Republic of the Philippines
Department of Education
DepEd Complex, Meralco Avenue, Pasig City

MATATAG CURRICULUM

EDUKASYONG PANTAHANAN AT PANGKABUHAYAN (EPP) / TECHNOLOGY AND LIVELIHOOD EDUCATION (TLE)

Grades 4 to 10

I. SHAPING PAPER

A. Background of the Learning Area
The Department of Education envisions developing Filipinos who passionately love their country and whose values and competencies enable them to realize their full potential and contribute meaningfully to building the nation.

To achieve this vision is the offering of Edukasyong Pantahanan at Pangkabuhayan (EPP)/Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood Track (TVL). Its curriculum goal is to equip learners with life-long learning skills that enable them to be productive individuals, ready for the world of work, and contribute to achieving national goals.

EPP/TLE is a learning area that provides learners with basic home skills that will enable them to be productive in life. The learners in Grades 4 to 6 will explore the fundamental home skills of the four components of EPP/TLE (Information and Communications Technology [ICT], Agriculture and Fishery Arts [AFA], Family and Consumer Science [FCS], and Industrial Arts [IA]). The basic and common competencies of the four TLE components will be introduced in Grades 7 to 8. In Grades 9 and 10, selected core competencies will be taken in every sector with intensified entrepreneurial skills (exploratory by sector). Learners are introduced in different industries of specializations focusing on the use of tools and equipment, mensuration, interpretation of drawings and plans, as well as observation of occupational safety and health, career, and business opportunities. The medium of instruction is Filipino for Grades 4 to 5 and English will be used starting Grades 6 to Grade 10.

Technical- Vocational and Livelihood Education (TVL) is a learning area that provides learners with technical skills. Hence, learners are tasked to choose a specialization that will be taken from Grades 11 to Grade 12. These specializations are anchored to TESDA Training Regulations Qualifications.

B. Rationale

The review of the EPP/TLE Curriculum guide took place in 2018, while the intended curriculum of K to 10 started in 2019. It aims to identify gaps, issues, and concerns, across all learning areas and grade levels to enhance the learning area engagement, experiences, and outcomes in the EPP/TLE Curriculum.

Series of workshops were conducted by the Bureau of Curriculum Development and collaborated with ACTRC. The workshops serve as the avenue to review the learning competencies of Kindergarten, Grade 3, Grade 6 and Grade 10 Curriculum Guides.

There were three phases of the review namely:

1. Review of the cognitive and affective demands, together with the review of the essential and desirable competencies;
2. Horizontal and vertical alignment; and the
3. Cross validation with the Master Teachers

Based on the review conducted, the curriculum is congested, and the competencies are overlapping with the other learning areas. Some competencies are unpacked, entrepreneurial competencies are redundant, and ICT competencies are more complex in grades 6 compared to Grades 7 and 8. It also lacks in contact time due to shared time allotment with entrepreneurship.

C. Curriculum Framework

The EPP/TLE/TVL framework is structured to support teaching and learning, as well as to plan and implement the curriculum. It comprises of four (4) different components, monitoring and evaluation, support systems, and curriculum exits.

The framework shows the different teaching/learning approaches to acquire the knowledge and skills being articulated in the curriculum. This shows the uniqueness of the learning area which recognizes the importance of the goals and education principles that will interplay with the learning area components, support systems, feedback mechanisms, and curriculum exits.

1. The EPP/TLE/TVL Curriculum aims to:

   1.1   improve learners' knowledge, skills, values, and attitudes through quality and effective delivery of the basic, common, and core competencies;

   1.2   equip learners with certifiable, and relevant skills, gauged through an authentic and timely assessment, that shall make them locally and globally competitive and productive citizens;

   1.3   develop among the learner's proper self-care and home management;

   1.4   provide an avenue for learners to explore and apply aspects of Micro, Small and Medium Enterprises (MSME) for sustainability;

   1.5   develop the skills of the learners aligned with the Sustainable Development Goals and the 21st Century Educational Framework;

   1.6   strengthen Information and Communication Technology (ICT) skills that shall enable the learners to cope with the advancement of technology; and

   1.7   provide guidance for learners on the career path to take such as post-secondary education/higher education, entrepreneurship, middle-level skills development and employment
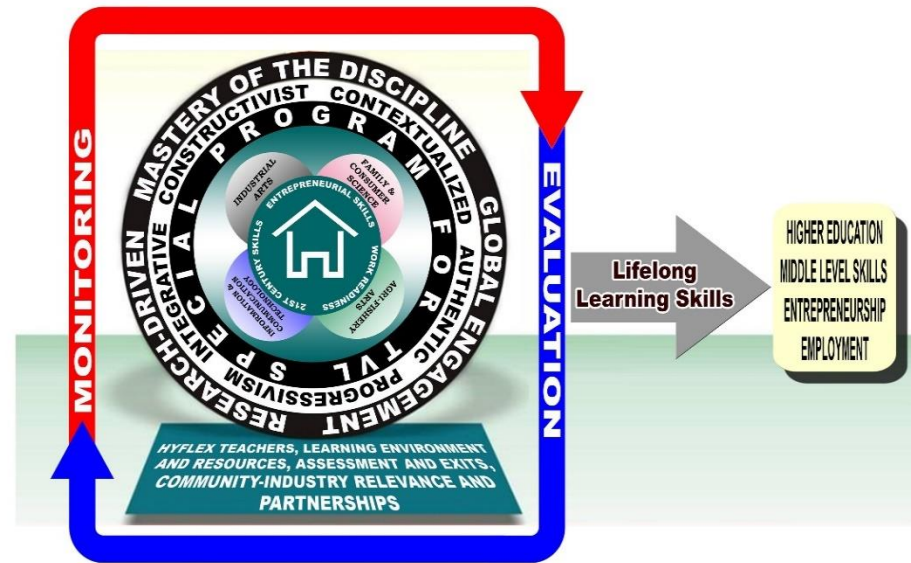
Figure 1. Conceptual Framework

To achieve the goals of the learning area, the needed support systems are articulated below:

1. Hyflex (Hybrid and Flexible) Teachers. These are educators who are flexible and capable of delivering the necessary competencies of EPP/TLE & TVL through various modalities such as face-to-face, online, in the printed module, and/or blended. For junior or senior high school, these are teachers who are highly skilled and passed the minimum qualification of NCII relevant to the subject being taught.
2. Learning environment and resources. It is the use of standard tools, machines equipment, facilities, and learning environment and resources aligned with the curriculum standards.
3. Assessment and exits. These are standard assessment guides aligned with the curriculum standards of EPP/TLE & TVL.
4. Relevant Partnership and Linkages. This is recognizing the significant participation of the community stakeholders, industry, government, and non-government organizations to help the school in delivering the standard competencies for EPP/TLE & TVL learners, work-related experiences, and possible employability.

Theoretical/Philosophical Bases

In order to ratify the knowledge and skills being articulated in the curriculum of TLE, the curriculum framework is anchored on the following learning theories:

- **Constructivism** is a theory of learning and an approach to education that states that learners can build their own knowledge and construct meaning from prior experiences rather than rote memorization. Learners are encouraged to share their knowledge, and experiences in solving problems, and decision-making. For instance, in plumbing, the lesson is about fittings, and repairing pipes. Learners may ask about their experiences or how they helped their father or older brother repair broken pipes or fittings. older family members who can do the fittings or repair the broken pipes.
- **Contextualization** refers to the educational process of relating the curriculum to a particular setting, situation, or area of application to make the competencies relevant, meaningful, and useful to all learners as mandated in the Republic Act 10533. In providing activities in the EPP/TLE & TVL, these make sure that local materials are utilized. For instance, the teaching of asexual propagation through marcotting of fruit trees. The learners may consider using available fruit seedlings in the area to be marcotted and other fruit-bearing trees.

The New Features of the EPP/TLE Curriculum

In the revised EPP/TLE curriculum, it is anchored to big ideas that interplay with the four components and the four (4) curriculum exits.

The new features of the curriculum are the following:

- *One skill per component* - refers to one specific skill in the component of TLE that the learner should acquire at the end of every quarter. To master and demonstrate the skill for each component in each quarter, a time allotment of 50 minutes is dedicated for one component on each quarter to be mastered and demonstrate the skill.
- *Exploratory by Sectors* - refers to the clustered specializations within the same industry or sector. The nomenclature is exploratory since the learners will be introduced to different industry sectors.
- *STEM Framework*- refers to the framework that gears towards the Big Ideas. It serves as an avenue for the learners to utilize technology and see possible solutions from the simplest to complex world problems. It also helps the learners to have a deeper appreciation of the importance of self-improvement through skills and knowledge in helping them decide on what career path they want to choose.
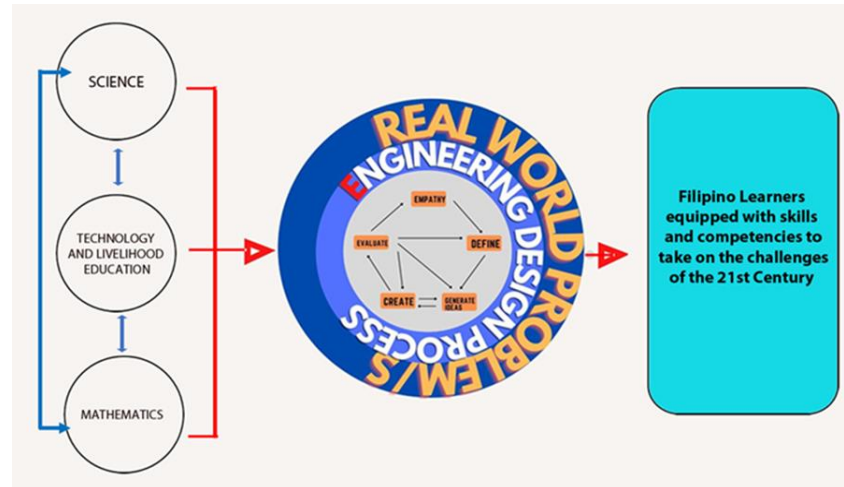
Figure 2. STEM Framework

D. Structure of the Learning Area

The EPP/TLE learning area provides an avenue for learners to explore and develop different skills that will prepare them in choosing a career and make them eligible for certification nationally or globally.

Components of the Learning Area

Information and Communication Technology (ICT) - This refers to practical skills in using hardware and software tools, programing, coding, and networking.

Agricultural and Fishery Arts (AFA) – This refers to practical skills in planting ranging from harvesting of crops, animal and fish raising, as well as food and beverage processing.

Family and Consumer Science (FCS) – This refers to practical skills in home management, food preparation, garments and needle works, health and wellness.

Industrial Arts (IA) – This refers to practical skills in wood works, metal works, masonry works, machine works, and electrical works.

Description of Competencies

Basic competencies refer to non- technical knowledge, skills, and attitudes that a learner can perform irrespective of work or industry.

Common competencies refer to a set of knowledge and skills that are similar to an industry or sector.

Core competencies refer to a set of knowledge and technical skills in a specific specialization.

Specializations by Sector

TLE is a complex learning area that introduces different specializations in the four components among the learners. To address decongestion and repetition of competencies, the specializations that are related to a common industry are merged into one sector. Listed below are the specializations by sector for each component:

Information and Communications Technology (ICT)

1. **Computer Systems Servicing**
   - Computer Systems Servicing

2. **Computer Programming**
   - Java
   - .Net
3. **Visual Arts**
   - Animation
   - Illustration
4. **Telecommunication**
   - Contact Center Services

Agriculture and Fishery Arts (AFA)

1. **Crop Production**
   - Agri-crop Production
   - Organic Agriculture
2. **Animal Production**
   - Poultry
   - Swine
   - Ruminants
3. **Aquaculture**
   - Fish culture

- Fish Grow-out
4. **Fish Capture**
   - Fishing Gears
   - Fish Capturing
5. **Food and Beverage Processing**
   - Fruits and Vegetables
   - Meat
   - Seafoods

Family and Consumer Science (FCS)

1. **Food Preparation**
   - Cookery
   - Bread and Pastry
2. **Garments**
   - Dressmaking
   - Tailoring
3. **Handicrafts**
   - Needle Craft
   - Paper Craft
   - Fashion and Design
4. **Food Services**
   - Barista
   - Bartending
   - Food and Beverage Services
5. **Beauty Care**
   - Barbering
   - Hair Dressing
   - Nail Care
6. **Health and Wellness**
   - Caregiving
   - Wellness
7. **Tourism Services**
   - Local Tour Guiding
   - Tourism Promotion
   - Attraction and Theme Park
   - Travel Services
8. **Hotel Services**
   - Housekeeping
   - Front Office Services

- Events management

Industrial Arts (IA)

1. **Residential Plumbing**
   - Technical Drafting
   - Plumbing
2. **Residential Construction**
   - Masonry
   - Tiles Setting
3. **Carpentry**
   - Home Furniture
   - Fixture
4. **Automotive and Small Machine**
   - 4 Wheels Vehicle
   - 2 Wheels Vehicle
   - Small Engine
5. **Metals and Engineering**
   - SMAW
6. **Electronics and Electrical Engineering**
   - Electrical Installation and Maintenance
   - Electronics and Products Assembly Services
   - Domestic Refrigeration and Air Condition Services

Skills Progression

Skills Progression means that the basic principles are introduced in a particular grade and are rediscovered in succeeding grades in a more complex form. With this approach, concepts are introduced and re-taught in succeeding years in an increasingly sophisticated fashion. In the TLE learning area, basic skills are introduced as early as Grade 4 but pre-requisite skills are expected to be taught in Key Stage 1 (Grades 1-3). For instance, the concept about animal raising in Agriculture and Fishery Arts, learners in Key Stage 2 (Grades 4 to 6) are taught on how to raise pet animals, chickens, pigs, goats, and fishes and the pre-requisite skills such as care for animals are found in learning areas of Science and GMRC of Key stage 1.

In Key Stages 3 to 4 (Grades 7- 12), learners are taught on how to grow and propagate livestock animals in the specializations of Animal Production Poultry, Swine, and Ruminants. These specializations are anchored to the competency standards of TESDA's Training Regulations for Animal Production (Poultry) NC II, Animal Production (Swine) NC II, and Animal Production (Ruminants) NC II. These captured the Big Ideas of TLE subjects, such as soft skills (leading the workplace communication), hard skills (performing farrowing-related activities), and lifelong learning skills (maintaining of housing facilities, tools, and equipment for swine production).

Skills Progression in this learning area was viewed by the specialists as the progression of skills from key stage 1 (Grades K-3) up to Key Stage 4 (Grades 11-12). The table below portrays the examples and approaches on the revised curriculum from TLE to TVL.

Sample Skills Progression

Component	Key Stage 2 (Grades 4 to 6)	Key Stage 3 (Grades 7 and 8) and (Grades 9 to 10)
ICT	Demonstrate knowledge and skills in coding (block coding), productivity tools, and internet navigation in a safe and responsible manner.	Grades 7 and 8 Demonstrate knowledge and skills in productivity tools, graphic design, and video editing in a safe and responsible manner. Grades 9 and 10 Demonstrate selected core competencies in Computer Systems Servicing, Computer Programming, Contact Center Services and Visual Arts.
AFA	Performs natural way of planting ornamental plants, vegetables, and fruit trees.	Grades 7/8 - discusses safety procedures in farm operation. discusses agricultural practices in crop production. Grades 9-10 - performs agricultural practices in planting crops according to natural farming.
FCS	Performs competencies in home management and food preparation.	Grades 7 and 8 Familiarizes and utilizes common kitchen tools and occupational safety and health, career, and business opportunities in preparing food and food services, constructing clothes, handicrafts and beauty care. Grades 9-10 – Performs the skills in constructing different clothing styles, providing care and support to clients, providing food and beverage service to customers.

Component	Key Stage 2 (Grades 4 to 6)	Key Stage 3 (Grades 7 and 8) and (Grades 9 to 10)
IA	Creates simple wood/bamboo, metal and/or electrical project with safety precautions.	Grade 7-8 – Explains signs and symbols for construction services, electrical services, and automotive and small engine services. Grade 9-10 – Applies procedures in electrical installation with safety precautions

Horizontal and Vertical Articulation

EPP/TLE serves as a laboratory of learning areas by providing hands-on experiences, fostering creativity and innovation, and developing important life skills. Learning areas theories and concepts are applied in EPP/TLE such as the integration of Science and EPP/TLE is in the field of Agriculture. In Science, students may learn about the scientific principles behind plant growth and development, while in EPP/TLE, learners may learn practical skills related to farming such as crops management. Through this integrated approach, learners can gain a deeper understanding of the scientific principles underlying agriculture while also developing practical skills that they can use in their future careers. This is a manifestation of the alignment of the curricula that allow subject disciplines to move from seeming fragmented and unrelated to an integrated and constitutive holistic education.

