct outcomes or indicators. They support and guide the facilitator/teacher in helping learners to achieve the content standards.

Structure of Career Technology Curriculum

The structure of the Career Technology Curriculum is presented in Table 3 below. The Table shows the columns which indicate the strands, sub-strands, content standards and the indicators with the accompanying exemplars with reference numbers for effective planning.

Table 3: Structure of Career Technology Curriculum

STRAND	**SUB-STRAND**	**CONTENT STANDARD**	**INDICATOR(S) with Exemplars**
B7. 1	**B7.1.1**	**B7.1.1.1**	**B7.1.1.1.1**

A unique annotation is used for numbering the learning indicators in the curriculum for the purpose of easy referencing as indicated in Table 4, below.

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Table 4: An example of numbering the learning indicators in the curriculum: B7 .1.1.1.1.

ANNOTATION	MEANING / REPRESENTATION
B7	Year or Class
1	Strand Number
1	Sub-Strand Number
1	Content Standard Number
1 , 2 , 3	Indicators and Exemplars Number(s)

SCOPE AND SEQUENCE

Strand	Sub-strand	JHS1 (B7)	JHS2 (B8)	JHS3 (B9)
1. Health and Safety	1.1 Personal Hygiene and Food Hygiene 1.2 Personal, Workshop and Food laboratory safety 1.3 Environmental Health	✓	✓	✓
2. Materials for Production	2.1 Compliant Materials 2.2 Resistant Materials 2.3 Smart and Modern Materials 2.4 Food Commodities (animal and plant sources)	✓	✓	✓
3. Tools, Equipment and Processes	3.1 Measuring and Marking Out 3.2 Cutting/Shaping 3.3 Joining and Assembling 3.4 Kitchen Essentials 3.5 Finishes and Finishing	✓	✓	✓
4. Technology	4.1 Simple Structures and Mechanisms, Electric and Electronic Systems	✓	✓	✓
5. Designing and Making of Artefacts/Products	5.1 Communicating Designs 5.2 Designing 5.3 Planning for making Artefacts/Products 5.4 Making Artefacts from Compliant, Resistant Materials and Food Ingredients	✓	✓	✓
6. Entrepreneurial Skills	6.1 Career Pathways and Career Opportunities 6.2 Establishing and Managing a Small Business Enterprise	✓	✓	✓

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BASIC 7

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STRAND 1: PERSONAL HYGIENE AND FOOD HYGIENE

SUB-STRAND 1: PERSONAL HYGIENE AND FOOD HYGIENE

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.1.1.1 **Demonstrate knowledge of basic concept of staying healthy**	**B7.1.1.1.1: Discuss the need to stay healthy**	Communication and Collaboration **(CC)**, Personal Development **(PL)**, Creativity and Innovation **(CI)**
	1. Explain what is meant by staying healthy. E.g. Staying healthy: physical, mental, and social wellbeing, and as a resource for living a full life—exercise the body, have enough rest, eat a balanced diet, avoid drug abuse and negative peer pressure	**CC 8.1**: Speak clearly and explain ideas. **CC 8.2:** Explain ideas in a clear order with relevant details. **CP5.1**: Ability to combine information and ideas from several sources to reach a conclusion.
	2. Discuss and present in groups the consequences of not taking good care of one's body E.g., Contract disease and fall ill. **NB:** Use different ways or means for presentation—power point, posters, pictures, illustrations (differentiation).	**CC9.1:** Demonstrate behaviour and skills of working towards group goals.
	3. Research and write on materials and strategies (ways) used for improving personal hygiene and discuss, in groups.	**PL6.2**: Division of tasks into solvable units and assign group members task units.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.1.1.1 **Demonstrate knowledge of basic concept of staying healthy** CONT'D	**B7.1.1.1.2**: **Describe ways of maintaining personal hygiene** 1. In groups, discuss ways of maintaining personal hygiene. E.g., - Wash the body often. - Clean the teeth at least twice a day. - Wash hands after visiting the toilet. 2. Demonstrate the following in groups. E.g., Care of finger nails, hair, nose, ear, mouth and teeth	**CC 8.2:** Explain ideas in a clear order with relevant details. **CC9.1:** Demonstrate behaviour and skills of working towards group goals. **PL5.6**: Ability to set and maintain personal standards and values.
	B7.1.1.1.3: **Discuss food hygiene** 1. Explain what is meant by food hygiene. E.g., Conditions and measures needed to ensure safety of food from production to consumption. 2. Research into food hygiene practices, in groups and report in class for discussion. E.g., Proper storage and preservation of food.	**CC 8.2:** Explain ideas in a clear order with relevant details. **CC9.3:** Understand roles during group activities. **PL6.2**: Division of tasks into solvable units and assign group members task units.

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STRAND 1: PERSONAL HYGIENE AND FOOD HYGIENE

SUB-STRAND 2: PERSONAL, WORKSHOP AND FOOD LABORATORY SAFETY

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.1.2.1 **Demonstrate knowledge of preventing accidents in the workshop/site and laboratory**	**B7.1.2.1.1**: **Describe accidents in the workshop/site/laboratory** 1. Explain what is meant by accidents. E.g., Accidents in the workshops are injuries that occur in the workshop/site or laboratory unexpectedly. 2. Discuss the types of accidents that occur in the workshop. E.g., Falls, cuts, bruises and explosions. 3. Predict the causes of accidents that can occur in the workshop/food laboratory. E.g., Tiredness/fatigue, poor lightening and ventilation.	Communication and Collaboration (CC) Critical Thinking and Problem Solving (CP) **CC 8.2:** Explain ideas in a clear order with relevant details. **CP5.2**: Analyse and make judgement about viewpoints expressed in an argument.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.1.2.1 **Demonstrate knowledge of preventing accidents in the workshop and laboratory** CONT'D	**B7.1.2.1.2**: **Explain the need for keeping the workshop/site and the laboratory safe** 1. Identify personal safety measures in the workshop/site/food laboratory. E.g., Proper use of personal protective equipment in the workshop and laboratory and adherence to safety rules and regulations. 2. Discuss how to keep tools and equipment safe to prevent accidents in the workshop /site/food/sewing laboratory. E.g., Proper storage of food, materials, tools and equipment. 3. Demonstrate ways of preventing accidents in the workshop/site//food laboratory. E.g. • Follow instructions and do not rush through work • Good lighting and ventilation, work systematically and carefully • Keep oneself from harm, observe safety precautions, • Wear personal protective equipment (PPE) such as goggles, nose masks and boots.	**CC 8.2:** Explain ideas in a clear order with relevant details. **CC 8.1:** Speak clearly and explain ideas. **CP6.3:** Identify important and appropriate alternatives.

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STRAND 1: PERSONAL HYGIENE AND FOOD HYGIENE

SUB-STRAND 3: ENVIRONMENTAL HEALTH

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.1.3.1 **Demonstrate knowledge of basic concept of Environmental Health**	**B7.1.3.1.1**: **Discuss the factors of environmental health** 1. Explain what is meant by Environmental Health. E.g., It is a way of protecting quality of life through the prevention and treatment of disease that relates to the natural and built environment that may affect human health and fosters healthy and safe communities. 2. Identify the factors (constituents/pillars) of environmental health, in groups E.g., Disease control, clean water, sanitation and hygiene. 3. Identify and discuss the causes of environmental health and other sources and report in class. E.g., Air, water and soil pollutions, chemical exposures 4. Research the consequences of poor environmental health, in groups and present for class discussions. E.g., Transmission of diseases such as cholera, diarrhoea, dysentery, hepatitis A, typhoid, polio, Novel Coronavirus (COVID-19) and exacerbates stunting	Communication and Collaboration (CC), Critical Thinking and Problem Solving(CP), Creativity and Innovation(CI) **CC 8.2:** Explain ideas in a clear order with relevant details **CC 9.6:** Ability to work with all group members to complete a task successfully **CP5.1:** Ability to combine information and analyse to make distinct judgement

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
	B7.1.3.1.2: **Demonstrate the preventive measures of environmental health** 1. Identify preventive measures of poor environmental health. E.g. - Avoid polluting water bodies - Avoid littering - Avoid defecating indiscriminately 2. Present findings in groups. 3. Undertake a project in tree planting around the school/community. 4. Document the growth stages of the tree and report in class for appraisal using charts, pictures and videos.	**CP6.3**: Identify important and appropriate alternatives **CC 8.4**: Anticipate different responses from the audience and plan for them **CP6.7:** Implement strategies with accuracy **CI 5.1**: Ability to look at alternatives in creating new things

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STRAND 2: MATERIALS FOR PRODUCTION

SUB-STRAND 1: COMPLIANT MATERIALS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.2.1.1 **Demonstrate knowledge of basic concept of compliant materials**	**B7.2.1.1.1**: **Describe compliant materials** 1. Explain what is meant by compliant materials E.g., Compliant materials are materials that have recognised, predictable and consistent properties such as paper/card, fabric/textiles. 2. Sort out compliant materials from the variety of available materials. 3. Write a summary of the explanation and sorting.	Communication and Collaboration (CC) Critical Thinking and Problem Solving (CP) **CC 8.2:** Explain ideas in a clear order with relevant details **CP5.2**: Analyse and make distinct judgement about viewpoints expressed in an argument
	B7.2.1.1.2: **Distinguish between types of compliant materials** 1. Classify the various compliant materials under their types: - Paper - Card - Fabric/Textile 2. Give examples of each class of compliant materials: - Paper—copy paper, construction paper - Card—solid white board, corrugated card, - Fabric/Textile—cotton, nylon 3. Read out the summary of the lesson. 4. Create a photo album and display for appraisal.	**CP6.3**: Ability to identify important and appropriate criteria to evaluate each alternative **CC8.1**: Speak clearly and explain ideas

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.2.1.1 **Demonstrate knowledge of basic concept of compliant materials** CONT'D	**B7.2.1.1.3**: **Explain how compliant materials are manufactured/produced** 1. Search for information on how paper/card is obtained, in groups. E.g., Paper is made from wood; a tree is felled, broken into chips, chips are boiled in water and chemicals added to form pulp; the pulp is pressed with rollers. The more the layers, the thicker the paper i.e. card. 2. Find information from books and other sources on how fabric/textile is obtained, in groups E.g., Fabric/Textile is obtained from natural and man-made fibres which are turned into yarns and threads. They are made through weaving, knitting, crocheting, braiding or bonding, knotting, and felting. 3. Write out findings and present in class.	**CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion

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STRAND 2: MATERIALS FOR PRODUCTION

SUB-STRAND 2: RESISTANT MATERIALS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.2.2.1 **Demonstrate knowledge of basic concept of resistant materials**	**B7.2.2.1.1**: **Describe resistant materials** 1. Explain what is meant by resistant materials. E.g., Resistant materials are materials that are not pliable or flexible and cannot be easily compressed with bare hands (plastic, wood, metal, ceramics, glass). 2. Sort out resistant materials from the variety of available materials E.g., plastic, wood, metal, ceramics, glass and their composites, 3. Write down the summary of the explanation and sorting.	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)** **CC8.1:** Speak clearly and explain ideas. **CP5.2:** Analyse and make distinct judgement about viewpoints expressed in an argument.
	B7.2.2.1.2: **Distinguish between the types of resistant materials** 1. Sort out different resistant materials into various categories E.g., - Plastics—thermosetting plastics and thermoplastics - Wood—hardwoods, softwoods and manufactured (man-made) boards - Metals—ferrous, non-ferrous, alloys and smart. 2. Identify and write the names of the various types of resistant materials under their categories and present in class for discussion.	**CP5.2:** Analyse and make distinct judgement about viewpoints expressed in an argument.

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<table>
<tr><th>CONTENT STANDARD</th><th>INDICATORS AND EXEMPLARS</th><th>CORE COMPETENCIES</th></tr>
<tr>
<td>B7.2.2.1
Demonstrate knowledge of basic concept of resistant materials
CONT'D</td>
<td>
B7.2.2.1.3: Explain how each of the resistant materials is manufactured/produced
1. Discuss the two main sources (natural and synthetic) from which plastics are obtained.
E.g.
- Natural resources: plants (cellulose), trees, animals, insects
- By-products: table tennis balls, acetate films, wrapping; rubber, roads, paint, decoration, glues, polish
- Synthetic sources: crude oil, coal and natural gas
- By-products: chemically produced plastics—polymerising vinyl chloride (PVC), polystyrene, polyethylene, acrylic.

2. Find out information from different sources including online, on the two types of plastics and give examples.
E.g.
- Thermoplastics: polythene, PVC, nylon
- Thermosetting plastics: urea formaldehyde, polyester resin, epoxy resin

3. Make a table and match products to the types of plastics they are made from,
E.g.
<table>
<tr><th>Material</th><th>Products</th></tr>
<tr><td>Polythene</td><td>toys, carrier bags, packaging film</td></tr>
<tr><td>Urea formaldehyde</td><td>textile, (white) electrical fittings, adhesives
(wood)</td></tr>
</table>
</td>
<td>
CC 8.2: Explain ideas in a clear order with relevant details

CP5.1: Ability to combine information and ideas from several sources to reach a conclusion

CP6.5: Ability to select alternatives that adequately meet selected criteria
</td>
</tr>
</table>

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.2.2.1 **Demonstrate knowledge of basic concept of resistant materials** CONT'D	4. Explain briefly how wood is obtained. E.g., A mature living tree is felled, the branches are cut off to obtain the log, which is then converted (sawn) to standard sizes, then seasoned. 5. Distinguish between solid timber and man-made boards and give examples. E.g., Solid timber is made from harvested trees or similar natural sources, whereas man-made boards are often produced from small pieces of wood or waste wood 6. Compare the weight of products made from solid timber and man-made boards E.g. Solid timber products: heavier in weight, less flexible Man-made board products: lighter in weight, more flexible 7. Explain briefly how metals are obtained E.g., The raw material is mined from the earth; it undergoes processes such as crushing, washing and grading; several other processes are carried out to get it in a refined form. 8. Identify products made from each category of metals E.g.: Ferrous metals: machine parts, nails, hand tools Non-ferrous metals: kitchen cooking utensils, window frames, electrical wires Alloys: sculptures, statues, ornaments Smart: shape memory alloy (SMA)	**CC 8.2:** Explain ideas in a clear order with relevant details. **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CP5.2**: Analyse and make distinct judgement about the viewpoints. **CC 8.2:** Explain ideas in a clear order with relevant details. **CP6.5:** Ability to select alternatives that adequately meet selected criteria.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.2.2.1 **Demonstrate knowledge of basic concept of resistant materials** CONT'D	9. Identify and classify materials used for building. E.g. - Natural: sand, stones, clay - Man-made: cement, lime 10. Discuss the sources of the natural building materials. E.g. - Sand is obtained from pits, river banks, sea - Stone is obtained from quarries	**CP5.2:** Analyse and make distinct judgement about the viewpoints. **CC 8.2:** Explain ideas in a clear order with relevant details.

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STRAND 2: MATERIALS FOR PRODUCTION

SUB-STRAND 3: SMART AND MODERN MATERIALS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.2.3.1 **Demonstrate understanding of the properties of smart and modern materials**	**B7.2.3.1.1**: **Explore the general properties of smart and modern materials** 1. Describe smart and modern materials. E.g. **- Smart materials** (intelligent or responsive materials) are designed materials that have one or more properties that can be significantly changed in a controlled fashion by external stimuli, such as stress, moisture, electric or magnetic fields, light, temperature, pH or chemical compounds. **- Modern materials** are materials developed through the invention of new or improved process to have improved properties and are used for sportswear, medical and safety wear, and fashion clothing. 2. Identify the main factors that affect the properties of smart and modern materials. E.g. Light, temperature (hot/cold/warm), moisture. 3. Describe the effects of light on smart and modern materials and products. E.g. - Light causes photomechanical materials to change shape when exposed to it. - Photochromic materials change colour in response to light 4. Explain the effects of temperature on smart and modern materials and products. E.g., Thermochromic materials change in colour depending on temperature	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)** **CC 8.2:** Explain ideas in a clear order with relevant details. **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CC 8.2:** Explain ideas in a clear order with relevant details. **CC8.1:** Speak clearly and explain ideas.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.2.3.1 **Demonstrate understanding of the properties of smart and modern materials** CONT'D	5. Discuss how moisture affects products made from smart and modern materials and products E.g., Graphene oxide (electrical insulator) based materials bend when exposed to moisture. 6. Present finding in class for discussion.	**CC 8.2:** Explain ideas in a clear order with relevant details.