On the other hand, vertical articulation ensures that what students learn from one year to the next, takes the form as a coherent and logical process that maximally supports student understanding and progression. This is also related to the skills progression that was presented earlier. Similarly, the EPP/TLE introduced in Grade 4 have some competencies that are explicitly taught in the earlier grades in the other learning area. The table below shows how the vertical articulation occurs in the component of ICT.

Sample Vertical Articulation in the ICT Component from Grades 4 to 8.

Grade Level	Component	Focus	Learning Competencies
4		Paggamit ng *Word Processing Software*	nakagagawa ng *word document gamit ang: Page Size, Orientation,* at *Margin; Font Type, Style, Size,* at *Color;* at *Text Alignment*

Grade Level	Component	Focus	Learning Competencies
5	Information and Communications Technology	Paggamit ng *Word Processing Software*	nakagagawa ng *word document* na may *images, shapes, Smartarts, tables* at *page background*
6		Utilization of Word Processing Software	creates word document with watermark, page color, borders, page number, header and footer
7		Utilization of Word Processing Software	creates word document with page break, auto tables of contents, mail merge and references
8		Graphics Design Tool (LCs from Word Processing software and other productivity softwares are prerequisite to Graphic designing)	Utilizes graphic design tools for graphic production

E. Development of 21st Century Skills

The world today is continuously changing at an increasingly overwhelming rate. The skills learned today are likely to become outdated in a very short time. As such, professional and technical workers are constantly urged to keep abreast with new developments in their respective fields giving the emphasis now on lifelong learning.

To develop the 21st Century Skills, the learners are introduced to some of the skills that interplay in the EPP/TLE and TVL curriculum.

1. Learning and Innovation

In the age of information and technology, it is essential for learners to manifest learning and innovation skills. This is a set of abilities where learners think critically, reflectively, and creatively, analyze and solve problems, create and implement innovations using a variety of techniques or methods, and generate functional knowledge that support varying degrees of thinking skills and metacognition

thereby allowing them to easily navigate and respond to dynamic, fluid, and complex forces (both internal and external) that significantly affect their well-being.

These are visible when learners are given opportunities to plan, create, and innovate projects or process individually and collaboratively using ideas inspired by imagination, inquiry, experimentation, and purposeful play. As a skill for the 21st century, this shall generally encompass all basic understandings in the subject of EPP/TLE. As a skill-based subject, a strong foundation for the following of general principles (in order to execute) is a must. Moreover, the development/innovation of learned skills into more complex and intricate skills align to the very purpose being aimed.

e.g.

- ICT- creating knowledge product using productivity tools, create database objects, creating portable bootable devices, construction simple robotics system

- Agriculture - creating/producing food and non-food products from agricultural and fishery produce and by-products such as food, fiber, soap lotion, shampoo and toothpaste, organic soil amendments, creative ornaments.

- Family and Consumer Science - applying handicraft design to furniture, linens, and apparels as well as researching and developing new recipes from available ingredients.

- Industrial Arts - designing and illustrating plans, circuits and specifications for a project embedding innovative function, mechanism or process applying fundamental concepts of industrial arts (ex. Voice command on/off to some electrical devices, configuring electronic products.)

- applying electrical, digital functions to furniture and mechanical fixtures in construction. (ex. Voice command on/off to some electrical devices, configuring electronic products.)

2. Critical Thinking and Problem-Solving

It is the ability to analyze evidence, patterns, relationships, making inferences using reasoning, judging, evaluating, and making decisions or solving problems. It includes actively and skillfully conceptualizing, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action, the ability to make inferences, calculating probabilities and making decisions.

e.g.

- Information and Communication Technology - analyzing information, filtering fake news, assessing the credibility of the site use when conducting research

● Agriculture - giving solution/recommendations to lessen the effect of climate change, demonstrating ways on how to mitigate climate change; conserving and building soil health, managing crop/animal/fishery pests and diseases, improving crop/animal/fishery yields, proper storage, transport and packaging to maintain good quality to reduce post-harvest losses without negative impacts to the environment.

● Family and Consumer Science - being able to provide solutions to daily budgeting, provide inputs to improve the tourism industry services

● Industrial Arts - analyzing and troubleshooting problems based on logical processes or procedures such as conducting or performing simple repair of broken electrical and mechanical parts and components fixtures at home or community chairs and tables, fixing a leaky kitchen or bathroom pipe.

3. Communication and Collaboration

Communication is something we are engaged with every day, may that be personally, academically, or professionally, making it a significant and relevant domain among the 21st Century Skills. This domain recognizes the value of communication for a wide range of purposes.

Collaboration refers to the capacity of an individual to effectively participate in interactions between at least two co-equal parties voluntarily engaged in shared decision-making as they work towards a common goal.

Collaboration involves joint communication and goal setting (including planning, sharing information, discussing problems, and learning from others) as well as the need for parties to contribute different information or resources that need to be pooled together for action.

It effectively bridges cultural, educational, and environmental divides and aids a child's understanding of social and environmental issues in local and global contexts. The very success of livelihood education can be reliant on how much learners are able to communicate their proficiency in their crafts and other labor-based efforts they can offer. As learners develop the skill to execute processes and produce crafts in their specific specializations, they also gain the ability to share such skills with potential consumers and market them for future gain. In the area of technology, such communication skills are also further enhanced through the better understanding of media and how to use it.

e.g.

● ICT- using web conferencing tools, being able to send email with attachments, analyze communication process (contact center services)

● Agriculture and Fishery Arts - following directions from farm supervisor, respond to the call of superiors, communicate with co-workers in accomplishing task, keep records of farm activities and tasks (using digital apps)

● Family and Consumer Science – Expressing thoughts through presenting cultural foods,

●Industrial Arts - analyzing and interpreting circuits, drawings and plans and discussing the related technical information about an industrial project in the workplace.

4. Information, Media, and Technology Skills
- Information Literacy

Information Literacy is a set of integrated abilities encompassing the inquisitive, analytical, and reflective process of acquiring, organizing, evaluating, sharing, and producing information with an understanding on what type of information is needed, when it is needed, where it is accessible, and how the information is socially situated and its ethical and legal considerations to use and communicate accurate and appropriate information relevant to the current context and needs of the target audience.

This provides skills to access, evaluate, use, and manage information. This is evident when learners accurately, responsibly, and creatively access and evaluate information from a variety of sources with an understanding of ethical and legal issues.

eg.

● ICT- filtering fake news/information, assessing the credibility of the site use when conducting research/putting into practice their understanding of the intellectual property, copyright, and fair use, creating an online survey form to gather relevant information

● Agriculture - Evaluating the veracity of information in relation to selling and buying agricultural products, access and curate information from reputable sources of information

● Family and Consumer Science - Assessing and validating data from reputable sources.

● Industrial Arts - searching and applying relevant information related to industrial trends and applications and evaluate reliability of sources

- Media Literacy

This refers to a wide range of skills that involve understanding various media contents and its uses, accessing information efficiently and effectively, using a broad range of media to express ideas. It involves analyzing media and creating media products and creations. This can be seen when learners examine and use media to learn how and why messages are created, produced, and interpreted, as well as how media shapes culture, values, and behaviors.

e.g.

● ICT- evaluating current trends in media and information, evaluating the reliability and validity of text information and media and its sources based on the learned/set criteria

● Agriculture - assessing the role of technology in producing agricultural products necessary for human survival, accessing science-based evidences and avoiding fake news and anecdotal stories.

● Family and Consumer Science - analyzing media information issues and current trends that will aid in the improvement of products and services rendered

● Industrial Arts - developing and analyzing media information to broaden their knowledge and skills and capability to enhance creativity in developing their own media structure and apply it to their specific technological field.

- Technology literacy

This refers to the effective incorporation of information, communication, and their applications through technology. It includes responsible use of appropriate technology to communicate, solve problems, and access, manage, integrate, evaluate, and create information to improve learning across all learning areas and to acquire lifelong knowledge and skills in the 21st century. This domain ultimately leads to developing abilities to use technology that enables learners to use their inventiveness to design and create ideas and concepts in solving practical problems that are technological in nature.

This is very specific in the technology aspect of EPP/TLE. Students learn the nature of various devices from the 21st century which are essential for at-home and in-work situations that requires them. The subject of Technology aims to increase student proficiency of learners in manipulating pieces of IT, and increase their interest to pursue the area (as a career option) proportional to their potentials with it.

e.g.

● ICT- creating knowledge product using productivity tools, using slide deck/productivity tools to make engaging/interactive presentation,

● Agriculture- using technology in searching modern methods/strategies to apply appropriate technologies needed for the food systems, production, supply and value chain including agri-waste management. Growing and improving varieties of crops or crop science and animal production or animal science.

● Family and Consumer Science - applying skills and competencies in creating a platform for effective communication and marketing of products and services.

● Industrial Arts - utilizing and applying relevant innovative ideas for a specific purpose and evaluate outputs from industrial application of specific technological concepts and principles.

5.Life and Career Skills
- *Flexibility and Adaptability*

Life and career skills prepare learners to make informed life and career decisions to enable them to become citizens that engage in a dynamic global community and to successfully adapt to meet the challenges and opportunities to lead in the global workforce. These are critical for our learners to become active responsible citizens who hold meaningful and productive jobs and businesses that will contribute to the sustainability and welfare of the community beyond adversity.

The relevant skills are the capacity to adapt to change and being flexible. This is evident when learners are flexible and adapt to change in a variety of contexts and circumstances.

> e.g.
>
> ● ICT - using appropriate applications/digital tools to adjust to the current situation and context in working with others
>
> ● Agriculture -   adopting and adapting farming systems and practices to constant environmental climate changes
>
> ● Family and Consumer Science- adapting and applying practical application of the emerging technologies in day to day life activities and challenges.
>
> ● Industrial Arts - learning new skills, behaviours and practices in the work environment and able respond and adapt to some challenges, circumstances and current trends in technology applied in the workplace.

- Self-discipline

This pertains to being able to set goals with tangible and intangible success criteria. It is a balance of short-and long-term goals to manage one's workload efficiently by controlling impulses and delaying gratification. This is necessary to manage one's life in an organized, industrious manner to give meaning and purpose in a changing environment.

> e.g.
>
> ● ICT - using productivity tools efficiently in preparing educational projects/ e-portfolio based on the set criteria
>
> ● Agriculture – following the developed planting calendar to guarantee success in farming. Being able to take care of some vegetable plots or pots (or make simple experiments) or raise small animals relative to the students' ages. to have a positive attitude to agriculture.
>
> ● Family and Consumer Science – being able to work with one's own initiative and get things done with minimal supervision in culinary or home management activities.

- **Industrial Arts** - being able to perform assigned tasks based from plans and design to meet the required target for assembly and fabrication and production.

- Future Orientation

This is the ability to consider future developments and consequences when thinking, making decisions, and acting to result in a more sustainable future. Future considerations include society, environment, culture, and economy to balance them in pursuit of improved quality of life for this and future generations. Future orientation allows individuals to envision how to meet the needs of the present without compromising the sustainability of future generations.

e.g.

- **ICT** - creating an online platform/s*ocial media platform* to share relevant information and collaborate to work on an online community project for a specific purpose with colleagues and interested individuals globally

- **Agriculture** – being able to collaborate and exchange farming practices with other farmers, agri-preneurs, agri-techies, agro-industries in their locality and other places

- **Family and Consumer Science** – having the ability to work effectively and efficiently with different socio-cultural backgrounds and maintain harmonious interrelationship and cultural appreciation in the workplace for improved work performance.

- **Industrial Arts** - interacting and discussing with fellow team members on work preparation, schedules and workloads considering colleagues capability in industrial set-up.

- Resilience and adversity management

This is the process of advancing despite adversity. Being resilient allows learners to adapt with flexibility to a new environment, lifestyle, emerging challenges or when faced with stressors. It involves taking a growth mindset, being open to change and can involve profound personal growth.

e.g.

- **ICT** - conducting research using online survey tools to get feedback in improving the quality of particular systems/products/services

- **Agriculture and Fishery Arts** – being able to constantly improve the quality, quantity and availability of agriculture and fishery products equitably while taking care of the environment.

- **Family and Consumer Science** – having the ability to instill continuous improvement in every area of specialization.

- Industrial Arts - being able to consider various alternatives and selecting the best option (suggests) to improve industrial systems and procedures to make production efficient with quality product output.

 - Leadership skills

It is the ability to organize proactively and lead people in such a way to motivate them to achieve tasks effectively. Learners are future leaders of the nation and must be able to learn the art and skills of leadership including resolving conflicts, developing people, being accountable, and adapting to a complex and rapidly changing environment. They must also be morally upright and ethically grounded.

e.g.

● ICT- organizing an online consultation with ICT practitioner to share different ICT applications/tools used for online learning; creating an e-group to discuss different applications/tools to develop e-portfolio; designing a simple website where colleagues collaboratively share their relevant information about online learning resources.

● Agriculture - conducting remote learning or in face-to-face forum with other farmers to talk/discuss innovations in farming practices; organize agri-youth projects or organizations.

● Family and Consumer Science- planning, organizing, and conducting training and webinars and home based and interdisciplinary learning.

● Industrial Arts - providing logistics support to achieve company goals and objectives by showing colleagues and team members the commitment to the job and organization.

F. Big Ideas

Big ideas refer to core concepts, principles, theories, and processes that should serve as the focal point of curricula, instruction, and assessment. This serves as the terminal goal of the learning area.

The application of knowledge and skills from the early years up to the senior years will equip the learners to the four exits of the K-12 program namely, college education, enhancement of the middle level skills, engaging to entrepreneurship, and employment which is the end goal. Technology is given importance for practical purposes in daily lives or in the industry related. As the learners' level up in the next key stages, their soft skills, hard skills, and life-long learning skills also progress. Combining the use of acquired skills and technology, learners can develop, create, innovate products that are saleable or provide services. With all of these, learners become productive members of their family, community, and even to the country.

EPP/TLE big ideas include the soft skills, hard skills and life-long learning skills that are the foundation of the learner in the world of work.

The World of Work

The world of work is a term used to talk about a diverse, broad expanse of vocational opportunities. It can also be quoted as occupations, jobs, careers, employment, etc. Work is a means of survival, thus, almost everyone in the world will tell you that they work because they must. Those who are unable to work or unable to secure enough work are often the most vulnerable and marginalized in our society.

The EPP/TLE subject offers numerous avenues and opportunities for Filipino learners to equip themselves for the workforce and effectively tackle future life challenges. Engaging in this learning area enables students to cultivate employable skills, gain technological literacy, and acquire a diverse range of life skills. By immersing themselves in relevant experiences and environments, learners can foster their personal and professional development, ensuring they are well-prepared for the demands of the modern world.

The world of work requires individuals to possess a wide array of skills. While hard skills, which are specific to a particular industry or job role, remain crucial for technical proficiency, the importance of soft skills cannot be overlooked. Soft skills encompass a range of interpersonal and personal attributes that enable individuals to effectively navigate their professional environment.

Soft Skills are the non-cognitive skills that are the foundation in the workforce. These include creative skill, problem-solving skill, critical thinking, and communication skills.

Creative Skill
In Key Stage 2, students demonstrate their fundamental creative abilities by developing innovative products that can bring benefits to themselves, their families, and their communities. Moving on to Key Stage 3, this stage focuses on technical skills that are applicable in various industries. At this stage, learners utilize their creative and innovative thinking to produce and introduce new products.

Problem-solving skill
In Key Stage 2, learners exhibit a spirit in finding a way to approach an assigned task not only by using but also by modifying the acquired knowledge and standards. Meanwhile, in Key Stage 3, learners manifest an undaunted mood in testing various methods that require the least input to come up with the most output.

Critical thinking skill
In Key Stage 2, learners acquire the fundamental skills necessary to undertake tasks, such as planning and organizing. As they progress to Key Stage 3, learners begin to analyze and evaluate the existing rules and standards, comparing them with innovative approaches to determine the most suitable course of action for completing a project.

Communication skill
In Key Stage 2, learners rely on using vocabulary related to the subject area to effectively communicate their ideas and instructions within their group, which includes classmates and teachers. Moving on to Key Stage 3, learners utilize specialized language, such as laboratory or shop jargon, during discussions and practical work.

Hard Skills are specific abilities, capabilities, and skill sets that the learner can possess and demonstrate in a measured manner. These learnable skills enable them to perform a task required for a specific job. This includes, operating tools, machine and equipment, observing occupational safety and health, computer skills, technical skills, entrepreneurial skills.

Operating tools, machines, equipment and paraphernalia
Learners demonstrate responsible behavior when handling both hand and power tools, operating simple machines, and utilizing equipment appropriately.

Occupational Safety and Health (OSH)
Learners demonstrate the practice of ensuring their own safety, as well as the safety of others, while performing tasks in a typical workplace setting.

Computer Skills
Learners possess the capability to utilize computers and associated technologies, such as software processing, internet browsing, file management, and presentation creation, among others.

Entrepreneurial Skills
Learners develop a range of valuable skills in the learning area, including customer service, financial management, strategic planning, and general business skills. These skills are not only applicable within the learning environment but also have practical applications in real-world scenarios. By acquiring these competencies, learners are equipped with the necessary tools to excel in various professional settings.

Technical skills
Learners are equipped with the specialized knowledge and expertise required to excel in a specific working environment. These skills adhere to the standards observed in a particular industry.

Life-long Learning Skills are the concept of pursuing additional education and the development of further skills beyond an individual's formal or compulsory education.

G. Social issues and Government thrusts

The EPP/TLE learning area contributes to the different Social Issues and Government Thrust that are applicable in the real-life situations.

1. Comprehensive Sexuality Education
2. Disaster Risk Reduction and Management
3. Education for Sustainable Development
4. Environmental Awareness, Protection, and Conservation
5. Green Economy

H. Pedagogy and Assessment

Pedagogical approaches

Educators today are tasked with developing lifelong learners who can survive and thrive in a global knowledge economy – learners who have the capability to apply skills and competencies effectively and creatively to new situations in an ever-changing, complex world (The World Bank, 2003; Kuit & Fell, 2010). The different learning delivery modalities have emerged through the advent of technologies. With the existing condition of educational system nowadays, there are no barriers to knowing, and the skills required to be an effective learner today have changed dramatically, it is in this state that the heutagogy approach emerged through the advent of technologies. With the existing condition of educational system nowadays, there are no barriers to knowing, and the skills required to be an effective learner today have changed dramatically, it is in this state that the heutagogy approach emerged. According to Stewart Hase, heutagogy is an education approach that fosters learner agency: the confident, lifelong ability to take control of one's learning. It promotes capabilities such as collaboration, assessing information, understanding local and global contexts, creative problem solving, challenging assumptions, reflection, and personal responsibility.

According to Stewart Hase, heutagogy is an education approach that fosters learner agency: the confident, lifelong ability to take control of one's learning. It promotes capabilities such as collaboration, assessing information, understanding local and global contexts, creative problem solving, challenging assumptions, reflection, and personal responsibility. It is also a pedagogical approach that could be applied to emerging technologies in distance education, as well as serve as a framework for digital-age teaching and learning (Anderson, 2010, p. 33; Wheeler, 2011). Such a shift requires change within distance education environments as distance education teaching methods support self-directed learning and the teacher role is already one of guide-on-the-side in facilitating teaching and learning. By design, the heutagogical approach facilitates students working together to share knowledge and reflect on their progress.

ASSESSMENT

Assessment is conducted through a) classroom-based assessment or b) systems assessments which may be national or international. Classroom-based assessment is composed of formative and summative assessments administered by teachers in their classrooms. National Assessment is a large-scale assessment that is administered to learners at a specific time as prescribed by the DO. 55s. Of 2016.

For the EPP/TLE Grades 4 to 10, only classroom-based assessment is being conducted and for TVL, learners may obtain National Certification Assessment conducted by TESDA based on the Qualification/Specialization that they have completed after Senior high school.

Assessment Component

Assessment is a process to determine a learner's achievement of expected learning outcomes including a range of written/oral methods and practical demonstration. (TVET Glossary TVET Sector Support Program, GIZ, October 2019)

Competency Assessment, as used in TESDA, is the term that refers to the process of collecting evidence and making judgments on whether competency has been achieved. (Implementing Guidelines on PTQCS)

Competency-Based Assessment is the process of gathering and interpreting evidence to make a judgment about a learner's achievement against the required competencies in a qualification or part qualification. (TVET Glossary TVET Sector Support Program, GIZ, October 2019)

 Methods of Competency-Based Assessment

● Skill Demonstration and Observation with oral Questions
● Indirect Observation in the workplace
● Product / Project based assessment
● Portfolio Assessment
● Simulation
● Self – Assessment
● Written Report
● Assignment

II. Learning Area Standards

A. Key Stage Standards

The Key Stage Standards describe the terminal goals that a learner is expected to master at the end of every key stage from grades 4 to 10. Skills progress in every component while focusing on a specific sector.

Key Stage 2 (Grades 4-6)	Key Stage 3 (Grades 7-10)
In this stage, the learners are expected to demonstrate the acquired basic home knowledge and skills in the four components of the learning area.	In this stage, the learners are expected to demonstrate the acquired common industry skills that were introduced in the different specializations focusing on the use of tools and equipment, mensuration, interpretation of drawings and plans, observance of occupational safety and health, career, and business opportunities. For Grades 9 and 10, learners are expected to demonstrate technical skills of the different sectors.

B. Grade Level Standards

Grade Level	Standards
4	*Naipakikita ng mga mag-aaral ang pagkaunawa sa mga pangunahing kaalaman, kasanayan, pagpapahala, at saloobin sa Information and Communications Technology (nakapagsasagawa ng mga pangunahing pagpapatakbo ng computer at paggamit ng mga kagamitan sa pagiging produktibo), Agrikultura (pag-aalaga ng mga halamang pampalamuti, gulay, at mga namumungang puno), Family and Consumer Science (pagpapanatili ng kaayusan ng tahanan) at Industrial Arts (pagre- recycle ng mga pinaggamitan at/o pinagputulan), na nagbibigay kakayahan upang mapabuti nila ang pansarili, pampamilya, at pampamayanang kalagayang pang-ekonomiya.*

Grade Level	Standards
5	*Naipapakita ng mga mag-aaral ang pagkaunawa sa mga pangunahing kaalaman, kasanayan, pagpapahalaga, at saloobin sa Information and Communications Technology (desktop publishing, electronic mailing, internet navigating, at online conferencing), Agrikultura (pag-aalaga ng Poultry Animals), Family and Consumer Science (pagkukumpuni at pagtatahi ng mga pambahay na linen), at Industrial Arts (pagpapahusay sa mga recycled, pinaggamitan, at/o pinagputulang sangkap at pangunahing pagpapanatili ng mga muwebles at kagamitang de-kuryente sa loob ng bahay) na nagbibigay kakayahan upang mapabuti nila ang pansarili, pampamilya, at pampamayanang kalagayang pang-ekonomiya.*
6	The learner demonstrates an understanding of the basic knowledge, skills, values, and attitudes in Information and Communications Technology (multimedia editing and basic coding), Fishery-Arts (fish-growing), Family and Consumer Science (food preservation & processing), and Industrial Arts (making simple projects out of materials available locally) towards improving oneself, family's, and community's economic life.
7 and 8	The learner demonstrates knowledge and skills of the basic and common competencies in the TLE Exploratory in the components of Information and Communications Technology, Agriculture and Fishery Arts, Family and Consumer Science, and Industrial Arts intensified integration of entrepreneurship.
9 or 10	The learner demonstrates knowledge and skills of selected core competencies from different sectors in the TVL specializations with intensified integration of entrepreneurship.

III EDUKASYONG PANTAHANAN AT PANGKABUHAYAN (EPP)/ TECHNOLOGY AND LIVELIHOOD EDUCATION (TLE)

EDUKASYONG PANTAHANAN AT PANGKABUHAYAN (EPP)
GRADE 4

QUARTER I - INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT)

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay...	LEARNING COMPETENCIES Ang mga mag-aaral ay...

Introduction to Computer
 	
● Kahalagahan ng *computer* at *computing devices*
 	
● Mga bahagi ng *Computer System*
 	
● *Basic Computer Operations*
 	
  - *Booting and shutting down computer*
 	
  - *Keyboarding Techniques*
 	
  - *Mouse Techniques*
	naipamamalas ang pag-unawa sa kahalagahan**,** bahagi, at *basic operation* ng *computer*	1. naipaliliwanag ang kahalagahan ng computer at iba pang computing device
		
		2. natatalakay ang mga bahagi at gamit ng computer at peripherals nito natatalakay ang basic computer operations
		
		3. natatalakay ang *basic computer operations*

Digital Citizenship ● *Digital health and wellness* ● *Online security and safety*	naipamamalas ang pag-unawa sa *digital health and wellness* at *online security and safety*	4. natatalakay ang wastong posisyon, layo, at oras sa paggamit ng computer at iba pang *computing devices* 5. naipaliliwanag ang mga panuntunang pangkaligtasan sa paggamit ng Internet
Word Processing Software ● *User Interface* ● *Page Size, Orientation, and Margin* ● *Font Type, Style, Size, and Color* ● *Text Alignment*	naipamamalas ang pag-unawa sa paggamit ng *productivity software*	6. nakagagawa ng *word document*

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay...	LEARNING COMPETENCIES Ang mga mag-aaral ay...
Presentation Software ● *User Interface* ● *Page Design/Theme* ● *Inserting and formatting textbox, WordArt, shapes and images*		7. nakagagawa ng *presentation document*
Desktop Publishing Software ● *User Interface* ● *Templates* ● *Inserting and formatting Textbox, WordArt, shapes, and images*		8. nakagagawa ng *desktop publishing document*
Spreadsheet Software ● *User Interface* ● *Borders* ● *Basic Formula (MDAS)*		9. nakagagawa ng spreadsheet document
PERFORMANCE STANDARD	Ang mga mag-aaral ay nakagagawa ng iba't ibang dokumento gamit ang *computing devices at productivity tools*	
Introduction to block coding ● *Algorithm* ● *basic process flowchart*	naipamamalas ang pag-unawa sa *algorithm* at *basic process flowchart*	10. nakagagawa ng *algorithm* para sa mga gawaing pang-araw-araw 11. nakagagawa ng *basic process flow chart* para sa mga gawaing pang-araw-araw
PERFORMANCE STANDARD	Ang mga mag-aaral ay nakagagawa ng algorithm at basic process flow chart bilang bahagi ng block coding	

QUARTER II - AGRICULTURE AND FISHERY ARTS (AFA)

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…

Agrikultura, mga sangay nito sa paghahalaman at pamamaraan ng pagtatanim
• Kahulugan ng Agrikultura
• Mga sangay ng Agrikultura sa paghahalaman
    • *Agronomy*
    • *Horticulture*
    • *Forestry*
 	
Pamamaraan ng pagtatanim ng halaman
• Pagkakaiba ng natural na pagtatanim at organikong pagtatanim
    • *Intercropping*
    • *Contour farming*
    • *Multiple cropping*, atbp
 	
• Alternatibong paraan ng paghahalaman
    • *urban gardening*
    • *containerized*
    • *vertical gardening*
    • *dish gardening*
    • *hydroponics*
    • *aquaponics*
    • *aeroponics*
	naipamamalas ang pang-unawa sa natural na pamamaraan nang pagtatanim, pangangalaga, pagpaparami, pag-aani, at pagbebenta ng halamang ornamental, gulay, at punong-prutas	1 natatalakay ang kahulugan ng agrikultura, mga sangay nito sa paghahalaman
		
		2 natatalakay ang mga pamamaraan ng pagtatanim ng halaman
		
		3 nakikilala ang iba't ibang alternatibong paraan ng paghahalaman

Kahalagahan ng Paghahalaman • Kahalagahan at kabutihang-dulot ng paghahalaman sa tao • mabuting libangan (*stress reliever)*		4. natatalakay ang mga kahalagahan at kabutihang dulot ng paghahalaman sa tao, hayop, at kalikasan o kapaligiran

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…

• panlunas sa iba't ibang sakit (*medicinal value)*
• napagkakakitaan
• nakapagbibigay ng sariwang hangin, tubig, at pagkain
 	
• Kahalagahan at kabutihang-dulot ng paghahalaman sa hayop
  • nakakapagbigay ng sariwang hangin, tubig, at pagkain
 	
• Kahalagahan at kabutihang-dulot ng paghahalaman sa kalikasan o kapaligiran
  • nakapipigil sa baha at pagguho ng lupa
  • naiiwasan ang polusyon
  • nagbibigay ng lilim at sariwang hangin
  • nagpapaganda ng kapaligiran		

Mga batas, lokal na ordinansa, ahensya ng gobyerno at mga non-government organization (NGOs) na tumutulong at serbisyong kanilang naibibigay ukol sa paghahalaman
 	
• Mga piling batas at lokal na ordinansa ukol sa paghahalaman
  • *National Law-RA 10068*
  • *Organic Agriculture Act of*
    ○ *2010*
  • *Ecological Solid Waste Management Act*
  • *Local Ordinances sa* komunidad
		5. natatalakay ang mga batas, lokal na ordinansa, ahensya ng gobyerno at mga non-government organization (NGOs), at serbisyong kanilang naibibigay ukol sa paghahalaman

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…

• Mga ahensiya at organisasyong tumutulong sa paghahalaman at mga serbisyong kanilang ibinibigay
  • *Department of Agriculture (DA)*
  • *Department of Environment and Natural Resources (DENR)*
  • *Department of Trade and Industry (DTI)*
  • *Department of Labor and Employment (DOLE)*
  • *Department of Science and Technology (DOST)*
  • *Technical Education and Skills Development Authority (TESDA)*
 	
• Mga Non-Government Organization
  • *Food and Agriculture Organization (FAO)*
  • *Agricultural Training Institute (ATI)*		

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…

Mga taong matagumpay sa paghahalaman at ang mga katangian na taglay nila
• Mga taong kilala sa larangan ng paghahalaman
  • Patricio Base (Alicia, Isabela, pakwan, *honeydew*, at papaya)
  • Edith Dacuycuy (Ilocos Norte, Refmad *Farms Dragon Fruit*)
  • Jose Mercado (Lipa, Batangas, *Merlo Agricultural Corporation Coffee bean*)
  • Arsenio Barcelona (Manila, *Harbest Agricultural Corp*)
  • Paris Uy (Live Green Metro Manila International Organic Vegetable)
  • Senen Bacani (La Fuerta Inc) Mindanao, atbp
 	
• Mga katangian na maaaring taglayin ng mga taong matagumpay sa paghahalaman
  • masipag
  • maparaan
  • masigasig
  • matiyaga
  • may dedikasyon
  • malakas ang loob
  • may kakayahan sa pagpapalano
		6. nakikilala ang mga taong naging matagumpay sa paghahalaman sa komunidad at ang mga katangiang kanilang taglay

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…

Compost, organikong pataba at natural na pestisidyo
 	
• Paggawa ng compost
   • paraan sa paggawa ng *compost*
   • Mga nilalaman ng *compost*
   • Katangian ng magandang *compost*
   • *vermicomposting*
 	
• *Organic concoctions and extracts o organikong pataba*
   • *(Hal: FFJ, FPJ, FAA, BOKASHI,*
   • Paggawa ng natural pestisidyo
   • *Oriental Herbal Nutrients 1 (OHN)*
      ○ white vinegar, bawang, *molasses*
 	
   • *Oriental Herbal Nutrients 2 (OHN)*
      ○ luya, sibuyas, bawang, molasses, sili
 	
   • *Neem tree oil*
		7. nakagagawa ng *compost*, organikong pataba, at natural na pestisidyo na magagamit sa paghahanda ng lupa at pangangalaga ng mga pananim

Mga salik na dapat isaalang-alang sa paghahalaman • Mga panuntunang pangkaligtasan at pangkalusugan sa paghahalaman • Kagamitan at kasangkapan sa paghahalaman at paraan ng pag-iingat sa mga ito • Mga halamang maaaring itanim na matatagpuan sa pamayanan • Mga salik na dapat isaalang-alang sa paghahalaman		8. natatalakay ang mga salik na dapat isaalang-alang sa paghahalaman

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
• lugar • uri ng lupa • uri ng halamang itatanim • *partial shade, full sun o* sikat ng araw • suplay ng tubig • pataba • panahon/kalendaryo ng pagtatanim • pagtatala ng gastos at iba pang kakailanganin sa paghahalaman		

Pagtatanim ng halaman sa natural na pamamaraan
 	
• Pagpili ng halamang maaaring itanim na matatagpuan sa komunidad
  • halamang ornamental
    o Hal san franciso, bougainvillea, cactus, rose, at santan
  • halamang-gulay
    o talong, kamatis, sili, kalabasa, kamote, kangkong, okra, pipino, pechay
  • punong-prutas
    o manga, santol, rambutan
 	
• Paraan ng pagtatanim ng halaman (tuwiran at di-tuwiran)
 	
• Paggamit ng mga kagamitan at kasangkapan nang may pag-iingat
		9. naisasagawa ang pagtatanim ng piniling halaman sa natural na pamamaraan nang may pag-iingat

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…

• Mga hakbang sa pagtatanim ng halaman sa natural na pamamaraan:
  • gumawa ng plano o *layout* ng lupang pagtataniman
  • suriin at linisin ang lugar na pagtataniman
  • bungkalin ang lupa gamit ang asarol at piko
  • haluan ng organikong pataba ang lupa
  • patagin ang lupang taniman gamit ang kalaykay
  • simulan ang pagtatanim
  • diligan ang halamang itinanim
 	