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STRAND 2: MATERIALS FOR PRODUCTION

SUB-STRAND 4: FOOD COMMODITIES (ANIMAL AND PLANT SOURCES)

<table>
<tr><th>CONTENT STANDARD</th><th>INDICATORS AND EXEMPLARS</th><th>CORE COMPETENCIES</th></tr>
<tr>
<td>B7.2.4.1
Demonstrate knowledge of basic food commodities</td>
<td>B7.2.4.1.1: Discuss food commodities

1. Explain what is meant by food.
E.g., Food is any edible substance either solid or liquid which when eaten is used by the body to maintain life.
2. Explain what is meant by food commodities.
E.g., Food commodities generally refer to ingredients needed to produce different varieties of food.
3. Give examples of common food commodities in the community
E.g., fish, cassava, okro, orange, milk, meat
4. Enumerate the two (2) main sources of food commodities.
E.g. Plant and animal
5.Classify food commodities under the two main sources, i.e., plant source and animal source
<table>
<tr><th>Plant</th><th>Animal</th></tr>
<tr><td>cassava, okro, orange</td><td>fish, milk, meat</td></tr>
</table>
6.Discuss reasons for eating food;
E.g., To satisfy our hunger, build body, provide heat energy, protect body from diseases.
7. Make a chart on the two (2) main sources of food commodities and their examples.</td>
<td>Communication and Collaboration
(CC) Critical Thinking and Problem Solving (CP) CC8.1: Speak clearly and explain ideas.

CC8.1: Speak clearly and explain ideas.

CP6.5: Ability to select alternatives that adequately meet selected criteria.

CC 8.2: Explain ideas in a clear order with relevant details.</td>
</tr>
</table>

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 1: MEASURING AND MARKING OUT

<table>
<tr><th>CONTENT STANDARD</th><th>INDICATORS AND EXEMPLARS</th><th>CORE COMPETENCIES</th></tr>
<tr><td>B7.3.1.1
Demonstrate understanding of measuring and marking out tools and equipment for production.</td><td>B7.3.1.1.1: Classify and use measuring and marking out tools and equipment for production.

1. Identify and classify the types of measuring and marking out tools and equipment.
Example:
<table>
<tr><th>Place of work</th><th>Measuring Tools</th><th>Marking out Tools</th></tr>
<tr><td>Food laboratory (kitchen)</td><td>measuring cups</td><td>grater and cutter</td></tr>
<tr><td>Sewing workshop/ laboratory</td><td>tape measure, yard/ meter rule</td><td>pencil, tailor’s chalk</td></tr>
<tr><td>Building site</td><td>surveyor’s tape</td><td>profile board, peg, chalk</td></tr>
<tr><td>Wood workshop</td><td>tape measure, folding rule</td><td>pencil, marking gauge, marking knife</td></tr>
<tr><td>Metal/plastic workshop</td><td>steel rule</td><td>pair of compasses, scriber, pair of dividers</td></tr>
</table></td><td>Communication and Collaboration (CC)
Critical Thinking and Problem Solving (CP),
Creativity and Innovation (CI)

CP6.5: Ability to select alternatives that adequately meet selected criteria.

CC8.1: Speak clearly and explain ideas.

CC8.2: Explain ideas in a clear order with relevant details.</td></tr>
<tr><td></td><td>2. Think-write-pair and share at plenary session, the uses of each tool and equipment found in:
- Food laboratory (kitchen)
- Sewing workshop/laboratory
- Building site
- Wood workshop
- Metal/plastic workshop</td><td>CP5.6: Demonstrate a thorough a generalised concept and facts specific to task or situation.

CC8.2: Explain ideas in a clear order with relevant details.</td></tr>
</table>

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.3.1.1 **Demonstrate understanding of measuring and marking out tools and equipment for production** CONT'D	3. Discuss the importance of measuring and marking out tools. E.g., Accuracy, avoidance of waste of material, achieving desired results 4. Identify from displayed realia or pictures, tools and equipment used for measuring and marking out: - Food laboratory (kitchen for liquids/dry ingredients: weighing scale, measuring cups, spoons, calabash, *olonka* - Sewing workshop/laboratory: tape measure, yard rule - Building site: tape measure, builder's square, head pan, straight edge - Wood workshop: tape measure, folding rule, try-square, marking knife - Metal workshop: tape measure, steel rule, pair of compasses 5. Sketch and label parts of measuring and marking out tools and display sketches for appraisal. 6. Demonstrate how to use the measuring and marking out tools and equipment.	**CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CI 6.1:** Exhibit strong memory, intuitive thinking and respond appropriately. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.
	B7.3.1.1.2: **Demonstrate how to care for and maintain measuring and marking out tools and equipment used for production** 1. Share experiences from home on how to care for tools and equipment used for production. 2. Discuss cleaning agents/materials used to clean and maintain tools and equipment based on the respective material used in making the tool. E.g. Silvo for cleaning silver, Brasso for cleaning brass, oil to avoid rust, cloth for cleaning and dusting. 3. Demonstrate how to care for measuring and marking out tools and equipment according to the material used in making them.	**CC8.2:** Explain ideas in a clear order with relevant details. **CP6.7:** Implement strategies with accuracy

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 2: CUTTING/SHAPING

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.3.2.1 **Demonstrate understanding of cutting/shaping tools and equipment for production**	**B7.3.2.1.1: Identify cutting and shaping tools and equipment used for production.** 1. Identify the displayed cutting tools: - Food laboratory: • Cutting tools: All kinds of kitchen knives (pairing, chopping bread), biscuit cutters. • Shaping tools: Cake tins, moulds, scoops for ice cream etc. - Sewing workshop/laboratory - . Scissors, pinking shears, seam ripper and French curves) - Woodwork—Rip saws, cross cut saw, tenon saw, firmer chisel, mortice chisel, spoke shave, rasp file. - Building—Bolster, brick hammer, mould box - Metal/plastics—Hacksaw, junior hacksaw, hand file, flat file, square file, rectangular file, file card, cold chisels, drills and bits	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)** **CP6.5:** Ability to select alternatives that adequately meet selected criteria.
	B7.3.2.1.2: **Use appropriate skills in cutting, chopping, slicing, dicing and shaping products** 1. Demonstrate the appropriate techniques in cutting, chopping, slicing and dicing in food production. 2. Demonstrate the appropriate techniques in cutting, paring, moulding in wood, metal and building.	**CP6.7:** Implement strategies with accuracy.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.3.2.1 **Demonstrate understanding of cutting/shaping tools and equipment for production** CONT'D	**B7.3.2.1.3**: **Demonstrate how to care for and maintain cutting and shaping tools used for production** 1. Share experiences on how to care for, and maintain cutting and shaping tools and equipment for production. E.g., oil metal parts of tools, wash and clean mould box. 2. Identify cleaning agents used to clean tools and equipment according to the material used in cleaning cutting and shaping tools E.g., Silvo and grounded and sifted egg shell for cleaning stainless steel, oil for cleaning metal parts of tools. 3. Demonstrate how to care for and maintain cutting and shaping tools and equipment according to the material used in making them and discuss in class.	**CC 8.2:** Explain ideas in a clear order with relevant details. **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CP6.7:** Implement strategies with accuracy.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 3: JOINING AND ASSEMBLING

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.3.3.1 **Demonstrate understanding of joining and assembling materials, tools and equipment used for production**	**B7.3.3.1.1**: **Describe joining and assembling materials, tools and equipment used for making artefacts/products** 1. Identify joining and assembling materials, tools and equipment used for: - Sewing and crocheting—Thread, needle, crocheting hooks/ pins, sewing machine - Food production—Corn starch, gluten, tapioca, gelatin, egg white, milk. - Woodwork—Mallet, glues, clamps, screws - Metal work/Plastic—Soldering bit, bolts and nuts, epoxy resin, rivets, mallet, screws, screw drivers - Building—cement - Paper—glue 2. Research for more joining and assembling materials, tools and equipment using ICT tools and other sources and discuss in groups. 3. Sketch/make an album of joining and assembling materials, tools and equipment. 4. Display the sketches/album for appraisal.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)** Creativity and Innovation **(CI)** **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CP5.1:** Ability to combine information and analyse to make distinct judgement appropriately. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.3.3.1 **Demonstrate understanding of joining and assembling materials, tools and equipment used for production** CONT'D	**B7.3.3.1.2**: **Use appropriate skills for joining and assembling artefacts using the materials, tools and equipment** 1. Demonstrate the appropriate techniques in using joining and assembling materials and tools in: - Sewing and crocheting—stitching, knotting/looping - Food production— (cooking methods - boiling and stewing) - Wood products—nailing, bolting, screwing, gluing - Metal products/Plastic—soldering, using bolts and nuts, screwing, using adhesives, bolts and nuts - Building —bonding of bricks, blocks and stones. - Paper work—gluing	**CP6.7:** Implement strategies with accuracy.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 4: KITCHEN ESSENTIALS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.3.4.1 **Demonstrate knowledge and understanding of the Kitchen Essentials**	**B7.3.4.1.1**: **Describe kitchen essentials** 1. Explain what is meant by basic kitchen essentials. E.g., Kitchen essentials are indispensable/vital tools and equipment needed/necessary for meal preparation and service, e.g. saucepan, plate, can opener, colander, cutting board, vegetable peeler, soup tureen, crockery	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)** **CC8.1:** Speak clearly and explain ideas.
	B7.3.4.1.2: **Demonstrate skills in the classification of kitchen essentials** 1. Identify and classify kitchen essentials according to sizes. E.g. - Small: spoons, can opener - Large: refrigerator, cooker, broilers, cupboard - Mechanical: blender, food mixers 2. Present responses on the classified kitchen essentials for appraisal.	**CP6.5:** Ability to select alternatives that adequately meet selected criteria.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 5: FINISHES AND FINISHING

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.3.5.1 **Demonstrate knowledge of finishes and finishing**	**B7.3.5.1.1**: **Identify finishes and finishing applied to products/ artefacts** 1. Explain what is meant by finishes and finishing. E.g., Finishes are the substances applied on the surfaces of products/artefacts. Finishing is the final surface treatment given to products/artefacts to improve their beauty, attractiveness and protection. 2. Identify types of finishes E.g., lacquer, emulsion paint, oil paint, vanish, ceramic tiles, stones, plaster of Paris (POP), 3-D floor, wall paper. 3. Identify solvents used to thin finishes. E.g., thinner for lacquer polish, turpentine for oil paint, water for emulsion paint. Solvents make mixture flow easily. 4. Explain what is meant by garnishes. E.g., Garnishes are small, colourful, bits of food that are used to enhance the appearance and texture of dishes. Garnishes provide food with something that adds flavour and decorative colour. 5. Discuss ways of applying finishing to food products. E.g., Food can be 'finished' using garnishes 6. Choose garnishes of colour and flavours that complement the food to be garnished. E.g., Use carrots, green pepper, lettuce and tomatoes to garnish pale foods.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)** **CC 8.1:** Speak clearly and explain ideas. **CP 6.5:** Ability to select alternatives that adequately meet selected criteria. **CC 8.2:** Explain ideas in a clear order with relevant details.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.3.5.1 **Demonstrate knowledge of finishes and finishing** CONT'D	7. Identify the types of garnishes - Savoury garnishes: salad, radish, carrots, cucumber, herbs boiled egg, and tomatoes. - Sweet garnishes lemon, lime, oranges, berries, grapes, icing, and currants. **Note**: Other finishes are cakes by decorating with icing, decorate rock buns with cherries and currants. 8. Explain what is meant by edge finishes. E.g., Processes worked on to neaten the raw edges of articles. 9. Identify edges of articles that are finished. E.g., Neckline, armhole, hemline	

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STRAND 4: TECHNOLOGY

SUB-STRAND 1: SIMPLE STRUCTURES AND MECHANISMS, ELECTRIC AND ELECTRONIC SYSTEMS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.4.1.1 **Demonstrate understanding of structures in construction**	**B7.4.1.1.1**: **Outline the uses of structures in construction** 1. Explain what is meant by structures in construction. E.g., Method of supporting loads (triangulation, truss) to prevent collapse. 2. Identify and classify structures under natural and man-made E.g. - Natural: structures created by nature to provide support (spider web, honeycomb and human skeleton) - Man-made: structures made by man to provide protection and support, (chairs, helmets, suspension bridge) 3. Classify structures under frame and shell. E.g. - Frame structures: crane, electricity pylon and building - Shell structures: body of motor car shaped from panels. 4. Discuss the uses of structures in construction. E.g. - Carrying loads for which they were designed without toppling over or collapsing - Supporting the various parts of artefacts 5. Make sketches of both frame and shell structures and prepare a sketch album to use as materials for learning structures. 6. Display the sketch album for appraisal	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation (CI) **CC 8.1**: Speak clearly and explain ideas. **CP 6.5:** Ability to select alternatives that adequately meet selected criteria. **CC 8.2:** Explain ideas in a clear order with relevant details. **CI 6.1:** Exhibit strong memory, intuitive thinking and respond appropriately. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.4.1.1 **Demonstrate understanding of structures in construction** CONT'D	**B7.4.1.1.2: Discuss the causes of structural failures in construction** 1. Explain what is meant by structural failure in construction. E.g., when a structure collapses or fails to do its job. 2. Identify types of structural failure E.g., cracks, splits, breakages in structures 3. Observe where structural failures occur in structures in the environment. E.g., buildings, bridges, furniture 4. Discuss causes of structural failures. E.g., poor design, poor material, weak joint and fatigue 5. Discuss how static and dynamic forces can cause structures to fail. E.g. - Static force—stationary force due to the structure's own weight or the load being carried - Dynamic forces—moving force produced by wind, sea, vehicles and people. 6. Make sketches and notes on structural failures, in groups. 7. Display sketches for appraisal.	**CP 6.5:** Ability to select alternatives that adequately meet selected criteria. **CC 8.2:** Explain ideas in a clear order with relevant details. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.4.1.1 **Demonstrate understanding of structures in construction** CONT'D	**B7.4.1.1.3: Design and make simple structures** 1. Identify compliant and resistant materials, tools and equipment for making structures. E.g.: paper, cardboards, wood, metal and plastic 2. Plan and design the artefact. E.g., prepare working drawings showing dimensions 3. Make mock-ups of simple structures. E.g., frame and shell. **Note:** Examples of structures are car bodies, types of roofing, chairs, aircraft, train, radio and cupboard. 4. Test and evaluate the mock-ups by indicating the strengths and weaknesses of the structures and make modifications 5. Display the mock-ups for appraisal	**CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CI 5.2:** Ability to merge simple/complex ideas to create novel things. **CI 5.4:** Ability to visualise alternatives of skills see possibilities and identify problems and challenges. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes

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STRAND 5: DESIGNING AND MAKING OF ARTEFACTS/PRODUCTS

SUB-STRAND 1: COMMUNICATING DESIGNS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.5.1.1 **Demonstrate knowledge and skills of drawing materials, instruments/equipment, lines and their applications, and freehand sketching**	**B7.5.1.1.1**: **Identify drawing materials, instruments and equipment used for Graphic Communication** 1. Identify drawing materials, instruments and equipment. E.g., drawing materials, instruments and equipment (drawing paper, drawing board, tee square, pencils, a pair of compasses, a pair of dividers, rule) 2. Discuss the uses of drawing materials, tools and equipment. E.g. - Drawing paper—drawings are made on it - Drawing board—drawing paper is fixed on it for work to be done 3. Demonstrate appropriate usage and manipulation of drawing materials, instruments and equipment. E.g. How to manipulate the instruments/equipment-proper handling of compass, T- square, set squares. 4. Demonstrate how to care for and maintain the drawing materials and instruments/equipment. 5. Use a clean tissue to wipe the surface of the instruments/equipment **Note**: Do not drop the instruments/equipment.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CP6.7:** Implement strategies with accuracy.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.5.1.1 **Demonstrate knowledge and skills of drawing materials, instruments, lines and their applications, and freehand sketching** CONT'D	**B7.5.1.1.2**: **Discuss the types of lines used in graphic communication** 1. Identify lines used in communicating ideas. E.g., horizontal lines, vertical lines, inclined lines, arcs, continuous thick and thin lines, short dashes, 2. Describe the features and uses of the lines. E.g. - Continuous thick lines—for drawing outlines; - Continuous thin lines—for drawing construction lines 3. Illustrate the applications of lines in drawn objects. E.g., indicate dimension lines showing the dimension of an object 4. Make a chart on how the lines are applied in drawing. 5. Present the chart for appraisal.	**CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.
	B7.5.1.1.3: **Make sketches of lines, curves, objects, and write the letterings** 1. Identify lower- and upper-case letters. E.g. - Lowercase—a, b, c, d - Upper case—A, B, C, D 2. Discuss the principles of lettering. E.g. - Titles should be 8mm high - General information is usually about 6mm high Note: Titles and dimensions are usually written in upper case 3. Set out drawing paper and prepare title block indicating name, school, class, date and drawing number.	**CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CC 8.2:** Explain ideas in a clear order with relevant details **CI 5.2:** Ability to merge simple/complex ideas to create novel things.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.5.1.1 **Demonstrate knowledge and skills of drawing materials, instruments/equipment, lines and their applications, and freehand sketching** CONT'D	**B7.5.1.1.4**: **Make sketches of objects** 1.Discuss what is meant by sketching. E.g., a quick way of putting ideas down using freehand with a pencil or any other marker. 2. Illustrate the techniques of sketching objects in two-dimensional (2-D) plane figures. E.g., square, triangle, circle, rectangle, oval 3. Illustrate the techniques of sketching objects in three dimensional (3-D) E.g., isometric, oblique, perspective 4. Practise sketching of plane objects and pictorial objects to build an album and display for appraisal.	**CC 8.2:** Explain ideas in a clear order with relevant details. **CI 5.2:** Ability to merge simple/complex ideas to create novel things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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STRAND 5: DESIGNING AND MAKING OF ARTEFACTS/PRODUCTS

SUB-STRAND 2: DESIGNING

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.5.2.1 **Demonstrate understanding of Designing**	**B7.5.2.1.1**: **Work with a given design brief** 1. Study a given design brief to identify the problem. 2. Analyse the problem and list the possible ideas for the solution. 3. Discuss ideas in groups.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CP5.2:** Analyse and make distinct judgement about viewpoints expressed in an argument. **CC 8.2:** Explain ideas in a clear order with relevant details.
	B7.5.2.1.2: Generate ideas 1. Use freehand sketching to generate three possible ideas for solving the identified problem and write descriptive notes. 2. Verify if the generated ideas satisfy the solution for the problem identified. 3. Select the best design and draw it in a pictorial form. 4. Provide suitable dimensions to the selected design. 5. Prepare a simple working drawing of the selected design for the working drawing prepared in communication design such as front elevation, plan and end view.	**CI 5.5:** Ability to try new alternatives and different approaches. **CI 5.2:** Ability to merge simple/complex ideas to create novel situation or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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STRAND 5: DESIGNING AND MAKING OF ARTEFACTS/PRODUCTS

SUB-STRAND 3: PLANNING FOR MAKING ARTEFACTS/PRODUCTS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.5.3.1 **Demonstrate understanding of planning for making artefacts/products**	**B7.5.3.1.1**: **Discuss the factors to consider when planning a meal** 1. Identify and explain the different types of meals served in a day. E.g., breakfast, lunch, snack, elevenses, brunch and supper. 2. Explain the factors to consider when planning meals. E.g. • Nutritional needs of family members • Food available • Family budget	Communication and collaboration **(CC)** Critical Thinking and Problem Solving **(CP)** and Creativity and Innovation **(CI)** **CC 8.2:** Explain ideas in a clear order with relevant details. **CP6.5:** Ability to select alternatives that adequately meet selected criteria.
	B7.5.3.1.2: **Demonstrate skills in planning for preparing food using moist methods of cooking** 1. Discuss reasons for cooking food, in groups. E.g.: - make food edible, - improve flavour of food, kill germs. 2. Identify the different moist methods of cooking. E.g.: Moist Method—boiling, stewing, poaching	**CC 8.2:** Explain ideas in a clear order with relevant details. **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CI 5.2:** Ability to merge simple/complex ideas to create novel things.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
	BOILING 3. Discuss the three types of boiling. E.g.: - Boiling where the food absorbs the water—rice - Boiling where the water forms part of the food—porridge, soup - Boiling where the water is thrown away—yam, cassava 4. Discuss the advantages and disadvantages of boiling food. E.g. - Advantages – is a safe and simple method of cooking. - Disadvantages- water soluble nutrients are lost if the water in which food is boiled is discarded. **STEWING** 1. Explain what is meant by stewing. E.g., It is a slow, long method of cooking food in a small amount of liquid over a gentle heat. 2. Identify foods that can be stewed. E.**g.,** mushrooms, carrots, yam, onions, beans, peppers and tomatoes. 3. Discuss the principles of/guidelines for stewing. E.g. - A tight-fitting lid is important to retain steam - Temperature must be well controlled 4. Discuss the advantages and disadvantages of stewing foods. E.g., Advantage - economic on fuel; Disadvantage- takes a very long time to cook.	

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STRAND 5: DESIGNING AND MAKING OF ARTEFACTS/PRODUCTS

SUB-STRAND 4: MAKING ARTEFACTS FROM COMPLIANT, RESISTANT MATERIALS AND FOOD INGREDIENTS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.5.4.1 **Demonstrate skills of making artefacts/ products**	**B7.5.4.1.1**: **Demonstrate skills in preparing food using moist methods of cooking** **BOILING & STEWING**	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**
	1. Prepare a meal by choosing from any one of the three (3) types of boiling methods of cooking with an accompaniment stew, in groups. 2. Present /display meals for appraisal. **Note:** Guide learners to appreciate, appraise and critique their works and use the feedback to make modifications or undertake new practical.	**CI 6.10:** Reflect on work and explore thinking behind thoughts and processes. **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CC 8.2:** Explain ideas in a clear order with relevant details.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.5.4.1 **Demonstrate skills of making artefacts/ products** CONT'D	**B7.5.4.1.2**: **Demonstrate skills of making artefacts/products in sewing and crocheting** **SEWING** 1. Make specimens or samples of basic sewing stitches individually. E.g., tacking (even, long and short), running stitches, back stitches, overcasting. 2. Display specimens for appraisal. **CROCHETING** 1. Make specimens of basic crocheting stitches. E.g., chain, slip stitches, double crochet, treble. 2. Display specimens for appraisal.	**CI 5.2:** Ability to merge simple/complex ideas to create novel things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.
	B7.5.4.1.3: **Make mock-ups using compliant materials** 1. Organise the card board or paper as the main materials in place for the work. 2. Use the cutting list together with the working drawings to undertake the measuring, marking out and cutting of the various parts of the design using appropriate tools and equipment. 3. Check the various parts and dimensions to ensure an accurate surface development of the artefact. 4. Fold the parts of the surface developed to obtain the required artefact. 5. Use appropriate joining materials, tools/equipment to complete the required artefact. 6. Apply a suitable finish on the artefact 7. Test and evaluate artefact for modifications.	**CI 5.2:** Ability to merge simple/complex ideas to create novel things. **CI 6.3:** Ability to select the most effective creative tools for work and give reasons for choice. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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STRAND 6: ENTREPRENEURIAL SKILLS

SUB-STRAND 1: CAREER PATHWAYS AND CAREER OPPORTUNITIES

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.6.1.1 **Demonstrate awareness of own learning styles, interests, biases, beliefs and reasons for pursuing Career Technology**	**B7. 6.1:1.1: Evaluate own learning styles, interests and reasons for pursuing Career Technology** 1. Think-pair-share with whole class' own learning styles, interests and reasons for pursuing Career Technology. Why are you studying Career Technology? E.g. - To determine my future career path based on my interests and abilities. - To have a distinctive knowledge of the various courses available. 2. Examine own biases and beliefs, as a male or female, about some vocations. E.g. - Women are not to offer courses such as Building Construction, Mechanical Engineering, Carpentry, Plumbing etc. - Men are not supposed to study courses such as Food and Nutrition, Sewing, Home Management, Hair Dressing etc.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CTPS)**, Creativity and Innovation **(CI)**, Personal Development and Leadership **(PL)** **CC 8.2:** Explain ideas in a clear order with relevant details. **CP 5.1:** Ability to combine information and analyse to make distinct judgement. **PL 5.1:** Understanding of one self (strengths, weaknesses, goals and aspirations, reacting and adjusting to novel situations).

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STRAND 6: ENTREPRENEURIAL SKILLS

SUB-STRAND 2: ESTABLISHING AND MANAGING A SMALL BUSINESS ENTERPRISE

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.6.2.1 **Demonstrate understanding of Establishing and managing a Small business Enterprise**	**B7.6.2.1.1**: **Explain what is meant by 'entrepreneurship' and 'entrepreneur'** E.g. 1. Entrepreneurship is the activity of setting up a business or businesses, taking on financial risks in the hope of profit. 2. An entrepreneur is a person who sets up a business or businesses taking on financial risks in the hope of making profit. **B7.6.2.1.2**: **Describe the characteristics of a successful entrepreneur** **1. Explain the characteristics of an entrepreneur.** E.g. An entrepreneur is a person who sets up a business or businesses taking on financial risks in the hope of making profit. E.g. Characteristics of an entrepreneur**:** creative, passionate, motivated, optimistic, future oriented, persuasive, flexible, resourceful 2.Discuss the characteristics that lead to successful entrepreneurship Note: Use illustrations, ICT tools and other sources to facilitate discussions. E.g., Opportunity seeking, goal setting, risk taking, perseverance and persistence, self-confidence, commitment to work, hardworking, planning, information seeking, and problem-solving skills.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**, Personal Development and Leadership **(PL)** **CC 8.2:** Explain ideas in a clear order with relevant details. **CC 8.2:** Explain ideas in a clear order with relevant details. **CP 5.1:** Ability to combine information and analyse to make distinct judgement.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B7.6.2.1 **Demonstrate understanding of Establishing and Managing a Small Business Enterprise** CONT'D	**B7.6.2.1.3**: **Explain the advantages and disadvantages of being an entrepreneur** 1. Discuss in groups, the advantages and disadvantages of being an entrepreneur E.g. - Advantage: self-management, employment creation - Disadvantage: irregular income stream, difficulty in securing funds	**CC 8.2:** Explain ideas in a clear order with relevant details.
	B7.6.2.1.4: **Identify entrepreneurial opportunities in the locality** 1. Explore your locality, observe, and interact with entrepreneurs, taking into consideration the safety and welfare of learners. 2. Research for entrepreneurial opportunities E.g., mechanical engineering, welding, fitting, hairdressing, car washing, catering, masonry, block work, wood work, tiling, fashion designing, farming (fish and agriculture)) in the locality. 3. Write down the names of some popular enterprises seen in your locality. 4. Visit a few enterprises in your potential trade area and find out the following: - How the business was started - The challenges the business is facing - Solutions to the challenges 5. Write down the findings for presentation in class	**CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion. **CC8.1:** Speak clearly and explain ideas.

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BASIC 8

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STRAND 1: HEALTH AND SAFETY

SUB-STRAND 1: PERSONAL HYGIENE AND FOOD HYGIENE

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.1.1.1 **Demonstrate understanding of basic practices that depict personal and food hygiene**	**B8.1.1.1.1**: **Demonstrate skills of personal hygiene** 1. Think-pair-share on the causes of bad body odour. E.g., not bathing well. 2. Prepare personal hygiene cards/posters in groups to show causes of bad body odour. 3. Identify the appropriate materials used to prevent bad body odour. E.g., Lime/lemon, deodorant. 4. Demonstrate how to prevent bad body odour using the materials. 5. Plan and organise campaigns to educate the school community on the elimination of bad body odour. **Note:** Include the following in the planning: message, target group	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**, Personal Development and Leadership **(PL)** **CC 8.2:** Explain ideas in a clear order with relevant details. **CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion. **CP6.5:** Ability to select alternatives that adequately meet selected criteria.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.1.1.1 **Demonstrate understanding of basic practices that depict personal and food hygiene** CONT'D	**B8.1.1.1.2**: **Demonstrate skills in keeping food safe (food hygiene)** 1. Watch videos and pictures of the processes and skills of maintaining food hygiene and write down the observations. E.g. • Store food appropriately both before and after cooking. • Keep hair clean and cover with a cap • Cut/trim finger nails short • No wearing of jewellery at work. • Sneeze and cough into a handkerchief. • Wash hands regularly, before and after handling food. **Note**: Use this website **www.foodandbeveragetrainer.com** as a guide. 2. Role-play the skills of food hygiene in class for appraisal.	**CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion. **CC8.1:** Speak clearly and explain ideas.

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STRAND 1: HEALTH AND SAFETY

SUB-STRAND 2: PERSONAL, WORKSHOP AND FOOD LABORATORY SAFETY

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.1.2.1 **Demonstrate knowledge of preventing accidents in the workshop/site/ food/sewing laboratory**	**B8.1.2.1.1: Demonstrate basic skills in applying First Aid to self and others** 1. Explain what is meant by First Aid. E.g., It is a help given to an injured/sick person till full medical treatment is available. 2. Identify and discuss the contents of a First Aid box. E.g., plaster, gauze, scissors, methylated spirit. 3. Demonstrate how to administer first aid to persons affected with any of the following: - Cuts: this is a long, narrow incision in the skin made by a sharp object. **How to administer first** aid: Rinse the cut with water and apply pressure with sterile gauze, a bandage, or a clean cloth. - Burns: Is tissue damage that results from dry heat– by an iron or fire, overexposure to the sun or other radiation. **How to administer first aid:** After holding the burns under cool running water, apply cool wet compresses until the pain subsides. - Suffocation: inability for one to breath. **How to administer first aid:** Administer Cardiopulmonary resuscitation (CPR) on the person **Note**: Invite a resource person to demonstrate how to apply First Aid, especially CPR.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**, Personal Development and Leadership **(PL)** **CC 8.2:** Explain ideas in a clear order with relevant details. **CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion. **CC8.1**: Speak clearly and explain ideas.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
	- Scalds: they are caused by something wet, such as hot water or steam. **How to administer first aid:** cool the scald with cool or lukewarm running water for 20 minutes– do not use ice, chilled/cold water, or any creams or greasy substances such as butter. - Falls: are events which results in a person coming to rest accidentally on the ground or floor or other lower level causing injury to the person. **How to administer first aid:** Place a cold compress or ice pack on any bumps or bruises	

STRAND 1: HEALTH AND SAFETY

SUB-STRAND 3: ENVIRONMENTAL HEALTH

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.1.3.1 **Demonstrate understanding of the basic concept of Environmental health**	**B8.1.3.1.1**: **Discuss the causal factors, effects and prevention of desertification and deforestation** 1. Identify the causal factors and discuss the effects and preventive measures of desertification and deforestation, in groups. E.g. - Deforestation Causal factors—mining, bush fires Effects—polluted water bodies, global warming Prevention—alternative livelihood (agriculture), greening the environment - Desertification Causal factors—deforestation, urbanisation Effects—loss of plant species, climate change Prevention—afforestation, ruralisation 2. Group Project: Research the causal factors, effects and preventive measures of desertification and deforestation and develop a folder. 3. Present project findings in a report for appraisal.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP),** Creativity and Innovation **(CI)**, Personal Development **(PDL)**. **CC 8.2:** Explain ideas in a clear order with relevant details. **CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion. **PL6.2:** Division of tasks into solvable units and assign group members to tasks units.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.1.3.2 **Demonstrate understanding of basic ways of disposing of household and industrial/workshop/site/ laboratory waste**	**B8.1.3.2.1**: **Identify proper management and disposal of household and industrial waste** Research the proper management and disposal of household and industrial waste, in groups. 1.Discuss and report on the following: i. The different ways of disposing off home and industrial waste; E.g., landfills, combustion. ii. The proper ways of disposing off household and industrial waste; E.g. sanitary landfill disposal and incineration disposal, recycling household and industrial waste. 2. Undertake a project on how to recycle waste at home and in school.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)** **CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion. **CC 9.1:** Demonstrate behaviour and skills of working towards group goals. **CC 8.2:** Explain ideas in a clear order with relevant details.

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STRAND 2: MATERIALS FOR PRODUCTION

SUB-STRAND 1: COMPLIANT MATERIALS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.2.1.1 **Demonstrate understanding of the properties of compliant materials**	**B8.2.1.1.2**: **Discuss the basic characteristics of compliant materials** 1. Identify the properties of paper and card board that make them suitable for use. E.g. - Paper: Medium weight, fairly smooth and fairly stiff; Ideal for making small paper models. - Cardboard: Stiff, smooth and thin; Good for creating greeting cards, paper models and other stand-up building projects. 2. Describe the properties of fabrics/textiles that make them suitable for use. E.g. - Absorbent:: can allow moisture vapour to pass through easily - Durable: can last long.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP).** **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CC 8.2:** Explain ideas in a clear order with relevant details.