• Pagtatanim ng halaman sa natural na pamamaraan		

Paraan ng Pangangalaga ng mga pananim • pagdidilig, pagbubungkal, paglalagay ng pataba, pagsugpo sa insekto, sakit, at peste ng halaman at pagsubaybay ng paglaki ng halaman, pagbubunot ng mga ligaw na damo, pagpapausok, paggamit ng baking soda, bawang, sili atbp		10. naipakikita ang mga paraan ng pangangalaga ng mga pananim (*pre-care, during, post- care*)
Pagpaparami ng halaman • Sekswal at asekswal na paraan ng pagpaparami ng halaman		11. naipakikita ang papagpaparami ng halaman sa paraang sekswal at asekswal

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
Paraan ng pag-aani, pag-iimbak at pangangalaga sa mga inaning tanim • Mga palatandaan o indikasyon na dapat isaalang-alang sa pag-aani • Mga paraan ng pag-aani • Iba't ibang paraan ng pag-iimbak at pangangalaga sa mga inaning tanim		12. natutukoy ang mga palatandaan o indikasyon na dapat isaalang alang sa pag-aani 13. naipakikita ang mga paraan ng pag-aani 14. naisasagawa ang mga paraan ng pag-aani, pag-iimbak, at pangangalaga ng inaning tanim
Pagbebenta ng mga inaning tanim • Mga paraang maaaring gamitin sa pagbebenta (*online* at tradisyunal na pamamaraan) • Pagbebenta ng mga inani sa paraang pakyawan, tingian, por kilo, tali, naka-paso at iba pa • Pagtutuos ng kinita at tubo gamit ang manwal na pagkukwenta o *electronic spreadsheet tool*		15. naisasagawa nang wasto ang pagbebenta ng mga inani 16. naisasagawa ang pagtutuos ng kinita at tubo gamit ang manwal na pagkukwenta o *electronic spreadsheet tool*
PERFORMANCE STANDARD	Ang mga mag-aaral ay naisasagawa ang natural na pamamaraan nang pagtatanim, pangangalaga, pagpaparami, pag-aani, at pagbebenta ng halamang ornamental, halamang-gulay, at punong-prutas	

QUARTER III - FAMILY AND CONSUMER SCIENCE (FCS)

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
Tungkulin sa Sarili ● Kahalagahan ng pag-aayos at pangangalaga sa sarili	naipamamalas ang pag-unawa sa kahalagahan ng pag-aayos, pangangalaga sa sarili, angkop na pagkilos at pananamit sa panahon ng pagdadalaga at pagbibinata	1. natutukoy ang mga pagbabagong pisikal sa sarili

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
		2. naipaliliwanag ang mga kagamitan at *consumables* at gamit nito sa pangangalaga ng sarili
		3 naisasagawa ang mga paraan sa pag-aayos at pangangalaga ng sarili
● Angkop na pagkilos sa panahon ng pagdadalaga at pagbibinata		4. naipakikita ang tamang pagkilos sa panahon ng pagdadalaga at pagbibinata
● Angkop na pananamit		5. nakapipili ng angkop na pananamit sa panahon ng pagdadalaga at pagbibinata
PERFORMANCE STANDARD	Ang mga mag-aaral ay naipapakita ang pag-aayos, pangangalaga sa sarili, angkop na pagkilos, at pananamit sa panahon ng pagdadalaga at pagbibinata	
Tungkuling Pantahanan ● Kagamitan sa pagsasaing	naipamamalas ang pag-unawa sa mga tungkuling pantaha	6. natutukoy ang mga kagamitan sa pagsasaing ng bigas (conventional at makabagong pamamaraan)
● Mga hakbang sa pagsasaing ● Mga panukalang pangkaligtasan at pangkalusugan		7 naisasagawa ang mga hakbang sa pagsasaing nang may pag-iingat
● Mga kagamitan at *consumable* sa paghuhugas ng pinaglutuan at pinagkainan		8. natutukoy ang mga kagamitan at *consumable* sa paghuhugas ng pinaglutuan at pinagkainan
● Mga hakbang sa paghuhugas ng pinaglutuan at pinagkainan ● Mga panukalang pangkaligtasan at pangkalusugan		9. naisasagawa ang mga hakbang sa paghuhugas ng pinaglutuan at pinagkainan nang may pag-iingat
● Kagamitan at *consumable* sa paglilinis ng tahanan		10. natutukoy ang mga kagamitan at *consumable* sa paglilinis ng tahanan
● Pagliligpit ng mga kagamitan at *consumables* sa paglilinis ng tahanan		11. naipaliliwanag ang mga pamamaraan ng pagliligpit ng mga kagamitan at *consumable* nang may pag-iingat

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
● Mga hakbang sa paglilinis ng silid-tulugan, sala, kusina at bakuran ● Mga panukalang pangkaligtasan at pangkalusugan		12. naisasagawa ang mga hakbang sa paglilinis ng tahanan at iba pang bahagi nito nang may pag-iingat
● Kagamitan at *consumables* sa paglalaba (*conventional* at makabagong pamamaraan)		13. natutukoy ang mga kagamitan at *consumables* sa paglalaba (*conventional* at makabagong pamamaraan)
● Mga hakbang sa paglalaba ● Mga panukalang pangkaligtasan at pangkalusugan		14. naisasagawa ang mga hakbang sa paglalaba nang may pag-iingat
● Kagamitan sa pamamalantsa (*conventional* at makabagong pamamaraan)		15. natutukoy kagamitan sa pamamalantsa (*conventional* at makabagong pamamaraan)
● Mga hakbang sa pamamalantsa ● Mga panukalang pangkaligtasan at pangkalusugan		16. naisasagawa ang mga hakbang sa pamamalantsa nang may pag-iingat at gabay ng nakatatanda
PERFORMANCE STANDARD	Ang mga mag-aaral ay naisasagawa ang mga gawaing pantahan nang may pag-iingat	

QUARTER IV - INDUSTRIAL ARTS (IA)

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
Kasangkapan at materyales sa pagguhit	naipamamalas ang mga kaalaman sa mga kasangkapan at materyales sa pagguhit	1. nakikilala ang mga kasangkapan at materyales sa pagguhit

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
Kasangkapan at materyales sa pagbuo ng proyekto • Panukat • Panggupit • Pambutas • Pangkulay • Pandikit	naipamamalas ang mga kaalaman sa mga kasangkapan at materyales sa pagbuo ng proyekto mula sa *recyclable materials*	2. nakikilala ang mga kasangkapan at materyales sa pagbuo ng proyekto
System of Measurement • Dalawang sistema ng pagsukat (*English at Metric System*) • Pagbasa ng gradwasyon • Unit conversion (*English* sa *metric* at *metric* sa *English*)	naipamamalas ang kaalaman sa pagsusukat	3. naisasagawa ang kasanayan sa pagsusukat
Free-hand Drawing • *Basic Sketching Techniques* • *Outlining* • *Shading*	naipamamalas ang pang-unawa sa *basic sketching, outlining, and shading*	4. naisasagawa ang hakbang sa pagguhit ng larawan gamit ang *basic sketching, outlining, and shading*
Lettering Styles • Iba't ibang *lettering styles* • Hakbang sa pagsulat ng iba't ibang *lettering styles*	naipamamalas ang pang-unawa sa pagsulat ng letra gamit ang mga *lettering styles* at pagguhit ng *alphabet of lines*	5. naisusulat ang mga letra gamit ang lettering styles
Alphabet of lines • Iba't ibang *alphabet of lines* • Hakbang sa pagguhit ng *Alphabet of lines*		6. naiguguhit ang alphabet of lines
Orthographic Drawing • *Orthographic views* • Hakbang sa pagguhit ng *Orthographic Drawing*	naipamamalas ang pang-unawa sa *orthographic at isometric drawing*	7. nakikilala ang orthographic views 8. naisasagawa ang orthographic drawing

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
Isometric Drawing • Hakbang sa pagguhit ng *Isometric Drawing*		9. naisasagawa ang pagguhit ng isometric drawing
PERFORMANCE STANDARD	Ang mga mag-aaral ay naisasagawa ang pagguhit ng *free-hand drawing, orthographic*, at *isometric drawing*	
Recycling • Kahalagahan ng pagre-*recycle* • Materyales na maaaring i- *recycle*	naipamamalas ang pang-unawa sa pagre-*recycle* at pagtutuos ng nabuong proyekto	10. naipaliliwanag ang kahalagahan ng pagre-*recycle*
Pagbuo ng malikhaing proyekto mula sa *recyclable materials* • Hakbang sa pagkalap ng mga materyales • Paghahanda ng mga kasangkapan • Hakbang sa pagbuo ng proyekto		11. nakagagawa ng plano ng proyekto 12. nakabubuo ng *recycled project/s* nang may pag-iingat 13. natutuos ang gastos, presyo, at posibleng kita ng nabuong proyekto *manually* o gamit ang spreadsheet
PERFORMANCE STANDARD	Ang mga mag-aaral ay nakagagawa ng proyekto mula sa *recyclable materials* na maaring pagkakitaan	

EDUKASYONG PANTAHANAN AT PANGKABUHAYAN (EPP)
GRADE 5

QUARTER I - INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT)

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
Netiquette	naipapamalas ang pag-unawa sa mga panuntunan ng *netiquette*	1. natatalakay ang mga panuntunan ng netiquette sa paggamit ng Internet
Paggamit ng *web browser* at *search engine*	naipamamalas ang pag-unawa sa paggamit ng *web browser* at *search engine*	2. nakikilala ang mga uri ng web browser at mga bahagi nito
		3. nagagamit ang search engine sa ligtas at responsableng pamamaraan
E-Mail ● *e-mail interface* ● *attaching files* ● *sending email*	naipamamalas ang pag-unawa sa paggamit ng *E-Mail*	4. nakapagpapadala ng mensahe gamit ang *E-Mail* sa ligtas at responsableng pamamaraan
PERFORMANCE STANDARD	Ang mga mag-aaral ay naipapakita ang paggamit ng web browser, search engine, at *E-Mail* sa ligtas at responsableng pamamaraan	
Word Processing Software ● *Bullets and Numbering* ● *Inserting and formatting illustrations (shapes, images, smart art)* ● *inserting and formatting tables*	naipamamalas ang pag-unawa sa paggamit ng *productivity software*	5. nakagagawa ng word document na may *images, shapes, smartarts, tables at page background*
Presentation Software ● *animations* ● *transitions* ● *inserting and formatting audio and video*		6. nakagagawa ng slide presentation na may *animation, transition, audio, at video*

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay...	LEARNING COMPETENCIES Ang mga mag-aaral ay...
Desktop Publishing Software ● *page design* ● *layout borders and accents*		7. nakagagawa ng *desktop publishing document* gamit ang *page design, layout, at building block*

Spreadsheet Software
 	
● *Basic Functions*
  - *SUM*
  - *AVERAGE*
  - *MIN*
  - *MAX*
  - *COUNT*
		8. nakagagawa ng *spreadsheet* na may *basic functions*

PERFORMANCE STANDARD	Ang mga mag-aaral ay nakagagawa ng iba't ibang dokumento gamit ang *productivity tools*	

Block Coding
 	
● *User interface*
● Iba't ibang uri ng *block codes*
  - *events block codes*
  - *motion block codes*
  - *sound block codes*
  - *looks block codes*
  - *Backdrops*
	naipamamalas ang pang-unawa sa paggamit ng *block codes*	9. nakikila ang *user interface* ng *Block Coding*
		
		10. nagagamit ang *events, motion, sound, looks, at backdrops block codes*

PERFORMANCE STANDARD	Ang mga mag-aaral ay nakagagawa ng *animations* o *games* gamit ang *block coding*	

QUARTER II - AGRICULTURE AND FISHERY ARTS (AFA)

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay...	LEARNING COMPETENCIES Ang mga mag-aaral ay...

Kahulugan ng *animal production* at mga sangay nito
● *Poultry Animals*
● *Livestock Animals*
  ● *Swine*
  ● *Small Ruminants*
	naipamamalas ang pang-unawa sa maingat na pangangalaga, pagpaparami, pag-aani, pag-iimbak at pagbebenta ng *poultry animals* sa masistemang pamamaraan bilang isang kapaki-pakinabang at mapagkakakitaang	1. natatalakay ang kahulugan ng *animal production* at mga sangay nito

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
Large Ruminants	gawain	

• Kahalagahan at kabutihang dulot ng pag-aalaga ng *poultry animals* sa natural na pamamaraan
• Kahalagahan sa pag-aalaga ng *poultry animals*
    • Karagdang Kita
    • Hanapbuhay
    • Pagkain
 	
• Kabutihang dulot ng pag-aalaga ng *poultry animals* sa mga tao
• Nakapaghuhubog ng kagandahang asal (kasipagan, masigasig, at pagkamalikhain)
• Libangan
• Kabutihang dulot ng pag-aalaga ng poultry animals sa kapaligiran/kalikasan
Pinagkukunan ng natural na pataba
		2. natatalakay ang kahalagahan at kabutihang dulot sa pag-aalaga ng *poultry animals* sa natural na pamamaraan

Mga piling batas, lokal na ordinansa, at mga ahensya ng gobyerno at *non-government organization* (NGOs) sa pag-aalaga ng *poultry animals*
• mga piling batas
    • *Organic Agriculture Act 2010*
    • *Portion from RA 10068*
    • *Local Ordinances*
• Mga ahensya ng gobyerno at *non-government organization* (NGOs), serbisyong kanilang naibibigay sa pag-aalaga ng *poultry animals*
    • *Department of Agriculture (DA)*
    • *Bureau of Animal Industry (BAI-DA)*
    • *National Swine and Poultry Research and Development Center (NSPRDC)*
    • *Veterenarian Office*
		3. naipaliliwanag ang mga piling batas, lokal na ordinansa, at mga ahensya ng gobyerno at *non-government organization* (NGOs), at serbisyong naibibigay sa pag-aalaga ng *poultry animals*

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
• *Department of Environment and Natural Resources (DENR)* • *Department of Trade and Industry (DTI)* • *Department of Labor and Employment (DOLE)* • *Department of Science and Technology (DOST)* • *Technical Education and Skills Development Authority (TESDA)* • *Food and Agriculture Organization (FAO)*		
Mga taong nagtagumpay sa pag-alaga ng *poultry animals* at ang mga katangiang taglay nila • Mga tao sa pamayanan/sa buong bansa na naging matagumpay sa pag aalaga ng poultry animals • *Leo Aldueza	San Jose Batangas	manok at itlog* • *Albert Dwight Tamayo	Masbate	poultry layer farming* • *Chito Suarez	Trinidad Bohol	balut at sisiw supplier* • *Former Secretary Emmanuel Pinol	Bukidnon	native chicken* • *Leo Sungkip	Davao City	itik at pato* • Mga katangian na dapat taglayin upang maging matagumpay sa pag-aalaga ng *poultry animals* • *malakas ang loob* • *masipag* • *matapat* • *masigasig* • *mapamaraan* • *matatag* *determinado*		4. nakikilala ang mga tao sa pamayanan/buong bansa na nagtagumpay sa pag-alaga ng *poultry animals* at ang mga katangiang taglay nila

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…

Mga salik na dapat isaalang-alang sa sa pag-aalaga ng *poultry animals* sa natural na paraan
• kaalaman at kakayahan ng mag-aalaga ng poultry animals
• pagpili ng lugar na pag-aalagaan
• target market o client
• selection o pagpili ng magandang uri at culling o pagpili ng mababang uri
• mga kagamitan at kasangkapan sa pag-aalaga ng poultry animals at paggamit nito
• mga hakbang sa natural na pag-aalaga ng poultry animals
   • *free range o pagala*
   • *intensive o nasa kulungan*
combination ng free range at intensive
		5. natatalakay ang mga salik na dapat isaalang-alang sa sa pag-aalaga ng *poultry animals* sa natural na paraan

Mga karaniwang uri at lahi ng *poultry animals* na makikita sa pamayanan na maaaring alagaan • pugo • manok • pato/itik/bibe • pabo gansa		6. natatalakay ang mga karaniwang uri at lahi ng *poultry animals* na makikita sa pamayanan na maaaring alagaan
Mga karaniwang sakit, sanhi, palatandaan, pamaraan sa pag iwas at panlunas sa mga sakit ng *poultry animals* • *Avian Flu* • *Pneumonia* • *Fowl pox* • *Enteritis* • *Pullorosis* paghahanda ng natural na gamot o medisina bilang panlunas sa karaniwang sakit		7. natatalakay ang mga karaniwang sakit, sanhi, palatandaan, pamaraan sa pag iwas at panlunas sa mga sakit ng *poultry animals*