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STRAND 2: MATERIALS FOR PRODUCTION

SUB-STRAND 2: RESISTANT MATERIALS

<table>
<tr><th>CONTENT STANDARD</th><th>INDICATORS AND EXEMPLARS</th><th>CORE COMPETENCIES</th></tr>
<tr><td rowspan="2">B8.2.2.1
Demonstrate understanding of properties of resistant materials</td><td>B8.2.2.1.1: Explain the basic properties of resistant materials

1. Discuss the physical properties of resistant materials.
E.g., density, fusibility, electrical conductivity, thermal conductivity
2. Investigate the working properties of resistant materials;
E.g., strength, hardness, toughness, malleability, ductility, elasticity
3. Make a chart on the various properties of resistant materials.
E.g.
<table><tr><th>Physical Properties</th><th>Working Properties</th></tr><tr><td>Density
Fusibility</td><td>Strength
Hardness</td></tr></table></td><td>Communication and Collaboration (CC)
Critical Thinking and Problem Solving (CP).

CC 8.2: Explain ideas in a clear order with relevant details.

CP5.1: Ability to combine information and ideas from several sources to reach a conclusion.</td></tr>
<tr><td>B8.2.2.1.2: Describe the properties of building materials
1. Describe the properties of cement, sand, stones.
E.g., cement—binds
- Sand—fine
- Stone—hard, coarse
2. Discuss reasons for choosing a type of material for a building project.
E.g., Cement binds aggregates (sand and stone) in making mortar and concrete
3. Prepare a chart on properties of building materials
4. Present chart for appraisal</td><td>CC 8.2: Explain ideas in a clear order with relevant details.

CP5.1: Ability to combine information and ideas from several sources to reach a conclusion.</td></tr>
</table>

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STRAND 2: MATERIALS FOR PRODUCTION

SUB-STRAND 3: SMART AND MODERN MATERIALS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.2.3.1 Demonstrate understanding and the use of smart and modern materials	**B8.2.3.1.1: Discuss smart and modern materials** 1. Identify areas where smart and modern materials are in use. E.g., food industry, textile industry, electricals/electronics industry, healthcare industry, building industry 2. Search for products made from smart and modern materials using ICT tools and other sources. E.g. - Modified starches—used in pizza toppings - Sanitised fabrics—for sportswear and socks - Liquid Crystal Displays (LCDs)—for organic light-emitting diodes - Photochromic pigments—for lens in glass, windows	Critical Thinking and Problem Solving (CP). **CP6.5:** Ability to select alternatives that adequately meet selected criteria **CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion.

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STRAND 2: MATERIALS FOR PRODUCTION

SUB-STRAND 4: FOOD COMMODITIES (ANIMAL AND PLANT SOURCES)

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.2.4.1 **Demonstrate understanding of the functions of food commodities**	**B8.2.4.1.1**: **Explore the functions of food to the body** 1. Classify food according to their basic functions. E.g., body-building foods, energy-giving foods and protective foods 2. Relate food commodities to their functions. E.g. - Body-building—meat, egg, beans - Energy-giving—cereals, fats and oils - Protective—fruits, vegetables 3. Prepare a chart on the 3 functions of food commodities, and display in class for appraisal.	Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**. **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CI 5.2:** Ability to merge simple/complex ideas to create novel things.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 1: MEASURING AND MARKING OUT

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.3.1.1 **Demonstrate understanding of measuring and marking out tools and equipment for production**	**B8.3.1.1.1**: **Identify tools and equipment for measuring and marking out** 1. Describe the procedure for measuring and marking out artefacts/articles/products in the: - Food laboratory (kitchen) - Sewing workshop/laboratory - Building site - Wood workshop - Metal/plastic workshop 2. Sketch and label parts of some measuring and marking out tools and equipment. 3. Present the sketched tools and equipment for appraisal in class.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CC 8.2:** Explain ideas in a clear order with relevant details. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.3.1.1 **Demonstrate understanding of measuring and marking out tools and equipment for production** CONT'D	**B8.3.1.1.2**: **Take measurements of products/artefacts/articles** (A) Take body measurements 1. Discuss the importance of taking body measurements in sewing: 2. Discuss the guidelines for taking body measurements. E.g. - Take measurements over well-fitted foundation garment - Use a firm tape measures for accurate measurements - Record all measurements taken 3. Take each other's body measurements for garment construction. E.g., bust, waist, hips, across back, chest **Note:** - Boys should take measurements of boys and girls should take measurements of girls. - Check for accurate measurements and record. (B) Take measurements of artefacts/products 1. Demonstrate how to handle the tape measure to take measurements in millimetres, in groups. 2. Demonstrate how to mark out measured part(s), in groups. 3. Demonstrate how to record measured part(s), in groups. 4. Demonstrate how to indicate dimensions on marked out part(s), in groups. 5. Demonstrate how to care for and maintain measuring and marking out tools and equipment.	**CC 8.2:** Explain ideas in a clear order with relevant details. **CI 6.3:** Ability to use tool effectively for working. **CC 9.1:** Demonstrate behaviour and skills of working towards group goals.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.3.1.1 **Demonstrate understanding of measuring and marking out tools and equipment for production** CONT'D	**B8.3.1.1.3: Use appropriate techniques to measure** 1. Discuss portion control, equipment used and reasons E.g., Portion control is the art of controlling the size or quantity of ingredients for meal preparation and food to be served per a person. Equipment: scales and handy measures such as spoons, jugs etc. Reasons: it reduces waste of food, helps in food cost 2. Plan how to apply portion control in meal preparation and service E.g. 8oz (226.80 g/0.227kg) yam per person 4oz (113.40 g/0.113kg) rice per person 2 ladles of soup/porridge per person 3. Discuss the inaccuracies in using measuring tools and equipment that are faulty or tampered with and how this affects individuals and others. E.g., It affects quantity and quality of products/works/produce 4. Measure the ingredients for pancake, and make the pancake. 5. Measure objects or materials, and make models/mock-ups using compliant and resistant materials. 6. Display pancakes and artefacts for appraisal. 7. Develop a plan and organise a community education on addressing the issues of using measuring tools that are faulty or tampered with, in groups E.g. Message to deliver, target groups	**CC 8.2:** Explain ideas in a clear order with relevant details. **CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion. **CI 5.2:** Ability to merge simple/complex ideas to create novel situation or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.3.1.1 **Demonstrate understanding of measuring and marking out tools and equipment for production** CONT'D	**B8.3.1.1.4: Demonstrate how to care for and maintain measuring and marking out tools used for production** 1. Share experiences from home on how to care for tools and equipment for production. 2. Identify cleaning agents/materials used to clean and maintain tools and equipment based on the respective material used in making the tool. E.g., Silvo for cleaning silver, Brasso for cleaning brass, oil to avoid rust, cloth for cleaning and dusting. 3. Demonstrate how to clean measuring and marking out tools and equipment according to the materials used in making them.	**CC 8.2:** Explain ideas in a clear order with relevant details. **CP6.5:** Ability to select alternatives that adequately meet selected criteria.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 2: CUTTING/SHAPING

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.3.2.1 **Demonstrate understanding of cutting and shaping tools and equipment for making artefacts /products**	**B8.3.2.1.1**: **Identify and use of cutting and shaping tools and equipment** 1. Identify cutting and shaping tools and equipment used in the following areas: - Building site E.g., bolster, brick hammer - Wood workshop E.g., firmer chisels, jack plane, rip saw - Metal/plastics workshop E.g., cold chisel, hack saw, hand file 2. Discuss the uses of the various types of cutting and shaping tools, in groups, and present in class. 3. Sketch and label cutting and shaping tools, and display them for appraisal.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**. **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CC 8.2:** Explain ideas in a clear order with relevant details. **CI 5.2:** Ability to merge simple/complex ideas to create novel situation or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.3.2.1 **Demonstrate understanding of cutting and shaping tools and equipment for making artefacts/products** CONT'D	**B8.3.2.1.2: Use appropriate techniques to cut and shape artefacts/products** 1. Use appropriate techniques to shape a design in: - Food laboratory (kitchen)—moulding of banku, aparansa, tuo zaafi, biscuit cutting, designing of fruits and vegetables - Sewing workshop/laboratory—use French curves to shape necklines and armholes. Design different styles for dresses, shirts and shorts, blouses on paper and practice design cutting of styles designed on paper - Building site - Wood workshop - Metal/plastics workshop 2. Display works for appraisal.	**CI 5.2:** Ability to merge simple/complex ideas to create novel situation or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.
	B8.3.2.1.3: Demonstrate how to care for and maintain shaping and cutting tools and equipment 1. Discuss how to care for and maintain cutting and shaping tools and equipment used in: - Food laboratory (kitchen) - Sewing workshop/laboratory - Building site - Wood workshop - Metal/plastics workshop	**CC 8.2:** Explain ideas in a clear order with relevant details.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 3: JOINING AND ASSEMBLING

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.3.3.1 **Demonstrate understanding of joining and assembling materials, tools and equipment used for making artefacts/ products**	**B8.3.3.1.1**: **Identify joining and assembling materials, tools and equipment used for making artefacts/products** 1. Identify materials, tools and equipment used for joining and assembling artefacts/products from displayed charts, pictures or realia in the following areas: - Food laboratory (kitchen)—modern methods of joining/combining using silicon, gelatin, oats - Sewing workshop/laboratory—sewing machine, crocheting and glue. - Building site - Wood workshop - Metal/ plastic workshop 2. Sketch and label some tools in each of the trade areas. 3. Display sketches for appraisal.	Critical Thinking and Problem Solving **(CP),** Creativity and Innovation **(CI)**. **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CI 5.2:** Ability to merge simple/complex ideas to create novel situation or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.3.3.1 **Demonstrate understanding of joining and assembling materials, tools and equipment used for making artefacts/ products** CONT'D	**B8.3.3.1.2**: **Use appropriate tools, equipment and techniques to join and assemble patterns/artefacts/products** 1. Demonstrate the appropriate techniques used in the sewing workshop/ laboratory. E.g., Handling and using the sewing machine to make stitches on paper patterns correctly for straight stitching, stitching in circles, stitching around curves, for using the crochet pin/hook in making stitches 2. Demonstrate the appropriate techniques used for joining products made from the following materials: - Wood - Metal - Bricks/blocks - Plastics - Paper 3. Display specimens and artefacts for appraisal.	**CI 5.2:** Ability to merge simple/complex ideas to create novel situation or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.
	B8.3.3.1.3: **Demonstrate how to care for and maintain tools and equipment used for joining and assembling** 1. Demonstrate how to care for and maintain tools and equipment used for joining and assembling the following: - Sewing workshop/laboratory—dust and oil sewing machine after use - Building site—wash and clean tools - Wood workshop—clean tools, oil metal parts of tools - Metal/plastic workshop—clean tools, oil metal parts of tools	**CI 5.2:** Ability to merge simple/complex ideas to create novel situation or things.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 4: KITCHEN ESSENTIALS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.3.4.1 Demonstrate understanding of maintaining kitchen essentials	**B8.3.4.1.1**: **Demonstrate how to care for and maintain kitchen essentials** 1. Discuss suitable materials for cleaning kitchen essentials according to the materials used in making them. E.g. - Aluminium—steel wool, vim - Stainless steel—silvo, ground sifted egg shell 2. Demonstrate how to care for and maintain basic kitchen essentials for appraisal. E.g. - Washing - cleaning - sterilising	Communication and Collaboration **(CC),** Critical Thinking and Problem Solving **(CP)** **CC 8.2:** Explain ideas in a clear order with relevant details. **CI 5.2:** Ability to merge simple/complex ideas to create novel situation or things.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 5: FINISHES AND FINISHING

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.3.5.1 **Demonstrate understanding of application of finishes**	**B8.3.5.1.1**: **Demonstrate how to mix the various finishes** 1. Identify tools used for mixing finishes. E.g., containers, stirring rod 2. Demonstrate the procedure for mixing lacquer. E.g., lacquer is diluted with thinner about 10-15% 3. Demonstrate the procedure for mixing emulsion paint. E.g., add water bit by bit and stir with stirring rod 4. Demonstrate the procedure for mixing oil paint. E.g., dilute oil paint with turpentine between 10-30% and stir. 5. Display the mixture for appraisal.	Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**. **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CI 5.2:** Ability to merge simple/complex ideas to create novel situations or things.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.3.5.1 **Demonstrate understanding of application of finishes** CONT'D	**B8.3.5.1.2 Demonstrate skills of finishing edges of sewing articles and food products** 1. Review B7 lesson on finishes and finishing. 2. Discuss reasons why edges of sewing articles are finished. E.g. - to prevent edges from fraying - to neaten raw edges - to decorate raw edges 3. Demonstrate skills of working the following edge finishes. E.g., binding, hemming, fringing, pinking 4. Discuss items that can be used as garnishes in the food laboratory E.g., green pepper, tomatoes, carrot, herbs (parsley), icing, cherry fruit 5. Use skills in chopping, dicing, slicing to garnish boiled, yam and rice 6. Display specimens/food products for appraisal.	**CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CI 5.2:** Ability to merge simple/complex ideas to create novel situations or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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STRAND 4: TECHNOLOGY

SUB-STRAND 1: SIMPLE STRUCTURES AND MECHANISMS, ELECTRIC AND ELECTRONIC SYSTEMS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.4.1.1 **Demonstrate understanding of application of principles of forces acting on structures**	**B8.4.1.1.1**: **Perform experiments of principles of forces on structures** 1. Research for types of forces that can act on structural members in construction. E.g., tension, compression, shear, torsion and bending **Note**: Use ICT tools and other sources to identify types of forces acting on structures. 2. Make sketches and notes of the types of forces acting on structural members. E.g., tension, compression, shear, torsion and bending 3. Identify suitable resistant materials that can be used to perform the experiments: Forces acting on structural members. E.g., wood, metal, plastic, brick.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**, Personal Development and Leadership **(PL)**. **CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion. **CI 5.2:** Ability to merge simple/complex ideas to create novel situations or things. **CP6.5:** Ability to select alternatives that adequately meet selected criteria.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.4.1.1 **Demonstrate understanding of application of principles of forces acting on structures CONT'D**	4. Perform experiments to show the following: - how tension force can force a member to 'stretch' - how compression force can cause a member to 'squash' or 'buckle' - how shear force can cause a material to slide over each other - how torsion force can cause a member to twist - how a bending force which acts at an angle to a member tends to make it bend 5. Write their observations and discuss in class, in groups.	**CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion **CC 8.2:** Explain ideas in a clear order with relevant details. **CC 9.1:** Demonstrate behaviour and skills of working towards group goals.
	B8.4.1.1.1.2: Design and make simple school technology projects 1. Identify simple school technology projects. E.g., see-saw, pushchair for babies, cantilever, beams, types of roof, mobile stage, bridge. 2. Explain reasons for choosing the project. E.g., availability of materials and tools, preference, skills 3. Identify suitable materials, tools and equipment for making the project. E.g., cardboard, empty tins, plastic bottles 4. Prepare a folio for the project. **Note**: Follow the design process: Plan and make a mock-up. Test and evaluate the project indicating the strengths and weaknesses. Make modifications where needed	**CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CC 8.2:** Explain ideas in a clear order with relevant details. **CI 5.2:** Ability to merge simple/complex ideas to create novel situations or things.

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STRAND 5: DESIGNING AND MAKING OF ARTEFACTS/PRODUCTS

SUB-STRAND 1: COMMUNICATING DESIGN

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.5.1.1 **Demonstrate understanding of drawing plane figures and solid objects using drawing instruments**	**B8.5.1.1.1**: **Draw plane figures using instruments** 1. Identify two dimensional (2-D) figures/ objects E.g., circles, triangles, quadrilaterals, polygons 2. Draw circles, triangles, quadrilaterals and polygons using instruments. 3. Cut shapes of plane figures drawn and prepare an album. 4. Use the cut-out shapes to make a game. E.g., flash cards 5. Exhibit work for appraisal	Communication and Collaboration **(CC)**, Creativity and Innovation **(CI)**. **CI 6.3:** Ability to select the most effective creative tools for work and give reasons for choice. **CI 5.2:** Ability to merge simple/complex ideas to create novel situations or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.
	B8.5.1.1.2: Draw objects in pictorial using instruments 1. Explain what is meant by pictorial drawing. E.g., Drawing objects to show the three dimensions i.e., length, breath and width/thickness 2. Identify methods of drawing objects in pictorial form. E.g.: Isometric, oblique and perspective 3. Illustrate the techniques of drawing objects in isometric, oblique and perspective. 4. Draw objects in isometric, oblique and perspective using instruments. 5. Display drawings for appraisal.	**CC 8.2:** Explain ideas in a clear order with relevant details. **CI 5.2:** Ability to merge simple/complex ideas to create novel situations or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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STRAND 5: DESIGNING AND MAKING OF ARTEFACTS/PRODUCTS

SUB-STRAND 2: DESIGNING

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.5.2.1 **Demonstrate knowledge and skills of Designing**	**B8.5.2.1.1**: **Write a design brief** 1. Observe problem situations in the environment. 2. Write the problem situation. 3. State a suitable design brief to address the problem.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion
	B8.5.2.1.2: Research into design problems 1. Develop analysis chart of the problem. 2. State questions to address the analysis chart. 3. Conduct a research into the problem analysis through prepared questionnaires and interview guides. 4. Develop observation schedules and take photos/make sketches. 5. Analyse the research data and write a report. 6. Present report for appraisal	**CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion
	B8.5.2.1.3: Write Design Specifications 1. Develop and write the design specifications based on the areas analysed, to serve as a guide for idea generation. 2. Give reasons for the specifications developed.	**CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion. **CC 8.2:** Explain ideas in a clear order with relevant details.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.5.2.1 **Demonstrate knowledge and skills of Designing** CONT'D	**B8.5.2.1.4**: **Generate Ideas/possible solutions** 1. Use freehand to sketch at least three possible ideas/solutions. 2. Write descriptive/annotated notes on each of the generated ideas 3. Compare and select the best idea or design 4. Develop the selected idea and prepare the working drawings and folios.	**CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.
	B8.5.2.1.5: Make artefact using resistant materials 1. Study the design folios with reference to the design, working drawings and cutting list developed in communication design. 2. Identify the materials, tools and manufacturing processes involved, and check the conditions suitable for working. 3. Organise the working environment to ensure health and safety during the making of the artefact. 4. Undertake in sequence the making of the artefact using the appropriate materials, tools and processes suitable for the design. 5. Select the appropriate finishing materials and apply on artefact	**CI 6.3:** Ability to select the most effective creative tools for work and give reasons for choice. **CI 5.2:** Ability to merge simple/complex ideas to create novel situations or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.
	B8.5.2.1.6: Test and evaluate made products/artefacts 1. Test the artefact using the design specifications as a guide. E.g., check shape, function, finish, material 2. State the strengths and weaknesses of the artefact and verify. 3. State the proposed suggestions for modifications on the artefact. 4. Rate the quality of the artefact as excellent, very good, good, fair or poor.	**CP5.5:** Effectively evaluate the success of solutions used in an attempt to solve a complex problem. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.5.2.2 **Demonstrate knowledge and skills of Designing** CONT'D	**B8. 5.2.1.7**: **Demonstrate basic skills in cutting out designs without patterns in SEWING** 1. Explain what is meant by free-hand cutting technique. E.g., It is a technique of using an individual's body measurements to cut garments/articles directly on fabric without patterns. 2. Apply the free-hand cutting technique in cutting out a simple blouse/ shirt. E.g. - Cut required size of fabric based on the measurements taken. **Note**: Consider chest and hip measurements - Fold fabric into two with right sides facing each other - Measure the length of blouse and continue. 3. Cut out shirt/blouse using paper for practice 4. Display cut out papers (shirt/blouse) for appraisal. **Note**: Boys to measure boys, and girls to measure girls.	**CC 8.2:** Explain ideas in a clear order with relevant details. **CI 6.3:** Ability to select the most effective creative tools for work and give reasons for the choice. **CP 5.5:** Effectively evaluate the success of solutions used in an attempt to solve a complex problem. **CP 5.5:** Effectively evaluate the success of solutions used in an attempt to solve a complex problem.

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STRAND 5: DESIGNING AND MAKING OF ARTEFACTS/PRODUCTS

SUB-STRAND 3: PLANNING FOR MAKING ARTEFACTS/PRODUCTS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.5.3.1 **Demonstrate understanding of planning for making artefacts/products and table setting**	**B8.5.3.1.1: Plan and make wooden, metal/plastic artefacts** 1. Study the design folio and critically examine the working drawings. E.g., plan, detailed drawings and cutting list. 2. Study the workshop environment to check on health and safety conditions of the place. **Note**: - Go over the workshop rules, regulations, ventilation and light situations, and ensure any necessary workshop repairs are carried out before the start of work. - Study the conditions of the timber pieces, tools and the processes involved for first-hand information to avoid any mistake. - Seek guidance or tutorials on aspects concerning materials, tools and processes or skills not conversant with before the actual work.	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CP6.5:** Ability to select alternatives that adequately meet selected criteria. **CP6.5:** Ability to select alternatives that adequately meet selected criteria.
	B8.5.3.1.2: **Plan and make building artefacts** 1. Describe the properties of cement, sand, stones. 2. Prepare a chart on properties of building materials. 3. Discuss reasons for choosing a type of material for a building project. 4. Make mock-ups of simple building projects. 5. Display mock-ups for appraisal.	**CC 8.2:** Explain ideas in a clear order with relevant details. **CI 5.2:** Ability to merge simple/complex ideas to create novel situations or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
	B8.5.3.1.3: Planning to make sewing artefacts/products 1. Explain what is meant by seams. E.g. It is the process of joining two or more layers of fabrics together. 2. Identify commonly used seams for sewing. E.g. French, plain/open, run and fell, machine and fell, overlaid 3. Classify basic seams into two groups. E.g. • Conspicuous seams—overlaid, machine and feel • Inconspicuous seams—French, plain/open 4. Discuss basic rules for making seams. E.g. Thread should match the colour of fabric, seam width should be suitable for the fabric being worked on.	**CC 8.2:** Explain ideas in a clear order with relevant details. **CI 5.2:** Ability to merge simple/complex ideas to create novel situations or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.
	B8.5.3.1.4: Planning to set a table 1. Explain what is meant by table setting/laying. E.g., Is the arrangement of the eating equipment used in eating at a table. 2. Identify table setting tools and equipment. E.g., Table cloth, serviette, cutlery, crockery (plates and glass) flowers.	**CI 5.2:** Ability to merge simple/complex ideas to create novel situations or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
	3. Discuss the importance of table setting. E.g., - It stimulates appetite - It makes eating pleasant 4. Discuss what is meant by a cover. E.g. It is the table space in front of a person's seat. **Note**: Use ICT tools and other sources to further explain table setting and a cover.	

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STRAND 5: DESIGNING AND MAKING OF ARTEFACTS/PRODUCTS

SUB-STRAND 4: MAKING ARTEFACTS FROM COMPLIANT, RESISTANT MATERIALS AND FOOD INGREDIENTS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.5.4.1 **Demonstrate understanding of designing artefacts/ products, and models and table setting**	**B8.5.4.1.1: Demonstrate Skills in table setting** Set a table for one person (cover) for appraisal, in groups.	**CI 5.2:** Ability to merge simple/complex ideas to create novel situations or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.
B8.5.4.1 **Demonstrate understanding of designing artefacts/ products, and models and table setting** CONT'D	**B8.5.4.1.2: Demonstrate skills in making sewing artefacts/products using seams and arrangement of fullness** **SEAMS** 1. Make specimen or samples of basic seams. E.g., open/plain, French, run and fell/machine fell. 2. Sew a blouse or shirt. E.g., put parts together and sew—shoulders together, sides together. **NB**: Boys to measure boys, and girls to measure girls. 3. Display sewn articles (seams and blouse or shirt) for appraisal.	**CP 5.5:** Effectively evaluate the success of solutions used in an attempt to solve a complex problem. **CI 5.2:** Ability to merge simple/complex ideas to create novel situations or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
	ARRANGEMENT OF FULLNESS 1. Identify basic methods of arranging fullness in sewing. E.g., Gathering, darts, ruching, shirring, ruffles, smocking, pleats 2. Explain factors to consider when choosing methods for arranging fullness in sewing. E.g. Purpose for which article will be used, type of fabric. 3. Make specimen or samples of arrangement of fullness. E.g., darts and gathering 4. Display specimens or samples for appraisal. **Note:** Guide learners to appreciate, appraise and critique their works and use the feedback to make modifications or undertake new projects.	

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.5.4.1 **Demonstrate understanding of designing artefacts/ products, and models and table setting** CONT'D	**B8.5.4.1.3: Make artefacts/products using wood, metal/plastics** 1. Organise the workshop in readiness for working. 2. Check the dimensions on the cutting list and on the working drawings. 3. Follow the operation sequence to make the artefact. E.g., Prepare the work pieces, measure, mark out, cut the work pieces to size, cut the joints and assemble the various parts to form the artefact. 4. Prepare the surfaces of the artefact and apply the appropriate finish. 5. Test, evaluate and modify the artefact.	**CI 5.2:** Ability to merge simple/complex ideas to create novel situations or things. **CI 6.10:** Reflect on work and explore thinking behind thoughts and processes.

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STRAND 6: ENTREPRENEURIAL SKILLS

SUB-STRAND 1: CAREER PATHWAYS AND CAREER OPPORTUNITIES

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.6.1.1 **Demonstrate knowledge of career opportunities in Career Technology**	**B8.6.1.1.1**: **Explore the various career pathways and opportunities in Career Technology** 1. Research in groups, the various career pathways and opportunities using different sources. 2. Write a brief report and present in class. 3. Examine your interests, skills and values in the light of the career opportunities. E.g. - What are your top skills? - What interests you the most? 4. Compare your most promising career options against your list of prioritised skills, interests and values. E.g. - What is the current demand for this field?	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**, Personal Development and Leadership **(PL)**. **CP5.1:** Ability to combine information and ideas from several sources to reach a conclusion. **CC 9.1:** Demonstrate behaviour and skills of working towards group goals. **PL 5.1:** Understanding of oneself (strengths, weaknesses, goals and aspirations, reacting and adjusting to novel situations).

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STRAND 6: ENTREPRENEURIAL SKILLS

SUB-STRAND 2: ESTABLISHING AND MANAGING A SMALL BUSINESS ENTERPRISE

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B8.6.2.1 **Demonstrate understanding of establishing and managing micro and small business enterprises**	**B8.6.2.1.1**: **Explain what is meant by Micro, Small and Medium-sized Business Enterprises** 1. Discuss what is meant by Micro, Small and Medium-sized Business Enterprises in groups. E.g. • A micro business enterprise is a business with a capital of up to 10,000 Cedis with a work force of 1 to 5 and uses simple technology. • Small business enterprise is a business with a capital of up to 100,000 Cedis with a work force of 6 to 29 and use appropriate technology. • Medium-sized business enterprise is a business with a capital of more than 100,000 Cedis with a work force of 30 plus and uses intermediate technology. 2. Identify any known businesses that fit the criteria of Micro, Small and Medium-sized Business Enterprises. 3. Discuss the steps involved in setting up micro and small business enterprises. 4. List four known businesses in your locality that fits the criteria of a small and medium-sized business enterprise. 5. Look at pictures of various enterprises and classify them under micro, small and medium-sized business enterprise to develop a photo album. 6.Display photo albums for discussion	Communication and Collaboration **(CC)** Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**, Personal Development and Leadership **(PL)** **CC 8.2:** Explain ideas in a clear order with relevant details. **CP6.5:** Ability to select alternatives that adequately meet selected criteria.

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BASIC 9

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STRAND 1: HEALTH AND SAFETY

SUB-STRAND 1: PERSONAL HYGIENE AND FOOD HYGIENE

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.1.1.1 **Demonstrate skills that relate to personal and food hygiene to self**	**B9.1.1.1.1**: **Practice good grooming** 1. Explain what is meant by good grooming and relate it to personal hygiene. E.g.: Good grooming means practising good hygiene techniques and general composure. 2. Discuss good grooming practices, in groups. E.g., proper sitting, proper walking, proper talking, proper eating manners and wearing neat clothes. 3. Discuss the importance of good grooming, in groups. E.g., Enhances one's personality and interpersonal relationships 4. Demonstrate good grooming practices. E.g., proper sitting, proper walking, proper talking, proper eating manners and wearing neat clothes. 5. Write short messages on good grooming and tag them in and around the classroom, in groups.	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**, Personal Development and Leadership **(PL)** **CC 8.1:** Speak clearly and explain ideas. **CC 8.2:** Explain idea in a clear order with relevant detail, using correct construction and structure of speech. **CP 5.6:** Demonstrate a thorough understanding of a generalised concept and facts specific to task or situation. **PL 5.6:** Ability to set and maintain personal standards and values.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.1.1.1 **Demonstrate skills that relate to personal and food hygiene to self** CONT'D	**B9.1.1.1.2**: **Observe appropriate food hygiene practices.** 1. Explain what is meant by food hygiene. E.g. It is the conditions and measures necessary to ensure the safety of food from production to consumption. 2. Outline the appropriate food hygiene practices. E.g. - Wash hands before handling food. **- Do not** sneeze or cough near food. **- Do not** smoke or eat in any kitchen areas. - Put clothes/jackets/bags in a separate area away from cooking areas. 3. Watch a video on good food hygiene practices and discuss, in groups. **Note:** - Always clean workshop at close of work and dispose of refuse appropriately. - Always demonstrate food hygiene practices in school/class and during practical lessons.	**CC 8.2:** Explain ideas in clear order and relevant detail, using correct construction and structure of speech. **CI 5.5:** Ability to try new alternatives and different approaches. **CI 6.2:** Ability to reflect on approaches to creative task and evaluate the effectiveness of tools used. **CP 5.6:** Demonstrate a thorough understanding of a generalised concept and facts specific to task or situation.

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STRAND 1: HEALTH AND SAFETY

SUB-STRAND 2: PERSONAL, WORKSHOP AND FOOD LABORATORY SAFETY

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.1.2.1 **Demonstrate skills that relate to personal, workshop and laboratory safety**	**B9.1.2.1.1**: **Describe procedures for reporting accidents and unsafe practices in school and in the laboratory/workshop/site** 1. Discuss the procedures for reporting accidents and unsafe practices in the laboratory/workshop/site E.g. - Check that there is no immediate risk of danger - Report to the teacher/instructor	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CP 5.1:** Ability to combine information and ideas from several sources to reach a conclusion. **CP 5.6:** Demonstrate a thorough understanding of generalised concepts and facts specific to task or situation.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.1.2.1 **Demonstrate skills that relate to personal, workshop and laboratory safety** CONT'D	**B9.1.2.1.2**: **Use appropriate personal protective equipment when working** 1. Identify the various personal protective equipment in groups E.g., goggles, ear muffs, gloves. 2. Discuss the importance of wearing personal protective equipment, in groups E.g. - Decreases the likelihood of injury and illness. - Ensures a safe and happy working environment for all. 3. Demonstrate the use of the personal protective equipment, in groups. E.g. - For eye protection—goggles/ visor face shield - For ear protection—ear muffs and plugs - Hand/finger protection—gloves, thimble - For foot protection—booths - For nose/mouth protection—nose mask **4. Project work**: Design and make personal protective equipment using compliant and resistant materials (fabrics) in groups. E.g., Nose mask, gloves, apron, cap, goggles	**CP 6.3:** Identify important and appropriate alternatives. **CC 9.4:** Help group work on relevant activities. **CC 9.1:** Demonstrate behaviour and skills of working towards group goals.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.1.2.1 **Demonstrate skills that relate to personal, workshop/site and laboratory safety** CONT'D	**B9.1.2.1.3**: **Maintain safe working environments** 1. Explain what is meant by maintaining safe working environment E.g., Procedures for ensuring that a surrounding environment is free from dangers that can cause harm to workers 2. Discuss the importance of keeping the working environment safe, in groups. E.g., To reduce/prevent accidents 3. Demonstrate safety practices at workplaces. E.g. - Tag faulty equipment - Report frayed flexes - Repair/replace frayed flexes - Repair/replace broken parts of tools. 4. **Project work:** Design posters to create awareness on the need to maintain a safe working environment, and post them around the school. **Note:** School Health Education Programme (SHEP) clubs to educate other learners, cooks, food vendors, and staff of the school on food hygiene practices. The school should form a SHEP club if there is none in the school.	**CC 8.2:** Explain idea in a clear order with relevant detail, using correct construction and structure of speech. **CP 5 .6:** Demonstrate a thorough understanding of a generalised concept and facts specific to task or situation.