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…

Pag-aalaga at pangangasiwa ng *poultry animals* sa natural na pamamaraan
 	
• pabahay at pasilidad
• iba't ibang uri ng pabahay
• iba't ibang pasilidad
  • *stock density*
  • pagalaan
  • pastulan
• uri ng pagkain (*grains and forage*)
• pamamaraan ng pagpapakain
• mga posibleng panganib sa pag-aalaga
• bitamina
• pagsugpo sa sakit ng *poultry animals*
waste management
		8. naisasagawa *ang* pag-aalaga at pangangasiwa ng *poultry animals* sa natural na pamamaraan

Pag-aani ng alagang *poultry animals* at mga produkto nito
 	
• batayan ng mga   aanihing alagang *poultry animals (broilers)*
  • edad o gulang
  • sukat
  • timbang
• paghuli ng alagang *poultry animals*
• *grading o sorting* ng mga itlog
paraan ng pag-iimbak ng *poultry animals* at produkto nito
		9. natatalakay ang pag-aani ng alagang *poultry animals* at mga produkto nito

Pagbebenta ng inaning *poultry animals* at produkto nito
 	
• mga paraan na maaaring gamitin sa pagbebenta ng alagang *poultry animals*
• dami ng ibebenta
  • tingian
  • maramihan
• *advertisement*
  • *flyers/brochures*
		10. nakapagbebenta ng mga inaning *poultry animals* at produkto nito

45

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…

• *online*
• *modality*
  • *online (live) selling*
  • *direct selling*
Pagtutuos ng kita mula sa napagbentahan/ kabuuang benta, kabuuang gastos, at tubo o kita gamit ang *manual* na pagtutuos o *productivity tools*		

PERFORMANCE STANDARD	Ang mga mag-aaral ay naisasagawa ang maingat na pangangalaga, pagpaparami, pag-aani, pag-iimbak at pagbebenta ng *poultry animals* sa masistemang pamamaraan bilang isang kapaki-pakinabang at mapagkakakitaang gawain	

QUARTER III – FAMILY AND CONSUMER SCIENCE (FCS)

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
Pananahi ● Kahalagahan ng pananahi ● Kagamitan sa pananahi ● Pangkalusugan at pangkaligtasang gawi sa pananahi	naipapamalas ang pag-unawa sa mga panuntunan ng *netiquette*	1. natatalakay ang kahalagahan ng pananahi 2. nakikilala ang iba't ibang kagamitan sa pananahi
Mga *Basic Hand Stitch*		3. naisasagawa ang mga basic hand stitch nang may pag-iingat
Paraan ng Pagkumpuni ng Payak na Sira ng Kasuotan ● Paglililip ● Pagsusulsi ● Pagtatagpi		4. natutukoy ang mga payak na sira ng kasuotan 5. naisasagawa ang angkop na pagkukumpuni ng mga simpleng sira ng kasuotan gamit ang *basic hand stitch* nang may pag-iingat
Pananahi Gamit ang Makina		6. natutukoy ang mga bahagi ng makina at wastong gamit nito

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
• Kahalagahan ng Paggamit ng Makina • Uri ng makina sa pananahi • Mga bahagi ng makina • Pangangalaga ng makina • Paraan ng paggamit ng makina (paglalagay ng sinulid sa karayom, paglalagay ng sinulid sa bobina, pagpapaandar ng makina) Mga Kagamitan Pambahay (*coaster, hand towel, potholder*, at iba pa) Pangkalusugan at pangkaligtasang gawi sa pananahi		7. natutukoy ang mga materyales sa pagbuo ng mga kagamitang pambahay
		8. natatalakay ang mga solusyon sa mga karaniwang suliraning nararanasan sa pananahi gamit ang makina
		9. nasusunod ang mga hakbang sa paggamit ng makina
		10. nakagagawa ng simpleng kagamitang pambahay gamit ang makina nang may pag-iingat
PERFORMANCE STANDARD	Ang mga mag-aaral ay naisasagawa ang kasanayan sa pananahi gamit ang kamay at makina	
Embroidery Stitches • Pagpapakilala ng *embroidery stitches* • Kahalagahan ng pagbuburda • Mga kagamitan sa *embroidery stitches* • Mga pamamaraan ng pagbuo ng *embroidery stitches* Pagbuo ng disenyo gamit ang *embroidery stitches*		11. natutukoy ang mga kagamitan sa *embroidery stitches*
		12. nasusunod ang mga wastong pamamaraan ng pagbuo ng *embroidery stitches*
Crochet Stitches • Pagpapakilala ng *crochet stitches* • Kahalagahan ng *crochet stitches*		13. natutukoy ang mga kagamitan sa *crochet stitches*
		14. nakagagawa ng *crochet stitches*

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
● Mga kagamitan na ginagamit sa *crochet stitches* ● Mga alituntunin sa paggawa ng *crochet stitches* ● Uri ng *crochet stitches* Mga pamamaraan ng pagbuo ng *crochet stitches*		15. naisasagawa ang pagbebenta ng kagamitang pambahay
PERFORMANCE STANDARD	Ang mga mag-aaral ay nailalapat ang *embroidery design* sa mga produkto o nakakabuo ng mga produktong gawa sa *crochet na maaring pagkakitaan*	

QUARTER IV – INDUSTRIAL ARTS (IA)

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
Mga karaniwang sira ng produktong yari sa kahoy, kawayan, metal, produktong de-kuryente, at iba pa	naipamamalas ang pang-unawa sa pagkukumpuni ng mga kagamitang may sira na yari sa kahoy, kawayan, metal, produktong de-kuryente, at iba pa	1. natatalakay ang mga karaniwang sira at pamamaraan ng pagkukumpuni ng mga produktong yari sa kahoy, kawayan, metal, produktong de-kuryente, at iba pa
Mga uri ng kasangakapan sa pagbuo at pagkukumpuni • measuring tools • cutting tools • driving tools • boring tools • holding tools • finishing tools Pamamaraan sa paggamit at pag-iingat ng mga kasangakapan sa pagkukumpuni		2. naipaliliwanag ang maingat na paggamit ng mga kasangkapan sa pagkukumpuni

CONTENT	CONTENT STANDARD Ang mga mag-aaral ay…	LEARNING COMPETENCIES Ang mga mag-aaral ay…
Mga materyales sa pagkukumpuni ng mga produktong yari sa kahoy, kawayan, metal, produktong de-kuryente, at iba pa		3. natutukoy ang mga uri ng materyales sa pagkukumpuni
Pangangalaga at pagsisinop ng kasangkapan at materyales sa pagkukumpuni		4. natutukoy ang wastong pangangalaga at pagsisinop ng kasangkapan at materyales sa pagkukumpuni
Hakbang sa pagkukumpuni ng kagamitang yari sa kahoy, kawayan nang may pag-iingat		5. pagkukumpuni ng mga kagamitang yari sa kahoy o kawayan nang may pag-iingat
Hakbang sa pagkukumpuni ng kagamitang yari sa metal nang may pag-iingat		6. pagkukumpuni ng mga kagamitang yari sa metal nang may pag-iingat
Hakbang sa pagkukumpuni ng kagamitang de-kuryente nang may pag-iingat		7. pagkukumpuni ng mga kagamitang de-kuryente nang may pag-iingat
PERFORMANCE STANDARD	Ang mga mag-aaral ay nakapagkukumpuni ng mga kagamitang may sira na yari sa kahoy, kawayan, metal, produktong de-kuryente, at iba pa	
Service cost Mga pamamaraan sa pagtutuos ng service cost	naipapamalas ang pang-unawa sa *service cost*	8. natutuos ang *service cost* sa inayos na kagamitan *manually* o gamit ang *spreadsheet*
PERFORMANCE STANDARD	Ang mga mag-aaral ay naisagagawa ang pagtutuos sa service cost *manually* o gamit ang *spreadsheet*	

TECHNOLOGY AND LIVELIHOOD EDUCATION (TLE)
GRADE 6

QUARTER I – INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Web conferencing ● different web conferencing tools ● web conferencing netiquette	demonstrate an understanding of utilizing web conferencing	1. perform web conferencing in a safe and responsible manner
Online form builder ● different online form builder applications/mobile apps ● steps in using online form builder applications/mobile apps	demonstrate an understanding of utilizing online form builders	2. use online forms builder in a safe and responsible manner
Cloud storage ● different cloud storage platforms ● cloud storage security ● uploading and sharing files	demonstrate an understanding of utilizing cloud storage	3. perform uploading and sharing of files in cloud storage in a safe and responsible manner
Word Processing Software ● Watermark ● Page Color ● Page Borders ● Page Number ● Headers and Footers	demonstrate an understanding of using productivity tools	4. create word documents with watermark, page color, page borders, page numbers, and header and footers
Presentation Software ● record toolbar	demonstrate an understanding of applying slide recording	5. perform slide recording
Desktop Publishing Software ● Master Page ● Background ● Guides	demonstrate an understanding of using productivity tools	6. create documents using desktop publishing

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
● Headers and Footers ● Page numbers		
Spreadsheet Software ● Charts ● Data Validation features ● Filtering ● Grouping ● Sorting	demonstrate an understanding of using productivity tools	7. create spreadsheets with charts and data validation features
PERFORMANCE STANDARD	The learners perform the utilization of online and productivity tools in a safe and responsible manner	
Block Coding ● Sensing block codes ● Operators block codes ● Variables block codes	demonstrate an understanding of using block codes	8. use block codes to create animations/games/digital story
PERFORMANCE STANDARD	The learners perform the utilization of block codes to create animations/games/digital story in a safe and responsible manner	

QUARTER II – AGRICULTURE AND FISHERY ARTS (AFA)

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Fishery Arts and its branches/fields • Fish culture • Fish capture • Fish processing	demonstrate an understanding of the basic concepts and principles of planning the natural way of raising, harvesting, and selling of fish as a source of food and income	1. discuss fishery arts and its branches/fields
Importance and benefits of fish raising Source of: • food • income • employment Benefits of fish raising: • values inculcation • health benefits • economic benefits		2. discuss the importance and benefits in fish raising
Legal basis and agencies that support fish raising • (Organic Agriculture Act of 2010 or Republic Act No 10068) • Government agencies and non-governmental organizations that support fish raising • Department of Agriculture • Bureau of Fisheries and Aquatic Resources councils • Department of Environment and Natural Resources		3. explain the legal basis and agencies in fish raising
Successful fish raisers in the community and their characteristics		4. discuss the successful fish raisers in the community and their characteristics

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Successful Fish Raisers in the Philippines • Robert Patines | tilapia | Cagayan Valley • Vicente B Lugagay | tilapia |Isabela • Jean Gonzales | milkfish |Pampanga • Joel Sims | catfish |Valenzuela • Mike Go | goldfish • Audie Lim | milkfish | Ozamis City Characteristics of fish raisers • determined • honest • innovative • industrious • risk-taker		

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Requirements for natural fish raising
• water supply
• method of fish raising
• fish culture management
• oxygen management
• stocking density
• salinity and temperature management
• kind of fish to raise
• knowledge and skills of fish raiser
• topography
• drainage
• sources of feeds/ feeding requirements
 	
Tools and equipment in fish raising
• Use and maintenance of tools and equipment
• Occupational
• Safety and Health (OSH)
• Alternative ways in fish raising
  • fish tank
  • ponds
  • aquarium
		5. discuss the requirements for natural fish raising

Anatomy of Fish • Types of mouths • Types of tail • Types of scales • Parts of gills • External and internal Parts		6. discuss the anatomy of fish

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Fish diseases
• Common fish diseases and their signs and symptoms(eg fin rot, mouth fungus, vibriosis, white spots)
• Classifications of the causes of fish diseases
  • biotic – presence of virus, bacteria, parasites, or algae,
  • abiotic – lack or excess of oxygen and salinity and water pollution
• Prevention and control of diseases
  • quality of pond or fish tank
  • maintaining clean and good quality of water
  • feeding the fish properly
  • stocking density
		7. discuss the diseases, causes, sign and symptoms, preventions, and control measures of fish diseases

Performing the procedures for natural fish raising • occupational Safety and Health (OSH) Procedures Basic steps in fish raising • preparing tools and equipment, pond/fish tank and materials • preparing pond/fish tanks • adding substrate and water for the pond/fish tank • acclimatizing fishes before stocking • stocking fishes to the pond/fish tank • feeding fish • managing water and aerations		8. perform the procedure for natural fish raising with safety precautions

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
• monitoring the growth of fishes		
Harvesting fishes • characteristics of harvestable fish • methods of harvesting fishes • recording of harvested fishes		9. perform harvesting fishes with safety precautions

Selling of Fishes
• marketable quality of fishes
• types of selling strategies
  • online
  • offline
• types of selling
  • wholesale
  • retail
• recording of income and expenses from fish raising using spreadsheet and/or productivity tools
		10. perform selling of fishes with safety precautions

PERFORMANCE STANDARD	The learners perform the natural way of raising, harvesting, and selling of fish following safety precautions	

QUARTER III – FAMILY AND CONSUMER SCIENCE (FCS)

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Family resources ● Needs and wants ● Family budget ● Simple family budget	demonstrate an understanding of a simple family budget plan in managing family resources	1. identify the different family resources 2. discuss needs and wants 3. prepare a simple family budget plan

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Food preparation • Basic cooking terms ● Meal planning o Principles of meal planning ● Importance of food hygiene, safety and sanitation preparing meals	demonstrate an understanding of the food preparation	4. create a meal plan
● Kitchen waste o food waste o non-food waste • Kitchen waste disposal		5. discuss kitchen waste disposal
● Basic home kitchen tools and equipment o cutting tools o measuring tools o hand tools o pans and pots o equipment • Proper Care and Maintenance		6. familiarize themselves with basic home kitchen tools and equipment
● Measuring techniques o dry ingredients o liquid ingredients		7. demonstrate measuring techniques with safety precautions
● Basic Cutting techniques o dice o mince o slice o julienne		8. demonstrate cutting techniques with safety precautions

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
Cooking Methods ● Dry heat ● Moist heat		9. perform the method/s of cooking in preparing a simple meal with safety precautions
PERFORMANCE STANDARD	The learners prepare simple meals following kitchen operations with safety precautions	

Food preservation
● Importance of food preservation
● Basic method
   o salting
   o sugar-concentration
   o pickling
   o drying
● Types of packaging and labeling
	demonstrate an understanding of the food preservation and food processing	10. perform food preservation with precautions
		
		11. sell preserved products

PERFORMANCE STANDARD	The learners preserve and sell products with safety precautions	

Quarter IV – INDUSTRIAL ARTS (IA)

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
Wood/bamboo works ● Different wood/ bamboo joints ● Methods of wood/ bamboo finishing	demonstrate an understanding of the basic principles of making wood or bamboo works	1. perform wood/bamboo works with safety precautions

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Metal works
• different sheet metal joining processes
• methods of sheet metal finishing
• sheet metal works procedures
  • cutting
  • bending
  • forming
	demonstrate an understanding of the basic principles in performing sheet metal works	2. perform sheet metal works with safety precautions

Basic electrical works
• Types of current (direct current and alternating current)
• Parts of a simple circuit
• Splices and joints
 	
• Basic electrical skills
  • Wire splicing
  • Terminal connection
  • Basic installation, etc
	demonstrate an understanding of the basic principles of performing basic electrical works	3. perform basic electrical skills with safety precautions

PERFORMANCE STANDARD	The learners perform the basic competencies in wood or bamboo works, sheet metal works, and electrical works with safety precautions	
Product Development • Creation • Innovation • Improvement • Enhancement (Project may be made of wood/bamboo, metal, electrical, or a combination of the three materials)	demonstrate an understanding of product development and selling	4. create simple wood/bamboo, metal and/or electrical project with safety precaution 5. sell product

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
PERFORMANCE STANDARD	The learners develop and sell simple project with safety precautions	

TECHNOLOGY AND LIVELIHOOD EDUCATION (TLE)
GRADE 7

QUARTER I - INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Sectors of ICT and Its Career and Business Opportunities • computer programming - programmer/web and game developer • visual arts – animator/ illustrator/ graphic designer • computer system servicing – computer/ Network technician • telecommunication – call center agents/ outbound and inbound agents/ contact center services	demonstrate an understanding of ICT sectors, as well as the potential career and business opportunities these sectors offer in relation to their chosen career in the future	1. analyze the various sectors of ICT and evaluate the potential career and business prospects relevant to their future career choices
Trends and Issues in ICT	demonstrate an understanding of current trends and emerging issues in ICT	2. discuss the emerging trends and issues in ICT
Qualities of Successful Entrepreneurs in the Field of ICT	demonstrate an understanding of the qualities of successful Filipino entrepreneurs in the field of ICT	3. discuss the qualities of successful Filipino entrepreneurs in the field of ICT
Occupational Safety and Health (OHS) Standards in ICT • hazards and risks management • 5s (sort, standardize, set in order, shine, sustain) • safety regulations	demonstrate an understanding of the Occupational Safety and Health (OSH) standards in ICT environments	4. discuss Occupational Safety and Health (OSH) standards in ICT environments
Computer Number Systems • binary • octal • decimal	demonstrate an understanding of the computer number systems	5. differentiate the various computer number systems