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STRAND 1: HEALTH AND SAFETY

SUB-STRAND 3: ENVIRONMENTAL HEALTH

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.1.3.1 **Demonstrate understanding and practice of environmental health in the school/home**	**B9.1.3.1.1**: **Discuss the causes and prevention of poor sanitation in the school/home/ community/workshop/site/laboratory.** 1. Discuss the causes of poor sanitation in the home, school, community, workshop/site/laboratory. E.g., Littering around, poor disposal of waste, indiscriminate defecation. 2. Discuss ways of preventing poor sanitation in school and home. E.g., Putting bins at vantage points for waste to be put in instead of putting it on the ground. 3. Undertake a project on the need for people to keep the school and community clean. E.g., clean-up exercise in the school and community. 4. Undertake a project in recycling of waste, in groups. **Note**: Invite an expert from the District Assembly or the Community to assist with the recycling project.	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**, Cultural Identity and Global citizenship **(CG)** **CC 8.1:** Speak clearly and explain ideas. **CP 6.1:** Ability to effectively define goals towards solving a problem. **CG 5.1:** Show a strong sense of belongingness to one's culture. **CI 5.1:** Examine alternatives in creating new things.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.1.3.2 **Demonstrate understanding of clean energy, and Improved Cookstoves (ICS) and their accompanying fuels**	**B9.1.3.2.1**: Discuss what **is meant by clean energy and improved cookstoves and fuels.** 1. Explain what is meant by clean energy. E.g., It is energy produced through means that do not pollute the atmosphere. 2. Identify improved cookstoves and fuels 3. Watch pictures and videos on improved cookstoves and fuels and traditional cookstoves and fuels and make comparison of them. **Note:** Visit the website https://www.ghacco.org for more information. 4. Discuss what happens when clean energy is used. E.g., They are more efficient, give off less emission and are safer than the traditional cook stoves or three-stone-fires. 5. Search and present in class, the various improved cookstoves and fuels using ICT tools and other sources. E.g., Gyapa, holy cook, gas stoves, pellets, briquettes, Liquefied Petroleum Gas (LPG).	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CC 8.1:** Speak clearly and explain idea. **CP 5.2:** Analyse and make distinct judgement about viewpoints expressed in an argument. **CP6.4:** Ability to identify important and appropriate criteria and use them to evaluate available alternatives.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.1.3.2 **Demonstrate understanding of clean energy, and Improved Cookstoves (ICS) and their accompanying fuels** CONT'D	**B9.1.3.2.2**: **Discuss the benefits of improved cookstoves and fuels** 1. Brainstorm the benefits of improved cookstoves and fuels, in groups and present in class. E.g., They save money, protect the cook and people around against illness. 2. Demonstrate the uses of the following stoves. E.g. • improved cookstoves and fuels • traditional stoves. 3. In groups, plan and organise a campaign to educate the school and the community on the use and benefits of improved cookstoves.	**CC 8.2:** Explain ideas in a clear order with relevant detail, using correct construction and structure of speech. **CI 6.3:** Ability to select the most effective creative tools for working and preparedness to give explanations. **CC 9.1:** Demonstrate behaviour and skills of working towards group goal. **CI 5.1:** Examine alternatives in creating new things.

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STRAND 2: MATERIALS FOR PRODUCTION

SUB-STRAND 1: COMPLIANT MATERIALS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.2.1.1 **Demonstrate skills in selecting compliant materials for making products and artefacts**	**B9.2.1.1.1**: **Discuss the factors that influence the selection of compliant materials** 1. Review the knowledge on properties of compliant materials and safe practices of working with tools/equipment. **Note**: Refer to compliant materials in B7 and B8 2. Discuss the factors that influence the selection of compliant materials E.g. - Purpose/function of product - Availability of material - Skills of designer. 3. Demonstrate the processes involved in working with compliant materials. E.g., measuring, marking, cutting, folding, joining, surface finishing. 4. Make artefacts from compliant materials. 5. Display artefacts and appraise in groups.	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CI 6.2:** Ability to reflect on approaches to creative tasks and evaluate the effectiveness of tools used. **CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech. **CP 5.2:** Analyse and make distinct judgement about viewpoints expressed in an argument.

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STRAND 2: MATERIALS FOR PRODUCTION

SUB-STRAND 2: RESISTANT MATERIALS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.2.2.1 **Demonstrate skills in selecting resistant materials for making products/artefacts**	**B9.2.2.1.1**: **Discuss the factors that influence the selection of resistant materials** 1. Review the knowledge on properties of resistant materials and safe practices of working with tools/equipment. **Note:** Refer to B7 and B8 on resistant materials. 2. Discuss the factors that influence the selection of resistant materials. E.g. - Purpose/function of product - Availability of material - Skills of designer 3. Demonstrate the processes involved in working with resistant materials E.g., Measuring and marking out, cutting/shaping.	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech. **CI 6.3:** Ability to select the most effective creative tools for working. **CC 8.1:** Speak clearly and explain ideas.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.2.2.1 **Demonstrate skills in selecting resistant materials for making products/artefacts** CONT'D	**B9.2.2.1.2: Discuss the reasons why resistant materials require particular techniques and tools for their safe handling and use** 1. Explain why specific tools are used to work on specific resistant materials. E.g. Saws designed for woodwork should not be used to cut metals else the cutting edge will become blunt. 2. Relate the correct safety precautions to the appropriate process in working with resistant materials when making an artefact. E.g. - When planning wood, check that the plane is sharp and correctly set. - When using sharp edged tools, always keep both hands behind the cutting edge. - Fix the hacksaw blade such that the teeth point away from the handle/ operator.	**CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech. **CP 5.6:** Demonstrate a thorough understanding of a generalised concept and facts specific to task or situation.

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STRAND 2: MATERIALS FOR PRODUCTION

SUB-STRAND 3: SMART AND MODERN MATERIALS

<table>
<tr><th>CONTENT STANDARD</th><th>INDICATORS AND EXEMPLARS</th><th>CORE COMPETENCIES</th></tr>
<tr>
<td>B9.2.3.1
Demonstrate understanding of using smart and modern materials for making products/artefacts</td>
<td>
B9.2.3.1.1: Discuss reasons for using smart and modern materials for making products/artefacts

1. Review the knowledge on smart and modern materials and their properties.

Note: Refer to B7 and B8 CT Curriculum for more information on smart and modern materials.

2. Compare uses of smart and modern, and compliant/ resistant materials for production, and present in a table.

E.g.
<table>
<tr><th>Smart/Modern Materials</th><th>Compliant/ Resistant Materials</th></tr>
<tr><td>1. Can cause material to change shape</td><td>1. Material shape is fixed</td></tr>
<tr><td>2. Can cause material to change colour and revert it</td><td>2. Material colour is permanent</td></tr>
</table>
B9.2.3.1.2: Demonstrate techniques for making prototypes/ projects to solve problems in the environment using smart and modern materials

1. Identify problems in the community and use smart/modern materials to make a product to solve the problem.
2. Search for inventions and techniques on smart/modern materials products.
3. Demonstrate the processes involved in making the prototypes/projects using smart/modern materials.
4. Make artefact/products using smart/modern materials.
5. Display artefacts/products for appraisal.
</td>
<td>
Critical Thinking and Problem Solving (CP)

CP 5.1: Ability to combine information and idea from several sources to reach a conclusion.

CP 5.2: Analyse and make distinct judgement about viewpoints expressed in an argument.

CP 6.5: Ability to select alternatives that adequately meet selected criteria.

Critical Thinking and Problem Solving (CP), Creativity and Innovation (CI)

CP5.1: Ability to combine information and ideas from several sources to reach a conclusion.

CP6.5: Ability to select alternative(s) that adequately meet selected criteria.

CI5.1: Examine alternatives in creating new things.

CP6.4: Ability to identify important and appropriate criteria and use them to evaluate available alternatives.
</td>
</tr>
</table>

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STRAND 2: MATERIALS FOR PRODUCTION

SUB-STRAND 4: FOOD COMMODITIES (ANIMAL AND PLANT SOURCES)

<table>
<tr><th>CONTENT STANDARD</th><th>INDICATORS AND EXEMPLARS</th><th>CORE COMPETENCIES</th></tr>
<tr>
<td>B9.2.4.1
Demonstrate skills in selecting food commodities in meal preparation</td>
<td>
B9.2.4.1.1: Discuss how to select food commodities used for meal preparation

1. Revise the classification of food commodities.
Note: Refer to CT B7 for more information on food commodities.
2. Describe the qualities to look out for when buying food commodities, and present in a table.
E.g.
<table>
<tr><th>Animal products</th><th>Plant products</th><th>Processed foods</th></tr>
<tr><td>i. Meat should have a deep red colour with white or creamy fat</td><td>i. Fruits and vegetables should be crisp, fine and free from bruises,</td><td>i. Cans should not be bulging, dented, or rusty.</td></tr>
<tr><td>ii. Fish should have firm flesh and shiny skin with a lot of tightly clinging scales</td><td>ii. Root crops should be free from bruises and firm to touch</td><td>ii. Dried foods should not be mouldy or coloured.</td></tr>
</table>
</td>
<td>Communication and Collaboration (CC), Critical Thinking and Problem Solving (CP)

CC 8.2: Explain ideas in a clear order and relevant details, using correct construction and structure of speech.
CC 8.1: Speak clearly and explain ideas.
CP 6.5: Ability to select alternative(s) that adequately meet selected criteria.</td>
</tr>
</table>

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STRAND 2: MATERIALS FOR PRODUCTION

SUB-STRAND 4: FOOD COMMODITIES (ANIMAL AND PLANT SOURCES)

<table>
<tr><th>CONTENT STANDARD</th><th>INDICATORS AND EXEMPLARS</th><th>CORE COMPETENCIES</th></tr>
<tr>
<td>B9.2.4.2
Demonstrate skills in planning meals for various members of the family</td>
<td>
B9.2.4.1.2: Discuss the basic food requirements for different members of the family

1. Identify the different members of the family and their basic food requirements. E.g.
<table>
<tr><th>Different members of the family</th><th>Basic food requirements</th></tr>
<tr><td>Toddler</td><td>Body Building Protective</td></tr>
<tr><td>Adolescent</td><td>Body Building
Protective
Iron</td></tr>
<tr><td>Pregnant/lactating mothers</td><td>Protective
Body building
Iron</td></tr>
<tr><td>Aged</td><td>Vitamins</td></tr>
<tr><td>Invalids</td><td>Vitamins</td></tr>
</table>
2. Review lesson on factors to consider when planning meals in B7.5.3.1.1.
E.g., nutritional requirements of family members, food in season

3. Plan a meal for a member of the family.
E.g., toddler, adolescent, pregnant/lactating mothers, aged and invalids, in relation to their nutritional needs.
4. Display plan for appraisal.
</td>
<td>
Collaboration (CC), Critical Thinking and Problem Solving (CP), Creativity and Innovation (CI)

CP6.5: Ability to select alternative(s) that adequately meet selected criteria.

CC8.1: Explain ideas in clear order with relevant details, using correct construction and structure of speech.

CI5.1: Examine alternative(s) in creating new things.

CP6.4: Ability to identify important and appropriate criteria and use them to evaluate available alternatives.
</td>
</tr>
</table>

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 1: MEASURING AND MARKING OUT

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.3.1.1 **Demonstrate understanding of measuring and marking out tools and equipment**	**B9.3.1.1.1**: **Discuss tools and equipment used for measuring and marking out** 1. Identify tools and equipment used for measuring and marking out in the following trade areas: - Building site - Wood workshop - Metal/plastic workshop - 2. Classify measuring and marking out tools and equipment under the following areas: - Building -Wood work -Metal work/plastic	Critical Thinking and Problem Solving **(CP),** Creativity and Innovation **(CI)** **CP 6.5:** Ability to select alternatives that adequately meet selected criteria. **CP 6.4:** Ability to identify important and appropriate criteria and use them to evaluate available alternatives.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 1: MEASURING AND MARKING OUT

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.3.1.1 **Demonstrate understanding of measuring and marking out tools and equipment for making artefacts/ products and care and maintain**	**B9.3.1.1.2: Demonstrate how to use the tools and equipment for measuring and marking out** 1. Demonstrate how to use measuring and marking out tools and equipment for making artefacts/products in the following areas: - Food laboratory (Kitchen) - Sewing - Building - Wood work - Metal work/plastic 2. Select and use appropriate measuring and marking out tools to make the following products: - Wooden chair - Sheet metal funnel - Setting out a wall - Dresses—use knowledge in body measurement to make dresses/blouses - Meals—use knowledge in portion control to prepare meals for two persons 3. Prepare a chart showing the activities and the appropriate tools used. 4. Display charts in class for appraisal. 5.Demonstrate how to care for and maintain measuring and marking out tools used for making artefacts/products E.g. - Wash and clean tools after use - Oil metal parts of tools	**CP 6.5:** Ability to select alternative(s) that adequately meet selected criteria. **CI 5.7:** Putting forward constructive comments, ideas, explanations and new ways of doing things. **CI 6.1:** Exhibit strong memory, intuitive, thinking and respond appropriately. **CP 5.5:** Effectively evaluate the success of solutions they have used to attempt to solve a complex problem. **CP 5.6:** Demonstrate a thorough understanding of a generalised concept and facts specific to task or situation.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 2: CUTTING/SHAPING

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.3.2.1 **Demonstrate the understanding of cutting/shaping tools and equipment used for making artefacts/ products**	**B9.3.2.1.1**: **Discuss tools and equipment used for cutting and shaping** 1. Identify tools and equipment for cutting and shaping in the following trade areas: - Building site - Wood workshop - Metal/Plastic workshop 2. Select appropriate cutting and shaping tools for making the following products: - Wooden tables - Bottle opener - Bricks/blocks - Dresses (shirts/blouses) - Meals 3. Write the procedure/steps involved in making the products. 4. Prepare a chart showing the activities and the appropriate tools used. 5. Display charts for appraisal.	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CP 6.4:** Ability to identify important and appropriate criteria and use them to evaluate available alternatives. **CP 6.4:** Ability to identify important and appropriate criteria and use them to evaluate available alternatives. **CI 6.2:** Ability to reflect on approaches to creative task and evaluate the effectiveness of tools used. **CP 5.5:** Effectively evaluate the success of solutions used in an attempt to solve a complex problem.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 2: CUTTING/SHAPING

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.3.2.1 **Demonstrate the understanding of cutting/shaping tools and equipment used for making artefacts/ products and care and maintain**	**B9.3.2.1.2: Demonstrate how to use shaping and cutting tools and equipment for producing artefacts/products** 1. Demonstrate how to use cutting and shaping tools and equipment for making products, in groups. E.g. -Wooden cabinets - Sheet metal dust bins - Bricks/blocks - Dresses—practise more designing and cutting out on paper - Meals—practise biscuit cutting into different shapes and practise designing of fruits into different shapes e.g., water melon, pawpaw, cucumber, carrot 2. Write the procedure/steps involved in making the products, and discuss in class. 3. Exhibit products for appraisal. 4. Demonstrate how to care for and maintain cutting and shaping tools and equipment used in the following trade work places: E.g. - Food laboratory (kitchen)—wash, clean and sterilise tools - Sewing workshop/laboratory—dust, wipe, oil tools - Building site—wash and dry the wooden tools - Wood workshop—clean and oil wood chisels and saws regularly- - Metal/plastic workshop—clean and oil metal parts of tools	**CP 5.6:** Demonstrate a thorough understanding of a generalised concept and facts specific to task or situation. **CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech. **CP 5.5:** Effectively evaluate the success of solutions they have used to attempt to solve a complex problem.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 3: JOINING AND ASSEMBLING

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.3.3.1 **Demonstrate understanding of materials. tools and equipment used for joining and assembling artefacts/products**	**B9.3.3.1.1**: **Discuss joining and assembling materials, tools and equipment used for making artefacts/products** 1. Identify tools and equipment used for joining and assembling products in the making the following trade areas: - Building site - Wood workshop - Metal/plastic workshop - Food laboratory - Sewing workshop 2. Classify the joining and assembling tools and equipment under: - Food laboratory (kitchen)—modern methods of joining/combining food using egg white, tapioca - Sewing laboratory/workshop—use sewing machine and glue - Building site - Wood workshop - Metal/plastic workshop	Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CP 6.3:** Identify important and appropriate alternatives. **CP 6.5:** Ability to select alternative(s) that adequately meet selected criteria. **CI 6.3:** Ability to select the most effective creative tools for work and give reasons for the choice.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.3.3.1 **Demonstrate understanding of materials. tools and equipment used for joining and assembling artefacts/products and care and maintain**	**B9.3.3.1.2**: **Demonstrate appropriate skills in the use of joining and assembling tools and equipment for making artefacts/products** 1. Demonstrate how to use materials, tools and equipment for making products/artefacts in joining and assembling products/artefacts E.g. - A wooden bookshelf - Metal scoop - Bonding a wall - Garment—sew garments from cut-out styles in cutting/shaping lesson. Use glue to join parts of the garment. **Note:** There are modern methods of joining parts of articles such as fusing and adhesives - Meals—use modern joining methods such as use of oats, silicon, and egg white to prepare food. E.g., Cabbage, fufu 2. Demonstrate how to care for and maintain joining and assembling tools and equipment used for making artefacts/products, in groups. E.g. - Wash and clean tools after use. - Dry tools thoroughly before storage	**CP 5.6:** Demonstrate a thorough understanding of a generalised concept and facts to task or situation. **CP 5.6:** Demonstrate a thorough understanding of a generalised concept and facts specific to task or situation.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 4: KITCHEN ESSENTIALS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.3.4.1 **Demonstrate skills of selecting and purchasing kitchen essentials and understanding and skills in the choice of basic kitchen essentials**	**B9.3.4.1.1**: **Select and purchase suitable kitchen essentials to meet specific needs** 1. Discuss factors to consider in the selection and purchasing of kitchen essentials E.g. - Money available - Space for storage - Intended purpose/use - Availability of spare parts **B9.3.4.1.2: Demonstrate understanding of using mechanical or labour-saving kitchen essentials** 1. Explain what is meant by mechanical or labour-saving kitchen essentials and give examples E.g., These are kitchen essentials that mostly use electricity to operate and are purposely for labour saving such as refrigerator, blender and food slicer. 2. Discuss the advantages and disadvantages of using mechanical or labour-saving kitchen essentials. E.g., - Advantages— They help to save energy by speeding up the physical task involved in carrying out cooking process. - Disadvantages—They are expensive. 3. In groups, undertake a research and present on the types of mechanical or labour-saving kitchen essentials used in the school, home and community for appraisal. **Note**: Internet can also be used for the research.	Communication and Collaboration **(CC)** Creativity and Innovation **(CI)** **CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech. **CC8.1:** Speak clearly and explain ideas. **CC8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech. **CI5.4:** Ability to visualise alternatives, see possibilities, and identify problems and challenges.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.3.5.1 **Demonstrate understanding of application of finishes**	**B9.3.5.1.1**: **Demonstrate the techniques of applying finishes to resistant materials** 1. Identify finishes and tools for finishing resistant materials E.g. - Finishes—lacquer, paints, thinner, turpentine - Tools—brushes, spray can, roller 2. Identify materials used for preparing surfaces of wood, metal and wall to be finished. E.g., sanding sealers, sand paper, emery cloth, filler 3. Prepare the surface to be finished by using glass paper for wood, emery cloth for metal, and filler for walls. 4. Demonstrate the procedure for applying finishes to resistant materials, in groups. E.g. - Mix lacquer with thinner - Apply first coat and allow to dry - Apply second coat and allow to dry 5. Demonstrate how to wash the finishing tools after use. E.g. - Use thinner to wash brush used for applying lacquer - Use water to wash brush used for applying emulsion paint	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)** **CP 6.4:** Ability to identify important and appropriate criteria and use them to evaluate available alternatives. **CP 6.3:** Identify important and appropriate alternatives. **CP 5.6:** Demonstrate a thorough understanding of a generalised concept and facts specific to task or situation. **CP 5.6:** Demonstrate a thorough understanding of a generalised concept and facts specific to task or situation.

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STRAND 3: TOOLS, EQUIPMENT AND PROCESSES

SUB-STRAND 5: FINISHES AND FINISHING

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.3.5.1 **Demonstrate understanding of application of finishes** CONT'D	**B9.3.5.1.2**: **Demonstrate basic skills and processes for finishing edges of articles in sewing** 1. Demonstrate how to finish the edge of articles using the following. E.g. - Lacing - Facing - Scalloping 2. Display specimens for appraisal.	**P 5.6:** Demonstrate a thorough understanding of generalised concept and facts specific to task or situation. **CP 5.5:** Effectively evaluate the success of solutions used in an attempt to solve a complex problem.

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STRAND 4: TECHNOLOGY

SUB-STRAND 1: SIMPLE STRUCTURES AND MECHANISMS, ELECTRIC AND ELECTRONIC SYSTEMS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.4.1.1 **Demonstrate knowledge of mechanisms in projects construction**	**B9.4.1.1.1**: **Describe mechanisms used for making products/ artefacts** 1. Explain what is meant by mechanisms. E.g. It is a system of parts working together in a machine; a piece of machinery. 2. Explore different types of mechanisms using ICT tools and other sources. E.g. - Pulley system - Chain and sprocket system - Gear system - Screw mechanism - The crank mechanism - Cams - Levers and linkages 3. Identify artefacts in the environment that operate on mechanisms. E.g., bicycles, vehicles, motor bikes. 4. Research from different sources on how mechanisms operate, in groups. 5. Write findings and present in class for discussion.	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**, Digital Literacy **(DL)**, Personal Development and Leadership **(PL)** **CC 8.2:** Explain ideas in a clear order with relevant detail, using correct construction and structure of speech. **CP 6.3:** Identify important and appropriate alternatives. **DL 6.3:** Use digital tools to create novel things. **CP 5.8:** Identify and prove misconceptions about a generalised concept or fact specific to a task or situation. **CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.4.1.1 **Demonstrate understanding of applications of mechanisms in project constructions** CONT'D	**B9.4.1.1.2**: **Describe the features and principles of operations of mechanisms** 1. Use charts, models or real objects to describe the features of the various types of mechanisms. 2. Use simple diagrams to illustrate the operations of the various types of mechanisms. E.g. Rack and pinion, cams, levers and linkages. 3. Discuss the advantages and disadvantages of the various types of mechanisms. E.g., Pulley system: - Advantages: No lubrication needed, quiet in operation - Disadvantage: A slip can occur 4. Watch videos on the various types of mechanisms in operation and discuss in class. E.g. The operations of the crank, cam, rack and pinion, chain and sprockets	**CC 8.1:** Speak clearly and explain ideas. **CP 5.6:** Demonstrate a thorough understanding of a generalised concept and facts specific to task or situation. **CI 5.4:** Ability to visualise alternatives, see possibilities, and identify problems and challenges. **CC 9.5:** Appreciate the importance of including all team members in discussions and actively encourage contributions from them.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.4.1.1 **Demonstrate understanding of applications of mechanisms in project constructions** CONT'D	**B9.4.1.1.3**: **Design and make simple school technology projects using two or more of the mechanisms** 1. Identify simple school projects. E.g., wall clocks, crazy snake, toy cars, bicycles, aeroplane/air craft, train, wind turbine/mill 2. Identify compliant and resistant materials, tools and equipment for making mock-ups/prototypes. **Note:** Select the appropriate mechanisms based on the function of the project. 3. Discuss the reasons for the choice of mechanisms for a particular job. E.g. - Usage (easy to use) - Availability of mechanism - Cost of mechanism - Skills of designer 4. Plan, design and prepare a folio of products/artefacts. 5. Make the product/artefact following the appropriate procedure. E.g., Measuring, marking out, cutting, joining and assembling 6. Test the product for function and modifications. 7. Write down observations and discuss in, class in groups.	**CP 6.3:** Identify important and appropriate alternatives. **CP 6.5:** Ability to select alternative(s) that adequately meet selected criteria. **CC 8.2:** Explain ideas in a clear order with relevant detail, using correct construction and structure of speech. **CI 6.3:** Ability to select the most effective creative tools for work and give reasons for the choice. **PL 6.3:** Ability to manage time effectively.

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STRAND 5: DESIGNING AND MAKING OF ARTEFACTS/PRODUCTS

SUB-STRAND 1: COMMUNICATING DESIGNS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.5.1.1 **Demonstrate understanding of developing surfaces of objects for production/ manufacturing**	**B9.5.1.1.1**: **Describe prisms and pyramids and discuss the importance of developing them** 1. Identify types of prism and pyramid. E.g., - Prisms; cylinder, square prism, triangular prism, rectangular prism - Pyramids: cone, square pyramid, triangular pyramid, rectangular pyramid 2. Sketch types of prism and pyramid. E.g., cone, square pyramid, triangular pyramid 3. Differentiate between prisms and pyramids. E.g. Prisms have their front view in the form of rectangles, whereas, pyramids have their front view in the form of triangles 4. Discuss the importance of developing surfaces of objects before manufacturing them. E.g. - Enables easier duplication of templates - Minimises waste of materials - Saves time spent on production	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CI 6.3:** Ability to select the most effective creative tools for work and give reasons for the choice. **CP 6.5:** Ability to select alternative(s) that adequately meet selected criteria. **CC 8.2:** Explain the idea in a clear order with relevant details, using correct construction and structure of speech.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.5.1.1 **Demonstrate understanding of developing surfaces of objects for production/ manufacturing** CONT'D	**B9.5.1.1.2**: **Develop surfaces of pyramids using instruments** 1. Illustrate the techniques of developing prisms and pyramids using instruments E.g., Draw the front view and plan, and then project them to draw the surface development of the prism and pyramids. 2. Develop surfaces of simple objects (cylinder, cone, square prism, square pyramid) to required dimensions. 3. Cut out the shapes of developed surfaces leaving flaps for joining. 4. Fold and join the cut-outs as expected to obtain the objects E.g., milk tin, milo tin, match box, sugar box, pizza box, funnel, Christmas hat. 5. Plan and mount an exhibition of the objects for appraisal.	**CI 6.2:** Ability to reflect on approaches to creative tasks and evaluate the effectiveness of tools used. **CI 6.3:** Ability to select the most effective creative tools for work and give reasons for the choice. **CP 6.5:** Ability to select alternative(s) that adequately meet selected criteria. **CP 6.4:** Ability to identify important and appropriate criteria and use them to evaluate available alternatives. **CP 5.5:** Effectively evaluate the success of solutions used to attempt to solve a complex problem.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.5.1.2 **Demonstrate understanding of orthographic projections**	**B9.5.1.2.1- Describe the principles of orthographic projections** 1. Explain what is meant by orthographic projection. E.g. Drawing the three views of objects in two dimensions. 2. Discuss the principles of orthographic projections for both first and third angle orthographic projections. E.g. - For first angle (British method), the plan is projected below the front view - For third angle (American method), the plan is projected above the front view. **Note**: Use mock-ups to facilitate understanding 3.Sketch the symbols for first and third angle orthographic projections. 4. Discuss the importance of drawing orthographic projections of objects. E.g., To get detailed dimensions of parts for production of artefacts/ products.	Communication and Collaboration **(CC)**, Creativity and Innovation **(CI)**, Critical Thinking and Problem Solving **(CP)** **CC 8.2:** Explain ideas in a clear order with relevant details. **CC 8.1:** Speak clearly and explain ideas. **CI 5.1:** Examine alternatives in creating new things. **CC8.2:** Explain ideas in a clear order with relevant detail.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.5.2.1 **Demonstrate understanding of orthographic projections** CONT'D	**B9.5.1.2.2.2**: **Draw objects in first and third angle orthographic projection** 1. Sketch objects in pictorial indicating the appropriate dimensions, and directions of the three views (front view, plan and end view). 2. Draw the three views to the given dimensions, at their respective positions using the appropriate projection lines. **Note:** Draw the front view first. 3. Indicate the dimensions on the views and label the views appropriately. 4. Use the idea to prepare detailed drawings of artefacts to be made. 5. **Project work:** Go round the community, observe artefacts and draw four (4) artefacts in both first and third angle orthographic projections. 6. Prepare a sketch album and present in class for appraisal**.**	**CI 5.1:** Examine alternatives in creating new things. **CP 6.5:** Ability to select alternatives that adequately meet selected criteria. **CI 5.3:** Identification of requirements of a given situation and justification of more than one creative tool that will be suitable. **CP 5.7:** Provide new insight into controversial situation or task. **CI 5.3:** Identification of requirements of a given situation and justification of more than one creative tool that will be suitable.

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STRAND 5: DESIGNING AND MAKING OF ARTEFACTS/PRODUCTS

SUB-STRAND 2: DESIGNING

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.5.2.1 **Demonstrate knowledge of Designing**	**B9.5.2.1.1**: **Identify user requirements** 1. Explore several situations within the community. 2. Discuss issues identified in the situations. 3. State main issues identified for discussion. 4. Identify needs, wants and lacks within the environment which if not addressed can lead to problems. 5. Discuss the challenges observed in the situations, in groups. 6. Analyse the problems and state the extent to which they affect people's lives in the community. 7. Write a report on the problem situation and write a suitable design brief to indicate solution to the problem.	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CI 5.1:** Examine alternatives in creating new things. **CC 5.2:** Explain ideas in clear order with relevant details, using correct construction and structure of speech. **CP 6.5:** Ability to select alternative(s) that adequately meet selected criteria. **CP 5.7:** Provide new insight into controversial situation or task. **CP 5.2:** Analyse and make distinct judgement about viewpoints expressed in an argument.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.5.2.1 **Demonstrate knowledge of Designing** CONT'D	**B9.5.2.1.2**: **Clarify user requirements** 1. Analyse the problem graphically by developing problem analysis chart. 2. Develop questions to address the analysis chart. 3. Identify sources of getting information and conduct research for the design. 4. Prepare a questionnaire and interview guide to conduct research for the design. 5. Develop observation schedules, visit relevant places, and take appropriate photos linked to the problem and solution. 6. Analyse the research and write a report. 7. Study the research report and develop design specifications based on the analysis of the problem. 8. Cross-check the specifications to ensure that all the design requirements are met.	**CP 6.5:** Ability to select alternative(s) that adequately meet selected criteria. **CP 6.4:** Ability to identify important and appropriate criteria and use them to evaluate available alternatives. **CI 5.3:** Identification of requirements of a given situation and justification of more than one creative tool that will be suitable. **CI 5.4:** Ability to visualise alternatives, see possibilities, and identify problems and challenges. **CP 5.5:** Effectively evaluate the success of solutions used in an attempt to solve a complex problem.
	B9.5.2.1.3: **Generate Ideas** 1. Study the specifications as a guide to generate at least three possible ideas using freehand. 2. Write short notes to describe each of the ideas. 3. Compare the ideas with the specifications to ensure that all requirements are met.	**CI 5.1:** Examine alternatives in creating new things. **CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech. **CC 7.1:** Identify words or sentences in context and use appropriately.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.5.2.1 **Demonstrate knowledge of Designing** CONT'D	**B9.5.2.1.4**: **Develop the selected solution** 1. Identify the best design that meets the specifications and select it for further consideration. 2. Indicate the reasons for selecting a design for development. 3. Examine the selected design to identify parts that need to be modified. 4. Redesign the selected solution to obtain the final design.	**CP 6.4:** Ability to identify important and appropriate criteria and use them to evaluate available alternatives. **CC 8.2:** Explain idea in a clear order with relevant detail, using correct construction and structure of speech. **CP 6.4:** Ability to identify important and appropriate criteria and use them to evaluate available alternatives. **CI 5.1:** Examine alternatives in creating new things.