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
● hexadecimal		
Conversion of Computer Number Systems ● binary ● octal ● decimal ● hexadecimal	demonstrate an understanding of conversion of computer number systems	6. apply conversion of computer number systems
PERFORMANCE STANDARD	The learners convert number systems in practical scenarios	
Word Processing Software ● page breaks ● auto tables of contents ● mail merge ● references	demonstrate an understanding of using productivity software	7. create MS Word documents with page breaks, auto tables of contents, mail merge, and references
Presentation Software ● rules in creating presentations ● master slide ● animation (motion path) ● animation pane ● hyperlink ● action buttons		8. create presentations with a master slide, motion paths, hyperlinks, and action buttons
Spreadsheet Software ● conditional formatting functions ● data analysis		9. create spreadsheets with conditional formatting and data analysis
PERFORMANCE STANDARD	The learners perform the utilization of productivity tools in a safe and responsible manner	

QUARTER II – AGRICULTURE AND FISHERY ARTS (AFA)

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Career Opportunities ● agriculturist ● farm technician ● farm owner Business Opportunities ● traders ● entrepreneurs	demonstrate an understanding of the concepts and skills in agri-crops and animal production	1. discuss career and business opportunities in agriculture
Agricultural Tools, Implements, and Equipment ● agricultural tools, implements, and equipment and their uses ● precautionary measures ● safety procedures in using tools and equipment		2. differentiate agricultural tools, implements, and equipment 3. identify different tools and equipment used in agriculture 4. discuss safety procedures in farm operations
Agricultural Hazards and Risks in Farm Operations		5. discuss hazards and risks in farm operations
Agricultural Practices in Crop Production ● site selection ● land preparation ● crop selection ● planting ● transplanting		6. perform agricultural practices in crop production
Care and Maintenance of Crops ● weeding and cultivating ● irrigation/water supply ● fertilizing ● mulching using organic materials		7. discuss care and maintenance of crops

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
● natural prevention and control of common pests and diseases (using natural farming/organic farming)		
Farm Waste Processing ● composting (basket composting) and fermentation (foliar fertilizer)		8. explain farm waste processing 9. perform basket composting and foliar fertilizer fermentation
Agricultural Practices in Harvesting Crops ● harvesting ● post-harvesting		10. discuss harvesting and post-harvesting practices
PERFORMANCE STANDARD	The learners perform agricultural practices in crop production based on industry standards	

Breeds of Farm Animals
● poultry animals
  ○ poultry chicken (layer and broiler)
  ○ quail
  ○ ducks
● livestock animals
  ○ swine
  ○ rabbit
  ○ small ruminants (dairy- and meat-type such as goat and sheep)
  ○ large ruminants (dairy- and meat type- such as cattle and buffalo)
	demonstrate an understanding of the concepts and skills in agri-crops and animal production	11. determine the breeds of farm animals

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Materials, Tools, and Equipment for Poultry and Livestock Animals		12. determine poultry and livestock materials, tools, and equipment and their uses based on industry standards
Housing Requirements for Poultry and Livestock Animals ● site selection ● types of housing ● design and layout		13. illustrate housing requirements for poultry and livestock based on industry standards
Feeding Management for Poultry and Livestock Animals ● types of feeds ● feed ingredients ● feed mensuration and calculation ● feeding frequency ● OSH in feeding operations		14 discuss feeding management according to the Philippine National Standard (PNS) for poultry and livestock animals
Farm Waste Management in Animal Production		15. discuss farm waste management in poultry and livestock production according to Republic Act No 9003 or the Ecological Solid Waste Management Act of 2000
Products and Byproducts of Poultry and Livestock Animals ● raw products ● processed products		16. identify products and byproducts of poultry and livestock production
PERFORMANCE STANDARD	The learners illustrate the housing requirements for poultry and livestock based on industry standards	

QUARTER III – FAMILY AND CONSUMER SCIENCE (FCS)

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
Fundamentals of Hospitality and Tourism Industry	demonstrate an understanding of the fundamentals of the hospitality and tourism industry	1. differentiate hospitality and tourism

Tourism
• kinds of tourists
• types and forms of tourism
   o based on the point of origin
   o based on the purpose of travel
		2. distinguish the types and forms of tourism and the kinds of tourists

Hospitality
• scope of hospitality industry
   o accommodation and lodging
   o travel services
   o food and beverage services
   o recreation and entertainment
   o clubs
   o conventions and events management
   o cruise
• types of accommodations and their characteristics
• hotel types and classification
		3. explain the scope of the hospitality industry

Career Opportunities in Hospitality and Tourism Industry		4. identify career and business opportunities in the hotel and tourism industry

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Issues, Challenges, Trends and Innovations in Hospitality and Tourism		5. examine the issues, challenges, trends, and innovations in the hospitality and tourism industry

Fundamentals of Food Preparation and Service
• different food service operations
   o commercial
   o institutional
• basic rules in food preparation and service
• kitchen layout
		6. discuss the fundamentals of food preparation and service

Seven Principles of Hazard Analysis Critical Control Point (HACCP)		7. recognize the seven principles of HACCP in food preparation and service
Tools and Equipment in Food Preparation • kitchen • food service • care and maintenance		8. identify the common tools and equipment used in food preparation and service industry 9. discuss the care and maintenance of tools and equipment used in food preparation and service industry
Table Napkin Fold • uses of table napkin • table napkin sizes • basic table napkin fold		10. demonstrate table napkin folds

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Food Selection, Preparation and Cooking • guidelines in food selection • guidelines in food preparation Principles of Cooking • heat transfer • effects of heat Kitchen Math • English and metric system		11. discuss the principles of food selections and preparation 12. convert units of measurement
PERFORMANCE STANDARD	The learners apply skills in food preparation and services following safety precautions	

QUARTER IV – INDUSTRIAL ARTS (IA)

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Services in Industrial Arts • construction services (woodwork, metal works, masonry, construction painting, plumbing, tile setting) • electrical-electronics services (electronics product assembly and services, electrical installation and maintenance, domestic refrigeration and air condition services) • automotive and small engine (automotive servicing, motorcycle/ small engine servicing)	demonstrate an understanding of the concepts in industrial arts services	1. discuss the services in industrial arts

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Career and Business Opportunities		2. determine career and business opportunities in industrial arts
Codes and Standards in Industrial Arts Services • National Building Code of the Philippines or Republic Act No 6451 (residential construction) • Philippine Electrical Code (residential wiring) • Philippine Electronics Code • traffic and road signs	demonstrate an understanding of the codes and standards in industrial arts services	3. discuss the codes and standards for industrial arts services

Hand Tools, Power Tools, Instruments, and Equipment Used in Industrial Arts Services
• power tools
  o hydraulic tools
  o pneumatic tools
• instruments (analog, digital, and computer-based)
  o measuring
  o calibrating
  o testing
• equipment and accessories
  o construction services
  o electro-mechanical services
  o electrical services
  o automotive and small engine services
 	
Preventive Maintenance
• handling
storing
	demonstrate an understanding of the uses and maintenance of hand tools, power tools, instruments, and equipment	4. identify the uses and maintenance of hand tools, power tools, instruments, and equipment

Scale Reading • volt-ohm-milliammeter		5. interpret the readings in different measuring instruments

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
• tachometer • oscilloscope • ampere meter	demonstrate an understanding of the concepts and principles in performing mensuration and calculations	
Mensuration and Calculations • linear measurement • ratio and proportion • Ohm's Law Power Law		6. demonstrate mensuration and calculations following safety precautions
PERFORMANCE STANDARD	The learners perform mensuration and calculations following safety precautions	

TECHNOLOGY AND LIVELIHOOD EDUCATION (TLE)
GRADE 8

QUARTER I - INFORMATION COMMUNICATIONS AND TECHNOLOGY (ICT)

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
ICT as a Tool in Online Marketing	demonstrate an understanding of ICT as a tool for online marketing	1. assess ICT as tools for online marketing
Digital Citizenship • Elements Digital Footprints and Identity	demonstrate an understanding of digital citizenship	2. discuss current events reflecting on their own digital citizenship
ICT-Related Legal Bases • Republic Act No 10844 Section 4, 5, and 6 (Establishment of DICT) • Republic Act No 10627 Section 2-D (Cyberbullying Act) • Republic Act No 10173 (Data Privacy Act of 2012) Chapter VIII Sec 26 Republic Act No 8293 (Intellectual Property Code of the Philippines) Chapter XVII Sec 216-217	demonstrate an understanding of ICT-related legal issues	3. distinguish ICT-related legal bases and their consequences
Tools and Equipment in ICT • computer programming • visual arts • computer system servicing • telecommunication	demonstrate an understanding of the tools and equipment in ICT	4. familiarize themselves with the tools and equipment in ICT
Software Applications • application software • system software	demonstrate an understanding of software applications	5. familiarize themselves with appropriate software applications for specific tasks

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Graphic Design Software ● software ● user interface ● setting page size and resolution ● types of graphics ● photo editing	demonstrate an understanding of graphic design tools	6. utilize graphic design tools for graphic production
Video Editing ● video editing applications ● user interface ● user experience ● trim ● crop ● adding text, effects, images, transitions, narration, and audio effects	demonstrate an understanding of video editing tools	7. utilize video editing tools with multimedia materials
PERFORMANCE STANDARD	The learners create videos with graphics design in a safe and responsible manner	

QUARTER II – AGRICULTURE AND FISHERY ARTS (AFA)

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Aquaculture and Fisheries ● brief background of aquaculture ● types of aquaculture systems	demonstrate an understanding of the concepts and skills in fisheries	1. discuss the background of aquaculture and its relation to fisheries

Career and Business Opportunities
● career opportunities
  o aqua culturist
  o fishery technician
  o fish farm caretaker
  o fish farm aide/worker
  o fishery facilities repair and maintenance worker
  o research officer
		2. discuss career and business opportunities related to fisheries

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

o fisheries resources protection
       group
    o fish wharf operator
 	
• business opportunities
    o fish farm owner (hatchery,
       nursery, and grow-out)
    o fish distributor/ supplier/
       handler/ trader		

Phases of Fish Culture
• fish cultivation
    o extensive
    o semi-intensive
    o intensive
• fish propagation
    o natural propagation
    o semi-natural propagation
    o artificial propagation
• fish conservation
    o importance of fish
       conservation
    o local endangered species
    o fish sanctuary
    o open and end season
		3. discuss the phases of fish culture

Classification of Fish According to their Habitat • marine fishes or open sea fishes • freshwater fishes or inland fishes • brackish water fishes or estuarine fishes		4. identify common fishes according to their habitat
Republic Act 10654 An act to prevent, deter and eliminate illegal, unreported, and unregulated fishing, amending Republic Act No 8550, otherwise known as "The Philippine Fisheries Code of 1998," and for other Purposes		5. familiarize themselves with sections of RA. 10654

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
• Sec 2 Application of Provision • Sec 105 Importation and Exportation of Fish and Fishery Products Aquaculture • Sec 107 Aquatic Pollution • Sec 112 Noncompliance with Good Aquaculture Practices Fish Capture • Sec 93 Use of Fine Mesh Net • Sec 94 Fishing and Overexploited Fishery Management Areas • Sec 102 Fishing or Taking the Rare, Threatened, or Endangered Species		
Species of Fish in the Philippines • significant rare • threatened • endangered • prohibited		6. discuss fish species in the Philippines

Occupational Hazards in Fisheries
• Occupational Safety and Health (OSH) hazards
  ○ ergonomic health
  ○ physical health
  ○ biological
  ○ psychosocial health
  ○ environmental
  ○ chemical
		7. discuss Occupational Safety and Health (OSH) hazards in fisheries

Advantages and Disadvantages of Organic Aquaculture		8. discuss advantages and disadvantages of organic aquaculture
Aquaculture Methods and Practices • open water system		9. identify different aquaculture methods and selected practices

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

• fishpond, cage, and pen system
  o area and depth requirement of aquaculture facilities
  o preparation of facility
  o water parameter
  o stocking of fish
  o feeding of fish
		10. determine the area and depth requirement of aquaculture facilities

Tools and Equipment Used in Aquaculture • water pump • laboratory thermometer • salinometer or refractometer • dissolved oxygen meter • pH meter • secchi disk		11. discuss the uses of tools and equipment in aquaculture

Fishing Gears Used for Catching Fish
• fish trap (salakab)
• scoop net
• seine net
• cast net
• hand diggers and collectors
• dredges
• spears
• stupefying aids
• hooks and lines
  o basic parts of hook and line
  o stationery entangling nets
  o stationary enclosures
  o mobile enclosing nets
		12. identify fishing gears used for catching fish
		
		13. create a simple hand line following safety precautions

Basic Fishing Bait Methods • traditional • modern		14. discuss basic fishing bait methods
Post-Harvest Handling Activities • sorting and grading o quality		15. discuss post-harvest handling activities

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
o size and weight • storing		16. perform sorting, grading, and storing of fishes following safety precautions
PERFORMANCE STANDARD	The learners perform the skills in fisheries following safety precautions	
Importance of Food Processing Career and Business Opportunities	demonstrate an understanding of the concepts and skills in food processing	17. discuss the importance of food processing 18. discuss opportunities for food processing as a career and as a business
Classifications of Ingredients Used in Food Processing • types of meat • fish and shellfish • fruits and vegetables		19. discuss different raw materials used in food processing
Ingredients Used for Food Processing • condiments • herbs and spices • food additives/ preservatives		20. explain the ingredients used for food processing
Different Methods of Food Processing Following the Industry Standard • sugar concentration • fermentation • pickling • salting • curing • smoking • drying • dehydration		21. discuss different methods in food processing following industry standards
Tools and Equipment in Food Processing • functions and uses of basic tools and equipment		22. discuss different tools and equipment, uses, and maintenance in food processing

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

• maintenance of specific food processing tools, and equipment
   o calibration
   o sanitation
   o storage		

Recipe Quantification and Standard Weight • percentage • ratio and proportion of ingredients		23. perform quantification procedures in processing food
Packaging and Labelling of Food Products ● Importance and Purpose of Food Packaging and Labeling ● Food Labelling Requirements and Guidelines		24 discuss different packaging materials used in food processing 25. develop sample label design for processed food products
PERFORMANCE STANDARD	The learners perform recipe quantification in food processing and develop label design for processed products	

QUARTER III – FAMILY AND CONSUMER SCIENCE (FCS)

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Introduction to Beauty Care and Wellness Services • concepts of beauty care and wellness services • structures of nail, skin, and hair	demonstrate an understanding of the concepts of beauty care and wellness services	1. discuss the concepts of beauty care and wellness services 2. identify the structures of nail, skin, and hair
Career and Business Opportunities		3. identify career and business opportunities in beauty care and wellness services

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Legal Basis (Republic Act No 7877) Sec 3 Work, Education or Training-related Sexual Harassment Defined		4. discuss the legal basis in beauty care and wellness services
Trends, Issues, and Challenges in Beauty Care and Wellness Services		5. identify trends, issues, and challenges in beauty care and wellness services
Tools, Implements, Materials, and Equipment • beauty care (nail, skin, hair) • wellness services (massage, reflexology, *hilot*) • sanitation and maintenance in the workplace, tools, implements, materials, and equipment		6. identify tools, implements, materials, and equipment in beauty care and wellness services 7. discuss sanitation and maintenance in the workplace, tools, implements, materials, and equipment
Occupational Safety and Health (OSH) Practices • personal protective equipment • hazards and risks		8. discuss the Occupational Safety and Health (OSH) practices in beauty care and wellness services
Hand Spa Services • nail trimming • hand scrub • hand massage		9. perform hand spa services following safety precautions
PERFORMANCE STANDARD	The learners perform hand spa services following safety precautions	

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Introduction to Garments • types of garments • trends and innovation • ergonomics	demonstrate an understanding of the principles of drafting patterns in making garments	10. discuss the concepts in making garments
Supplies and Materials Used for Making Garments • kinds of fabric • finishing materials		11. identify supplies and materials used for making garments
Principles in Making Garments • garment style and design • body measurement • qualities of well-finished garment products • pattern drafting		12. apply the principles of pattern drafting in making garments following safety precautions
PERFORMANCE STANDARD	The learners draft a pattern in making garments following safety precautions	
Introduction to Handicrafts • types of handicrafts • trends and innovation	demonstrate an understanding of the principles in making handicrafts	13. discuss the concepts in making handicrafts
Supplies and Materials Used for Making Handicrafts • craft materials		14. identify supplies and materials used for making handicrafts