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STRAND 5: DESIGNING AND MAKING OF ARTEFACTS/PRODUCTS

SUB-STRAND 3: PLANNING FOR MAKING ARTEFACTS/PRODUCTS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.5.3.1 **Demonstrate understanding of planning for making artefacts/ products/ meals**	**B9.5.3.1.1**: **identify basic dry methods** of **cooking and foods that can be prepared using the method** **BAKING AND GRILLING** 1. Identify and describe the basic dry methods of cooking. E.g., baking, grilling 2. Identify foods that can be prepared using the dry method of cooking. E.g. Baking—bread, cake, aboloo Grilling—plantain, fish, chicken 3. Discuss advantages and disadvantages of baking and grilling methods of cooking. E.g. - Advantage—Promotes the caramelisation of surface sugars in foods - Disadvantage—Food can easily burn or dry out 4. Discuss the principles of baking and grilling methods of cooking. E.g. - Baking—All ingredients need to be measured carefully. - Grilling—Marinate foods in the refrigerator, not on the kitchen counter or outdoors	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)**, Personal Development and Leadership **(PL)** **CC 8.1:** Speak clearly and explain ideas. **CP 6.4:** Ability to identify important and appropriate criteria and use them to evaluate available alternatives. **CP 6.4:** Ability to identify important and appropriate criteria and use them to evaluate available alternatives. **CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech. **CC 8.1:** Speak clearly and explain ideas. **CP 6.5:** Ability to select alternative(s) that adequately meet selected criteria.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
	B9.5.3.1.2: Demonstrate Skills in menu planning 1. Explain what is meant by a menu. E.g., A menu is a list of dishes or kinds of food served at a meal. 2. Discuss the importance of planning a menu. E.g., it helps customers to be made aware of what dishes are available in the restaurant and the price per dish. 3. Discuss the factors to consider when planning a menu. E.g. - Availability of tools, equipment and skilled personnel. - Availability of foods/foods in season. 4. Discuss some types of menu in groups. E.g., A' la Carte, Table d'hôtel 5. In groups, plan a menu for discussion in class. 6. Display planned menus for appraisal	**CP 5.1:** Ability to combine information and ideas from several sources to reach conclusion. **CP 6.5:** Ability to select alternative(s) that adequately meet selected criteria.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.5.3.1 **Demonstrate understanding for planning for making artefacts/ products**	**B9.5.3.1.4**: **Demonstrate how to clarify user requirements** 1. Study the working drawings and cutting list obtained from the communication design. 2. Observe the workshop environment to identify the health and safety needs of the work. 3. Study workshop rules and regulations for better familiarisation before the actual work. 4. Study about the needed materials, tools and processes to be employed for better understanding. 5. Write down a summary of your study and observations and discuss in class. 6. Experiment with similar materials, tools and processes to gain confidence prior to the making of artefacts.	**CP 5.1:** Ability to combine information and ideas from several sources to reach conclusion. **CP 6.5:** Ability to select alternative(s) that adequately meet selected criteria. **PL 5.6:** Ability to set and maintain personal standards and values. **CC 9.1:** Demonstrate behaviour and skills of working towards group goals. **CI 5.3:** Identification of requirements of a given situation and justification of more than one creative tool that will be suitable.
	B9.5.3.1.3: **Describe ways of using the natural building materials for production** 1. Discuss how clay/laterite is used for producing bricks/blocks. E.g. - Identify types of clay/laterite brick/block - Describe the methods of manufacturing clay/laterite bricks/blocks—extruded, moulded, dry-pressed	**CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech.

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STRAND 5: DESIGNING AND MAKING OF ARTEFACTS/PRODUCTS

SUB-STRAND 4: MAKING ARTEFACTS FROM COMPLIANT, RESISTANT MATERIALS AND FOOD INGREDIENTS

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.5.4.1 **Demonstrate understanding of gathering materials, tools and equipment for making/preparing meals and articles**	**B9.5.4.1.1**: **Demonstrate skills in preparing food using the dry methods of cooking** 1. Prepare a dish each using baking and grilling methods of cooking. E.g. Baking—bread, cake, aboloo Grilling—plantain, fish, chicken 2. Display food for evaluation and appreciation.	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CP 5.1:** Ability to combine information and ideas from several sources to reach a conclusion. **CI 5.1:** Examine alternatives in creating new things. **CP 5.5:** Effectively evaluate the success of solutions used in an attempt to solve a complex problem.
	B9.5.4.1.2: Create advanced articles using crocheting and embroidery stitches 1. Review work on tools, equipment and stitches used in sewing and crocheting. B: Refer to B7 and B8 on stitches and crocheting. 2. Discuss some crocheted and embroidered articles and their uses. E.g. Shoes—to protect one's foot/feet. 3. Make advanced articles using crocheting and design or make patterns to decorate using embroidery stitches. E.g. Hand bags, jackets/cardigans, shoes (baby and adult) and purse. 4. Plan and mount an exhibition of products for appraisal.	**CI 6.3:** Ability to select the most effective creative tools for work and give reasons for the choice. **CC 8.2:** Explain ideas in a clear order with relevant detail, using correct construction and structure of speech. **CI 5.1:** Examine alternatives in creating new things. **CI 5.1:** Examine alternatives in creating new things. **CP 5.5:** Effectively evaluate the success of solution used in an attempt to solve a complex problem.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.5.4.1 **Demonstrate understanding of gathering materials, tools and equipment for making/preparing meals and articles and evaluate** CONT'D	**B9.5.4.1.3**: **Demonstrate how to gather materials, tools, and equipment for making artefacts** 1. Study and examine the design folio to understand the working drawings and the operations or processes involved. 2. Check the dimensions of the working drawings and the cutting list to ensure accuracy of work. 3. Apply the making operations in sequence to make the artefact. **Note**: Decide on the materials, measuring, marking out, cutting to the complete the work 4. Apply the appropriate finish to the artefact ready. 5. Test the manufactured artefact using the specification as a guide. E.g., Test the shape, structure, functions, strength etc. 6. Prepare a check list to indicate the good and bad comments about the artefact. 7. Rate the quality of the artefact as excellent, very good, good, fair or poor. 8. State the suggested modifications for the artefact.	**CI 5.4:** Ability to visualise alternatives, see possibilities, and identify problems and challenges. **CI 6.4:** Imagining and seeing things in a different way. **CP 5.6:** Demonstrate a thorough understanding of a generalised concept and facts specific to task or situation. **CI 6.3:** Ability to select the most effective creative tool for work and give reasons for the choice.

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STRAND 6: ENTREPRENEURIAL SKILLS

SUB-STRAND 1: CAREER PATHWAYS AND CAREER OPPORTUNITIES

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.6.1.1 **Demonstrate understanding about the changing nature of the workplace, the value of work to society, and the connection of work to the achievement of personal goals**	**B9.6.1.1.1**: **Describe how the changing nature of the workplace can bring about global competition and technology** 1. Find out from various sources, how changes at the work place can bring about global competition and technology E.g. - Introduction of automation at work place - Use of ICT - Use of robots and drones - Use of machines 2. Discuss the findings, in groups and write a summary individually.	Communication and Collaboration **(CC)**, Critical Thinking and Problem Solving **(CP)**, Creativity and Innovation **(CI)** **CI 6.8:** Recognise and generalise information and experiences; search for trends and patterns. **CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.6.1.1 **Demonstrate understanding about the changing nature of the workplace, the value of work to society, and the connection of work to the achievement of personal goals** CONT'D	**B9.6.1.1.2**: **Analyse the value of work to the individual and society in general** 1. Analyse and report the value of work to the individual and society in general, in groups. 2. Discuss the advantages and disadvantages of working for self and others. E.g., Self: - Advantage**:** More control over income; choose the people you work with. - Disadvantage: Difficult to raise capital; working may be much longer and irregular; sickness results in the business suffering. Others: - Advantage: Retirement benefits; regular work hours - Disadvantage: Less job security; less freedom	**CP 5.2:** Analyse and make distinct judgements about viewpoints expressed in an argument. **CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech.
	B9.6.1.1.3: **Develop a career plan that would assist in the transition from school to eventual entry into a career option** 1. Discuss the need for a career plan, in groups. 2. Identify and discuss the steps in an effective career plan. E.g. - Identify your career options - Prioritise - Make comparisons. - Consider other factors - Make a Choice 3. Write a summary of your discussion and read to class.	**CC 9.4:** Help group work on relevant activities. **CP 6.2:** Ability to explain plans for attaining goals. **CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech.

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STRAND 6: ENTREPRENEURIAL SKILLS

SUB-STRAND 2: ESTABLISHING AND MANAGING A SMALL BUSINESS ENTERPRISE

CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.6.2.1 **Demonstrate understanding of establishing and managing a small business enterprise**	**B9.6.2.1.1**: **Describe how to start and run a small business** 1. Discuss how to start and run own business, in groups. E.g. - Own business idea - Copying an existing business - Buying an existing business - Modifying an existing business 2. Read and a write on legal forms of businesses in Ghana, and discuss in class, in groups. 3. Discuss how to name a business, in groups. E.g. - Giving potential names to the business, - Settle on one name as the name of the business 4. Read on licensing/registration processes, and visit licensing/registration agencies to learn more about licensing/registration procedures. 5. Write the summary of findings from visit and discuss in class, in groups.	Communication and Collaboration **(CC)** **CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech. **CC 9.4:** Help group work on relevant activities. **CC 8.1:** Speak clearly and explain ideas. **CC 8.4:** Anticipate different responses from the audience and plan for them. **CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech.

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CONTENT STANDARD	INDICATORS AND EXEMPLARS	CORE COMPETENCIES
B9.6.2.1 **Demonstrate understanding of establishing and managing a small business enterprise** CONT'D	**B9.6.2.1.2**: **Explain how to manage resources of small business enterprises** 1. Think-pair-share on products and services that are in demand, and write down your views. 2. Discuss factors to consider when running and managing a small-scale business. E.g.: - Land - Labour - Capital - Market - Location 3. Discuss the processes of managing a business, in groups. E.g. - Planning - Organising - Communicating - Delegating - Motivating - Controlling	**CC 8.1:** Speak clearly and explain ideas. **CC 8.1:** Speak clearly and explain ideas. **CC 8.2:** Explain ideas in a clear order with relevant details, using correct construction and structure of speech.

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APPENDICES

APPENDIX 1: CORE COMPETENCIES AND SUBSKILLS OF THE COMMON CORE PROGRAMME (CCP)

1. COMMUNICATION AN COLLABORATION (CC)

B7-B9		
CC7: LISTENING	**CC8: PRESENTING**	**CC9: TEAMWORK**
CC7.1: Identify words or sentences in context appropriately	**CC8.1**: Speak clearly and explain ideas. Share a narrative or extended answer while speaking to a group	**CC9.1**: Demonstrate behaviour and skills of working towards group goals
CC7.2: Interpret correctly and respond to non-verbal communication such as facial expressions, cues and gestures	**CC8.2**: Explain ideas in a clear order with relevant details, using correct construction and structure of speech	**CC9.2**: Understand and use interpersonal skills
CC7.3: Provide feedback in areas of ideas, organisation, voice, word choice and sentence fluency in communication	**CC8.3**: Apply appropriate diction, and structure sentences correctly for narrative, persuasive, imaginative and expository purposes	**CC9.3**: Understand roles during group activities
CC7.4: Identify underlying themes, implications and issues when listening	**CC8.4**: Anticipate different responses from the audience and plan for them	**CC9.4**: Help group work on relevant activities
CC7.5: Identify and analyse different points of views of speaker	**CC8.5**: Vary the level of detail and the language used when presenting to make it appropriate to the audience	**CC9.5**: Appreciate the importance of including all team members in discussions and actively encourage contributions from them
		CC9.6: Ability to work with all group members to complete a task successfully
		CC9.7: Effectively perform multiple roles within the group
		CC9.8: Demonstrate an awareness of the wider team dynamics and work to minimise conflicts in the team

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2. CRITICAL THINKING AND PROBLEM SOLVING (CP)

B7-B9	
CP5: CRITICAL THINKING	**CP6: PROBLEM SOLVING**
CP 5.1: Ability to combine information and ideas from several sources to reach a conclusion	**CP 6.1:** Ability to effectively define goals towards solving a problem
CP 5.2: Analyse and make distinct judgements about viewpoints expressed in an argument	**CP 6.2:** Ability to explain plans for attaining goals
CP 5.3: Create simple logic trees to think through problems	**CP 6.3:** Identify important and appropriate alternatives
CP 5.4: Generate hypotheses to help answer complex problems	**CP 6.4:** Ability to identify important and appropriate criteria and use them to evaluate available alternatives
CP 5.5: Effectively evaluate the success of solutions used in an attempt to solve a complex problem	**CP 6.5:** Ability to select alternative(s) that adequately meet selected criteria
CP 5.6: Demonstrate a thorough understanding of a generalised concept and facts specific to task or situation	**CP 6.6:** Preparedness to recognise and explain results after implementation of plans
CP 5.7: Provide new insight into controversial situation or task	**CP 6.7:** Implement strategies with accuracy
CP 5.8: Identify and prove misconceptions about a generalised concept or fact specific to a task or situation	
CP 5.9: Identify and explain a confusion, uncertainty, or a contradiction surrounding an event	
CP 5.10: Develop and defend a logical plausible resolution to a confusion, uncertainty or contradiction surrounding an event	

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3. PERSONAL DEVELOPMENT AND LEADERSHIP (PL)

B7-B9	
PL5: PERSONAL DEVELOPMENT	**PL6: LEADERSHIP**
PL5.1: Understanding oneself (strengths, weaknesses, goals and aspirations), in reacting and adjusting to novel situations	**PL6.1:** Ability to serve group members effectively
PL5.2: Demonstrate a sense of belongingness to a group	**PL6.2:** Division of tasks into solvable units and assigning group members to task units
PL5.3: Recognise one's emotional state and their preparedness to apply emotional intelligence	**PL6.3:** Ability to manage time effectively
PL5.4: Ability to understand one's personality traits	**PL6.4:** Ability to manage and resolve conflicts
PL5.5: Desire to accept one's true self and overcome weaknesses	**PL6.5:** Ability to monitor team members to ascertain progress
PL5.6: Ability to set and maintain personal standards and values	**PL6.6:** Ability to mentor peers
	PL6.7: Actively promote effective group interaction and the expression of ideas and opinions in a way that is sensitive to the feelings and background of others
	PL6.8: Actively assist group identify changes or modifications necessary in the group activities and work towards carrying out those changes

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4. CULTURAL IDENTITY AND GLOBAL CITIZENSHIP (CG)

B7-B9	
CG5: CULTURAL IDENTITY	**CG6: GLOBAL CITIZENSHIP**
CG5.1: Show a strong sense of belongingness to one's culture	**CG6.1:** Understanding of influences of globalisation on traditions, languagesand cultures
CG5.2: Develop and exhibit ability to defend one's cultural beliefs, practicesand norms	**CG6.2:** Recognise resistance to global practices that are inimical to ourculture
CG5.3: Develop and express respect, recognition and appreciation ofothers' cultures	**CG6.3:** Know the global discourse about the roles of males and females
CG5.4: Develop and exhibit a sense of cultural identity	**CG6.4:** Exhibit a sense of nationality and global identity
CG5.5: Adjust to the demands of customs, traditions, values and attitudes of society	

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5. CREATIVITY AND INNOVATION (CI)

B7-B9	
CI5: KNOWLEDGE, UNDERSTANDING, SKILLS AND STRATEGIES	**CI6: REFLECTION AND EVALUATION**
CI 5.1: Examine alternatives in creating new things	**CI 6.1:** Exhibit strong memory, intuitive thinking, and respond appropriately
CI 5.2: Ability to merge simple/complex ideas to create novel situations or things	**CI 6.2:** Ability to reflect on approaches to creative tasks and evaluate the effectiveness of tools used
CI 5.3: Identification of requirements of a given situation and justification of more than one creative tool that will be suitable	**CI 6.3:** Ability to select the most effective creative tools for work, and give reasons for the choice
CI 5.4: Ability to visualise alternatives, see possibilities, and identify problems and challenges	**CI 6.4:** Imagining and seeing things in a different way
CI 5.5: Ability to try new alternatives and different approaches	**CI 6.5:** Anticipate and overcome difficulties relating to taking initiatives
CI 5.6: Understand and use analogies and metaphors	**CI 6.6:** Being open-minded, adapting and modifying ideas to achieve creative results
CI 5.7: Putting forward constructive comments, ideas, explanations and new ways of doing things	**CI 6.7:** Look and think about things differently and from different perspectives
	CI 6.8: Recognise and generalise information and experience; search for trends and patterns
	CI 6.9: Interpret and apply learning in new contexts
	CI 6.10: Reflect on work and explore the thinking behind thoughts and processes

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6. DIGITAL LITERACY (DL)

B7-B9	
DL5: PHOTO-VISUAL AND INFORMATION LITERACY	**DL6: SOCIO-EMOTIONAL AND REPRODUCTION LITERACY**
DL5.1: Ability to ascertain when information is needed and be able to identify, locate, evaluate and effectively use it to solve a problem	**DL 6.1:** Understand the sociological and emotional aspects of cyberspace
DL5.2: Ability to recognise and avoid traps in cyberspace	**DL 6.2:** Create a meaningful and original piece of work, or its interpretation by integrating existing information
DL5.3: Ability to find and utilise digital content	**DL6.3:** Use digital tools to create novel things
DL5.4: Ability to construct knowledge from a non-linear hyper-textual navigation	**DL6.4:** Adhere to behavioural protocols that prevail in cyberspace
DL5.5: Evaluate the quality and validity of information	**DL6.5:** Recognition of societal issues emanating from the use of digital technologies
DL5.6: Preparedness to make better decisions using available information	**DL6.6:** Knowledge and recognition of ethical use of information

Please note these inclusivity issues:

- The core competencies outlined in this document must be assessed taking into consideration, learners with special needs (physical disabilities, learning disabilities, etc.).
- Consider the use of realia for visual and visually-; challenged learners.
- A system of creating alternatives for tasks must also be adopted.

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