Principles in Making Handicrafts
• handicrafts
   o style and design
   o product specification
• qualities of well-finished handicraft products
		15. apply the principles in making handicrafts following safety precautions

PERFORMANCE STANDARD	The learners apply principles in making handicrafts following safety precautions	

QUARTER IV – INDUSTRIAL ARTS

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Working Drawings and Signs and Symbols • construction services o blueprint / residential plan • electrical services • electronics services • automotive and small engine Schematic and Block Diagram • electrical and electronics engine	demonstrate an understanding of the signs and symbols of working drawings	1. explain signs and symbols for construction services, electrical services, electronics services, and automotive and small engine services
Types of Manuals • users and operator's manuals • service manuals • maintenance manuals	demonstrate an understanding of the types of manuals used in industrial arts services	2. discuss the types of manuals used in industrial arts services
Consumables • construction services (paint, electrode, cutting/grinding disc, teflon tape, sealant, cement, steel, gravel and sand, wood lumber, joint, and elbow) • electronics-electrical services (soldering lead, soldering paste, wire, and electrical tape) automotive and small engine (adhesive, sealant, coolant, lubricant, and gas)	demonstrate an understanding of the consumables and component parts in industrial arts services	3. discuss the consumables in industrial arts services

Component Parts
• construction services
   o residential structure
   o sewerage system
   o electrical wiring
   o water system (hot & cold water)
   o fixtures
• electrical-electronics services
		4. discuss the component parts of industrial arts services

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

o electrical circuit
    o electronics circuit
  ● automotive and small engine
    o engine
    o under chassis
    o electrical system
    o steering system
brake system		

Diagnostics and Troubleshooting in Industrial Arts Services
  ● construction services (woodwork, metal works, masonry, construction painting, plumbing, tile setting)
  ● electrical-electronics services (electronics product assembly and services, electrical installation and maintenance, domestic refrigeration and air condition services)
  ● automotive and small engine (automotive servicing, motorcycle/ small engine servicing)
Service Cost
  ● replacement material costing
manpower labor costing
	demonstrate an understanding of the concepts and principles in performing simple diagnostics and simple troubleshooting in industrial arts services	5. discuss simple diagnostics in industrial arts services
		
		6. perform simple troubleshooting in industrial arts services
		
		7. discuss repair service cost in industrial arts

PERFORMANCE STANDARD	The learners perform simple diagnostics and simple troubleshooting in industrial arts services	

TECHNOLOGY AND LIVELIHOOD EDUCATION
GRADE 9 or 10

COMPONENT: **INFORMATION AND COMMUNICATIONS TECHNOLOGY**
SECTOR: **COMPUTER PROGRAMMING**
DESCRIPTION: This is one of the sectors under the Information and Communications Technology (ICT) consisting of preliminary competencies in the specializations of Dot Net and JAVA This includes Hypertext Mark-up Language (HTML) and Cascading Style Sheets (CSS).

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Introduction to Computer Programming ● Current trends ● Business/ career opportunities ● Skills needed	demonstrate an understanding of the current trends, opportunities, computer ergonomics, and HTML elements	1. discuss the current trends, business/career opportunities, and skills needed in Computer Programming
Computer Ergonomics ● Health risks of working at computer ● Ergonomic Tips for Computer Users	demonstrate an understanding of the computer ergonomics in relation to health and risk hazards in the workplace	2. discuss computer ergonomics
Hypertext Markup Language (HTML) ● Structure ● Elements ● Attributes	demonstrate understanding of the Hypertext Mark-up Language structure and syntax	3. distinguish HTML structure, elements, and attributes
HTML Editor ● user interface ● features	demonstrate an understanding of the HTML document editors	4. utilize an HTML editor in creating HTML documents
HTML Heading, Paragraph, Styles and Formatting elements	demonstrate an understanding of the HTML heading, paragraph, styles, and formatting	5. apply heading, paragraph, styles and formatting elements in HTML document

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Multimedia elements ● Image, video, and audio	demonstrate an understanding of the multimedia elements in a webpage	6. embed multimedia elements in a webpage
HTML Lists ● Types ● Attributes	demonstrate an understanding of the HTML list types and attributes	7. perform adding list in a webpage
HTML Tables ● Elements ● Attributes	demonstrate an understanding of the HTML table elements and attributes	8. create a table in a webpage
HTML Forms ● Types ● Elements ● Attributes	demonstrate an understanding of the HTML form types, attributes, and elements	9. utilize HTML form, types, and elements in a webpage
HTML Links ● Attributes ● Absolute and relative URL	demonstrate an understanding of the HTML links	10. apply links to images, email, button, and text in a webpage
Website Development	demonstrate an understanding of the Website Development	11. develop a website
PERFORMANCE STANDARD	The learners develop website using HTML in a safe and responsible manner	

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...

Cascading Style Sheets (CSS)
 	
● Introduction
● Syntax
● Selectors
● Types
  - Inline CSS
  - Internal or Embedded CSS
  - External CSS
	demonstrate an understanding of the Cascading Style Sheets	1. discuss syntax, selectors, and types of cascading style sheets

CSS Colors, backgrounds, fonts, and text	demonstrate an understanding of the CSS Colors, backgrounds, fonts, and text	2. apply CSS Colors, backgrounds, fonts and text into a webpage
CSS Borders, Margins and Paddings	demonstrate an understanding of the CSS borders, margins, and paddings	3. apply CSS borders, margins, and paddings
CSS Icons, Links, List and Tables	demonstrate an understanding of the CSS Icons, Links, List, and Tables	4. apply CSS Icons, Links, List, and Tables
CSS Animations and Transitions	demonstrate an understanding of the CSS animations and transitions	5. apply CSS animation and transition in a webpage
CSS Box model	demonstrate an understanding of the CSS Box model	6. utilize CSS box model in a webpage
CSS Box shadow and transform	demonstrate an understanding of the CSS Box shadow and transform	7. utilize CSS box shadow and transform in a webpage

Basic Interactive Website Development	demonstrate an understanding of the Basic Interactive Website Development	8. create interactive website
PERFORMANCE STANDARD	The learners create an interactive website	

COMPONENT: INFORMATION AND COMMUNICATIONS TECHNOLOGY
SECTOR: TELECOMMUNICATIONS
DESCRIPTION: This is one of the sectors under the Information and Communications Technology (ICT) consisting of preliminary competencies in the specialization of Contact Center Services It covers Contact Center operations and procedures.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
The Contact Center Industry • The emergence of the Contact Center industry • Career opportunities in Contact Center industry	demonstrate an understanding of the nature of Contact Center Industry	1 discuss Contact Center Industry and its career opportunities
Contact Center jargons • Bio break • Ahod • AU X • Floor • Huddle • Long Call • Sup Call		2. discuss the jargons in contact center industry
Inbound vs Outbound calls		3. differentiate inbound from outbound calls
Duties and Responsibilities of a Contact Center Employee • Addressing customer concern • Providing customer satisfaction		4. discuss the duties and responsibilities of a Contact Center employee

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Skills and attributes needed for a Contact Center Employee • Intra and Interpersonal Skills • Communication Skills • Computer Literacy skills		5. discuss the skills and attributes needed for a Contact Center Employee
Services offered in a Contact Center • Customer service • Sales • Technical support • Chat support		6. discuss the types of services offered in Contact Center
Phone Etiquette	demonstrate an understanding of the phone etiquette in handling calls	7. demonstrate phone etiquette in handling calls
PERFORMANCE STANDARD	The learners perform phone etiquette in handling calls	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Accuracy and Fluency in Communication in handling inbound and outbound calls either voice or non-voice	demonstrate an understanding of the accuracy and fluency in communication	1. apply accuracy and fluency in communication in handling inbound and outbound calls either voice or non-voice

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
Local and international accounts catered in Contact Center • Cultures • Time zones	demonstrate an understanding of the local and international accounts catered in a Contact Center	2. discuss local and international accounts catered in a Contact Center
Procedures in Call Handling • Inquiry • Concerns • Complaints • Sales	demonstrate an understanding of handling different calls	3. perform procedures in call handling
Call Flow • Opening spiel empathy, sympathy and assurance statements • Probing questions • Resolution • Closing spiel	demonstrate an understanding of the basic call flow in Contact Center	4. perform call flow
Common Metrics -Average Handling Time (AHT) -Customer Satisfaction (CSAT) -Dissatisfied Customer (DSAT) -First Call Resolution (FCR)	demonstrate an understanding of the common Metrics in Contact Center	5. discuss common metrics
PERFORMANCE STANDARD	The learners perform the procedures in handling call and call flow	

COMPONENT: **INFORMATION AND COMMUNICATIONS TECHNOLOGY**
SECTOR: **COMPUTER SYSTEMS SERVICING**
DESCRIPTION: This is one of the sectors under the Information and Communications Technology (ICT) consisting of preliminary competencies in the specialization of Computer Systems Servicing. It covers installing and configuring computer systems, as well as maintaining and repairing computer systems.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Introduction to Computer Systems Servicing ● Career Opportunities ● Business Opportunities	demonstrate an understanding of the concepts of career opportunities in computer systems servicing	1. discuss career and business opportunities in computer systems servicing
Tools and Equipment ● Types ● Functions	demonstrate an understanding of the types and functions of tools and equipment in computer systems servicing	2. discuss tools and equipment in computer systems servicing

Parts and Functions of Computer System Unit
 	
● Motherboard
   o CPU
   o BIOS
   o Slots
   o Southbridge/northbridge
   o BIOS
   o I/O Ports
 	
● Power Supply Unit (PSU)
● Expansion Cards
● Storage Devices
● Random Access Memory (RAM)
● Central Processing Unit (CPU)
	demonstrate an understanding of the parts of the computer system unit	3. discuss the parts and functions of the computer system unit

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
● Fan ● Heatsink ● Cables		

Software
 	
● System Software
   ○ Operating System
   ○ Device Drivers
   ○ Firmware
   ○ Utility Software
● Application Software
   ○ Productivity Software
   ○ Database Software
   ○ Multimedia Software
   ○ Web Browsers
	demonstrate an understanding of the types and functions of computer software	4. discuss system software, its types, and functions
		
		5. discuss application software, its types, and functions

Computer Assembly	demonstrate an understanding of the procedures in setting up computer system	6. perform computer assembly with safety precautions
PERFORMANCE STANDARD	The learners perform the procedures in assembling computer with safety precautions	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Preparation of Installers
 	
● creating ISO image file
● creating bootable device
   ○ Partition Scheme
   ○ File System
	demonstrate an understanding of the procedures in setting-up computer system	1. create bootable device

Installing Operating Systems		2. perform installation of operating system with safety precautions

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
● BIOS/UEFI configuration ● partitioning ● installation procedures		
Installing drivers, application, and utility software		3. perform installation of drivers, application, and utility software with safety precautions

Testing and Updating
 	
● Testing
  - Stress Test
  - Drivers
  - Productivity Tools
  - Utility Software
  - Audio
  - Video
● System Updates
		4. perform testing, updating, and checking of peripheral drivers and application software with safety precautions

Troubleshooting and Repairing ● power ● display/video ● audio ● storage devices ● cooling system ● ports/connectors ● drivers		5. perform troubleshooting and repairing of the computer system unit with safety precautions
Maintaining Computer System ● Software Maintenance ● Defragmentation ● Check Disk ● Uninstalling unnecessary applications ● Disabling start up applications		6. perform computer maintenance with safety precautions

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
● Organizing files/folders		
PERFORMANCE STANDARD	The learners perform procedures in setting up computer system with safety precautions	

COMPONENT: **INFORMATION AND COMMUNICATIONS TECHNOLOGY**
SECTOR: **VISUAL ARTS**
DESCRIPTION: This is one of the sectors under the Information and Communications Technology (ICT) consisting of the preliminary competencies in the specialization of Visual Arts. This sector combines selected core competencies from two specializations: illustration for the first quarter and animation for the second quarter.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Introduction to Visual Arts Sector • Current trends in visual arts • Skills needed in visual arts sector • Tools and Equipment • Career and business opportunities in visual arts	demonstrate an understanding of the current trends, skills, tools and equipment, career, and business opportunities in visual arts sector	1. discuss current trends, skills, tools and equipment, career, and business opportunities in visual arts sector
Elements and Principles of Design	demonstrate an understanding of the elements and principles of design, types of illustrations, drawing enhancement techniques, proportion, expression, and movements as applied in drawing human face	2. draw simple figures and objects by applying the elements and principles of design
Drawing Enhancement Techniques • Applying tonal values • Tonal range • Linear marks		3. apply drawing enhancement techniques
Drawing Human Face • Proportion • Expression • Movement		4. draw a human face

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Basics of Animation • 12 Principles of animation • Clean-up key drawings • In-between drawings • Animation breakdown	demonstrate an understanding of the basics of animation, cleaned-up, and in-between simple drawings	5. discuss basics of animation, cleaned-up, and in-between simple drawings
Clean-Up of Simple Key Drawings • Model sheets		6. produce cleaned-up simple key drawings
In-Between Drawings • Storyboard • Pegging • Un-pegging • Design standards		7. produce in-between drawings
PERFORMANCE STANDARD	The learners apply the design principles and drawing techniques to draw a human face through simple drawings-based animation	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Illustration Software • User Interface • System Requirements	demonstrate an understanding of the digitizing, enhancing, and vectorizing human face using illustration software	1. navigate illustration software
		2. produce simple objects using illustration software

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Digitizing and Enhancing Drawing • Scanning • File Formats • Inking • Coloring *Note: Use the learners's output in Quarter 1*		3. produce digitized drawing using illustration software
		4. produce enhanced drawing* using illustration software
Vectorizing Drawing*		5. produce vectorized drawing* using illustration software
Animation Software • User Interface • System Requirements Animation Techniques • Digitized Key Drawing • Digital In-Between Drawing	demonstrate an understanding of the animation, its software, system requirements, and animation techniques	6. produce simple animation
PERFORMANCE STANDARD	The learners create vectorized drawing and simple animation video clip	

TECHNOLOGY AND LIVELIHOOD EDUCATION (TLE)
GRADES 9 OR 10

COMPONENT: AGRICULTURE AND FISHERY ARTS
SECTOR: ANIMAL PRODUCTION
DESCRIPTION: This is one of the sectors under the Agriculture and Fishery Arts consisting of the preliminary competencies in the specializations of Animal Production and Animal Health Care. It covers the necessary procedures in raising poultry, swine, and small ruminants.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Maintaining poultry tools, equipment, house, and facilities ●pre-operational check-up ●cleaning of tools, equipment, house, and facilities ●inspection of tools, equipment house, and facilities ●proper upkeep of equipment	demonstrate an understanding of the concepts and principles in poultry production	1. discuss the procedures in maintaining poultry tools, equipment, house, and facilities according to industry standards
Optimum poultry environment ●temperature ●relative humidity ●air velocity ●lighting ●ventilation system ●air quality		2. determine the proper poultry environment management

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Poultry Brooding and Growing ●cleaning and disinfecting poultry houses ●preparing materials for brooding and growing ●installation of brood guard curtains and portable heater ●feeding ●maintaining different types of litter Maintaining the growth of the broiler ●feeds and feeding ●different feeding additives ●record-keeping		3. perform brooding and growing with safety precautions
Health Management in Poultry Raising ●water hygiene ●vaccination ●immunization ●preventive medication ●biosecurity		4. discuss poultry health management
Broiler harvesting technique in accordance with industry standard		5. discuss broiler harvesting technique in accordance with industry standard
PERFORMANCE STANDARD	The learners perform poultry production practices in accordance with the industry standard	
Housing requirement for weaner, grower and finisher ●floor space requirement ●layout	demonstrate an understanding of the concepts and principles in swine raising	6. layout housing requirement for weaner, grower, and finisher

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
Maintaining housing, facilities, tools, and equipment for swine production ●pre-operational check-up ●cleaning of tools, equipment house, and facilities ●inspection of tools, equipment house, and facilities ●proper upkeep of equipment		7. determine the proper maintenance of housing facilities for swine production
Swine Feeding Management ●importance of balanced feed ration ●sources of nutrients found in feeds ●stages of swine growth and their feeding management ●feeding guidelines for weaner, grower, and finisher ●grower to finisher ration management		8. discuss swine feeding management according to industry standard
Weaner ●characteristics of desirable weaner ●commercial, semi-commercial, and backyard practices		9. discuss the characteristics of good weaner
Health Management for weaner, grower, and finisher ●water hygiene ●vaccination ●immunization ●preventive medication ●biosecurity		10. perform the administration of vitamins
Grower/Finisher Bedding Practices ●suitable bedding materials ●bedding management		11. prepare beddings for grower/finisher

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
PERFORMANCE STANDARD	The learners perform swine production practices in accordance with the industry standard	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Maintaining housing facilities, tools, equipment, and surrounding area for small ruminants ●farm maintenance and its importance ●farm maintenance activities (preventive and corrective) for housing facilities, tools, equipment, and surrounding area according to Occupational Safety and Health Standards (OSH)	demonstrate an understanding of the concepts and principles in small ruminant production	1. perform inspections on facilities, tools, equipment, and the surrounding area

Feeding Management of Small Ruminants
●importance of feeding management
●types of grazing systems
  o cut and carry
  o full grazing
  o rational grazing
  o tethering
  o strip grazing
		2. discuss the feeding management of small ruminants

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
●other sources of feeds and supplements for ruminants ●crop residue ●agro-industrial by-products ●silage ●urea-molasses-treated rice straw ●urea molasses mineral blocks ●additives minerals vitamins		

Breeding Management of Small Ruminants
●breeding management
●parameters of breeding
●natural breeding
●breeding systems
  o pure breeding
  o crossbreeding
  o upgrading
 o inbreeding
		3. discuss breeding management of small ruminants

Basic Health Care Management of Small Ruminants ●common diseases ●symptoms, prevention, and cure		4. discuss basic health care management in small ruminants

Raising Small Ruminants (eg goats and sheep)
●Care and husbandry practices in meat type
  o ear tagging
  o disbudding/ dehorning (optional)
  o removal of extra teat
		5. perform raising small ruminants

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
o castration 　▪methods of 　castration 　　● burdizzo 　　● elastrator 　　● slit 　　method o hoof 　trimming o grooming o body weight estimation		
Animal Production Waste Management ●characteristics of poultry and livestock animal manure ●farm waste management practices and their principle ●poultry and livestock animal manure handling ●odor control from poultry and livestock manure		6. apply waste management in animal production
PERFORMANCE STANDARD	The learners perform small ruminant production practices in accordance with the industry standard	

COMPONENT: **AGRICULTURE AND FISHERY ARTS**
SECTOR: **AQUACULTURE (FISH CULTURE)**
DESCRIPTION: This is one of the sectors under the Agriculture and Fishery Arts consisting of the preliminary competencies in the specialization of Aquaculture (Fish Culture). It covers fish hatchery, nursery, and grow-out culture practices in accordance with OSH standards.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
Hatchery, Nursery, and Grow-out Culture ● fish size ● culture facilities ● stocking rate ● feeding ● post-harvest Handling	demonstrate an understanding of the concepts and principles in fish grow-out culture	1. discuss hatchery, nursery, and grow-out culture

Site Selection for Fish Grow-out Culture
●water supply and sources
●soil type
●vegetation
●accessibility
●socio-economic factors
  o ideas and beliefs locally associated with aquaculture practices
  o storage
  o availability of labor
  o electricity
  o medical facilities
		2. identify suitable location for fish grow-out culture in the locality based on selected species

Design of Fish Grow-out Facilities
  ●fishpond
    o kinds of dikes
    o types of gates
    o different pond
     compartments
    o different
     fishpond
     designs
  ● fish cage
    o parts of fish
      cage
    o materials
     used in
     constructing
     fish cage
    o different
     cage designs
  ● fish pen
    o parts of fish
      pen
    o materials
      used in
     constructing
     fish pen
    o fish pen
     designs
  ● fish tanks
    o parts of tank
    o materials
     used in
     constructing
     fish tank
     o fish tank
      designs
		3. layout perspective plan of fish grow-out facilities

Preparing Fish Grow-out Facility based on Selected Species ●tools, materials, and equipment		4. prepare fish grow-out facility based on identified species in accordance with OSH standards

CONTENT		
●steps in preparing grow-out facility in accordance with OSH standards		
Stocking of Fingerlings ●stocks, stocking, and stocking rate ●stocking density ●steps in stocking fingerlings and the importance of acclimatization		5. perform stocking of fingerlings
PERFORMANCE STANDARD	The learners perform fish grow-out culture in accordance with OSH standards	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Feeds and Feeding ●feeds and its forms ●alternative feed sources ●Daily Feed Allowance (DFA) ●feeding methods ●storing of feeds	demonstrate an understanding of the concepts and principles in fish grow-out culture	1. perform feeding of stocks
Sampling of Stocks ●importance of stock sampling ●tools and materials in stock sampling ●safety measures to be observed during stock sampling ●procedures in stock sampling o gathering of sample stocks o data gathering (length, width, average body		2. perform the procedure in sampling of stocks

weight)
   o data
     recording and
     analysis		

Maintaining Water Quality for Fish Grow-out Culture
  ●water parameters and its
   optimum level
 	
   o temperature
   o salinity
   o hydrogen-ion
    concentration (ph)
   o dissolved oxygen
   o turbidity
  ●tools and equipment in
   water monitoring and
   evaluation
		3. perform maintaining water quality for fish grow-out culture

Fish Health Management
  ●causes of fish diseases
  ●signs, symptoms,
   prevention, and control of
   common fish diseases
  ●steps in sampling and
   diagnosing fish disease
  ●mortality rate
		4. apply health management to avoid mortality

Harvest and Post-Harvest Handling of Cultured Fish
   ●materials for harvesting fish
   ●methods of harvesting fish
   ●materials, tools, and equipment for sorting and packing fish
   ●sorting of fish
   ●packing and transporting harvested fish
    o live fish
    o iced fish
		5. perform harvesting of cultured fish
		
		6. perform post-harvest handling of fish in accordance with industry standards

Selling Harvested Stocks ● cost and return analysis		7. sell harvested stocks 8. prepare report based on cost and return analysis
PERFORMANCE STANDARD	The learners perform fish grow-out culture in accordance with OSH standards	

COMPONENT: **AGRICULTURE AND FISHERY ARTS**
SECTOR: **AGRICULTURAL CROP PRODUCTION**
DESCRIPTION: This is one of the sectors under the Agriculture and Fishery Arts consisting of the preliminary competencies in the specializations of Agricultural Crop Production and Organic Agriculture. It covers Agri-crop operations following the industry practices.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
Keeping records of materials, tools, and equipment	demonstrate an understanding of the concepts and principles in agri-crop operations following the industry practices	1. prepare records of the different materials, tools, and equipment used in agricultural crop production
Performing nursery operations ●establish nursery facilities ●repair and maintenance of nursery facilities ●safety measures on maintenance of nursery facilities		2. perform nursery operations according to Occupational Safety and Health Standards

Plant propagation
●types, kinds, varieties, and characteristics of planting material
  o seeds
  o plant parts
●methods of plant propagation
  o sexual
  o asexual
		3. perform plant propagation

Seed testing
● germination of seed
   ● ragdoll
   ● petri dish
   ● seed box/seed tray
● floating in the water
● winnowing
		4. perform seed testing

Preparing growing media 　●substrates used in growing media 　●ratio and proportion 　●potting/bagging		5. prepare growing media
PERFORMANCE STANDARD	The learners perform agri-crop operations following the industry practices	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
●Systems of planting 　o quincunx 　o square 　o hexagonal 　o triangular 　o contour ● Plant population ● Field layout	demonstrate an understanding of the concepts and principles in agri-crop operations following the industry practices	1. discuss systems of planting 2. perform field layout
Agricultural practices in planting crops 　● soil analysis 　● land preparation 　● mulching techniques 　● planting 　● transplanting		3. perform agricultural practices in planting crops according to natural farming
Fertilizer application 　● types of fertilizer (organic and inorganic) 　● nutrients requirement 　● fertilizer computation 　● Occupational Safety and Health (OSH) standards 　in fertilizer application		4. apply fertilizer according to plant requirements and OSH standards

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Prevention and control of common pests and diseases ● different pests and diseases ● sign and symptoms ● prevention and control ● OSH in managing pests and diseases		5. apply prevention and control of common pests and diseases according to OSH standards
Harvesting and post-harvest handling practices of different crops ● harvesting practices ● handling of harvested crops ● packaging of harvested crops		6. perform harvesting and post-harvest handling practices
PERFORMANCE STANDARD	The learners perform agri-crop operations following the industry practices	
Selling crops ●selling strategies ●challenges in selling crops Cost and Return Analysis	prepare cost and return analysis	7. perform selling of products 8. prepare cost and return analysis
PERFORMANCE STANDARD	The learners perform selling of products	

COMPONENT: **AGRICULTURE AND FISHERY ARTS**
SECTOR: **FISH CAPTURE**
DESCRIPTION: This is one of the sectors under Agriculture and Fishery Arts consisting of the preliminary competencies in the specializations of Fish Capture and Fishing Gear Repair and Maintenance. It covers concepts, principles, and skills in fish capture and Fishing Gear Repair and Maintenance in accordance with OSH standards.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Background of fish capture • history of fish capture • status of fish capture in the Philippines • the trends of fish capture Protecting marine environment •garbage disposal procedures •guidelines and implementation	demonstrate an understanding of the concepts and principles of fish capture in accordance with OSH standards	1 discuss the background of fish capture 2 discuss protecting the marine environment
Safety measures in fish capture operations • areas of concern for safety measures - place - time - work tasks • Occupational Safety and Health (OSH) Procedure o basic first aid treatment o proper lifting techniques for heavy objects o Personal Protective Equipment (PPE)		3 discuss safety measures in fish capture operations
Weather information for safe navigation • weather and oceanography • navigational charts and nautical publications • navigational hazards		4. discuss the weather information for safe navigation

Mesh nets, beach seines, and gill nets
• mesh nets
• beach seine
  - parts and function
• gill nets
  - types
  - parts and function
• equipment and tools for adjusting beach seines and gill nets
• techniques for slinging beach seines and gill nets
• applicability based on national law and local ordinances
• fishing strategy
		5. discuss different parts and types of nets and its function, and applicability based on national law and local ordinances
		
		6. discuss fishing strategies

Net weaving
• materials and tools
• methods of net weaving
  o chaining out
  o half mesh
  o whole mesh
  o increasing
  o decreasing
  o combination
  o fly mesh method
  o starting from an old net method
		7. perform net weaving with safety precautions

Net mending • repairing • patching		8. perform net mending with safety precautions
Net casting • components • casting techniques • fishing strategy		9. perform net casting with safety precautions
PERFORMANCE STANDARD	The learners perform net weaving, mending, and casting accordance with OSH standards	

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Pots and traps used in capturing fish • types of pots and traps • basic operation • fishing strategies	demonstrate an understanding of the concepts and principles of fish capture in accordance with OSH standards	1. discuss pots and traps

Tools and equipment in fish capture in small scale operation
• fishing equipment
  o fishing boat
    ☐ motorized
    ☐ non-motorized
  o electrical equipment
  o fishing tools
  o power tools
  o handheld tools
• safety practices in using fishing tools and equipment
		2. operate tools and equipment in fish capture in accordance with OSH standard

Fishing vessels • classification of fishing vessels • parts and function • basic maintenance of fishing vessel		3. discuss the different types of fishing vessels, its parts and function, and its maintenance
Municipal fishing vessel (up to 30 gross tons) • Characteristics of a fishing vessel of up to 30 Gross Tons • structural design • fishing regulations when using fishing vessel 30 Gross Tons		4. discuss the characteristics and structural design of a municipal fishing vessels and the applicable fishing regulations

Handling Practices in Fish Capture
  • Handling techniques and procedures
  • Safety principles and requirements
		5. discuss handling practices in fish capture with the OSH standards

PERFORMANCE STANDARD	The learners operate tools and equipment in fish capture in accordance with OSH standard	

COMPONENT: **AGRICULTURE AND FISHERY ARTS**
SECTOR: **FOOD AND BEVERAGE PROCESSING**
DESCRIPTION: This is one of sectors under the Agriculture and Fishery Arts consisting of the preliminary competencies in the specialization of Food Processing. It covers food and fruit juice processing in accordance with the industry standards.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Economic Demands/Potentials in the Area for Food Processing	demonstrate an understanding of the concepts and principles in Food Processing in accordance with industry standard	1. identify the economic demands/ potentials in the area
Selecting, receiving, and handling of raw materials and supplies for food processing		2. discuss the process of selecting, receiving, and handling raw materials, and supplies
Processing food •Occupational Safety and Health Standard (OSH) •tools and equipment •sorting and inspection of raw materials •processing methods		3. perform food processing
Packaging processed foods in accordance with industry standards • packing • packaging • labeling		4. perform packaging and labeling
Product Costing and Marketing of Processed Foods		5. perform product costing of processed foods
Marketing Processed Foods • innovative and creative techniques in marketing products		6. discuss strategies in marketing processed foods
PERFORMANCE STANDARD	The learners demonstrate food processing in accordance with industry standard	

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Selling Techniques • packaging and labeling • selling strategies	demonstrate an understanding of the concepts and principles of selling finished product	7. perform selling finished product
PERFORMANCE STANDARD	The learners perform selling finished product	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Types of Fruit Juices • clear juices • citrus juices • tropical juices • fruit nectars • fruit punches and juice drinks	demonstrate an understanding of the concepts and principles in Food Processing in accordance with industry standard	1. discuss types of fruit juices and beverages
Extracting Methods for Juice Processing: -pressing -extraction -pulping -centrifugation -rough filtration Tools and equipment Occupation Health and Safety		2. discuss appropriate methods for juice processing
		3. perform processing of fruit juices following the Occupation Health and Safety standards
PERFORMANCE STANDARD	The learners demonstrate Fruit Juice Processing in accordance with industry standard	
Selling of Finished Products	demonstrate an understanding of the concepts and principles of selling finished product	4. perform selling finished product
PERFORMANCE STANDARD	The learners perform selling finished product	

TECHNOLOGY AND LIVELIHOOD EDUCATION (TLE)
GRADES 9 or 10

COMPONENT: **FAMILY AND CONSUMER SCIENCE**
SECTOR: **BEAUTY CARE SERVICES**
DESCRIPTION: This is one of the sectors under Family and Consumer Science consisting of the preliminary competencies in the specializations of Beauty/Nail Care, Hairdressing, and Barbering. It covers the necessary procedures in hand and foot spa, manicure and pedicure, and haircutting.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Nail Care • services in nail care • diseases and conditions of client's nails • occupational safety and health procedures	demonstrate an understanding of the concepts and principles of providing beauty care services	1. explain different nail care services 2. discuss diseases and conditions of the nails
Hand and Foot Spa with Massage Services • benefits of hand spa and foot spa • pressure points applied in hand and foot massage • massaging techniques		3. discuss the benefits of hand and foot spa 4. identify the pressure points applied in hand and foot massage 5. demonstrate the different techniques in hand and foot massage following the safety precautions
Procedures • hand and foot spa • hand and foot massage		6. perform the steps in the hand and foot spa, and massage following the safety precautions
Manicure and Pedicure • nail shapes • nail designs		7. perform manicure and pedicure following the safety precautions

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
• procedures in manicure and pedicure		
PERFORMANCE STANDARD	The learners provide nail care services following the safety precautions	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Introduction to Haircutting Services Career and Business Opportunities	demonstrate an understanding of the concepts and principles of haircutting services	1. discuss the background of haircutting services 2. determine career and business opportunities in haircutting services
Pre and Post Haircutting Services • shampooing • conditioning • blow-drying		3. explain the steps in pre- and post-haircutting services 4. perform pre-haircutting services

Haircutting
• draping
• haircutting strokes
  o blocking
  o sectioning
• haircutting styles
  o male
  o female
		5. perform steps in haircutting services following the safety precautions
		
		6. perform post-haircutting procedures

PERFORMANCE STANDARD	The learners perform haircutting services following the safety precautions	
Service Cost • materials costing manpower (labor cost)		7. calculate labor, materials, and cost of the service
PERFORMANCE STANDARD	The learners calculate the labor cost of the service	

COMPONENT: **FAMILY AND CONSUMER SCIENCE**
SECTOR: **FOOD SERVICE**
DESCRIPTION: This is one of the sectors under Family and Consumer Science consisting of the preliminary competencies in the specializations of Food and Beverage, Barista, and Bartending. It covers the necessary procedures in setting the table for service and providing beverages to the guest.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Fundamentals of Food Service
● history of the food service industry
● types of restaurants
● areas in the restaurant
  o front of the house
  o back of the house
● careers in the food service industry
	demonstrate an understanding of the concepts and principles of food and beverage services	1. discuss the fundamentals of food service

Attributes of a Food Service Attendant ● duties and responsibilities of food attendants ● intrapersonal and interpersonal skills ● customer service Occupational Safety and Health (OSH) Standards		2. recognize the attributes of a food service attendant 3. explain occupational safety and health standards in food service
Restaurant Service Area ● dining environment (atmosphere/climate) ● cleanliness, and orderliness in the dining area		4. discuss the preparation in the service area
Table Setting ● table implements for table setting		5. identify the table implements for table setting

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...

o linen
    o silverware/flatware
    o dinnerware
    o glassware
    o holloware
  ● types of table setting
    o informal
    o formal
		6. demonstrate table setting in accordance with industry standards

Restaurant Service Sequence
  ● welcoming the guests
  ● seating the guests
  ● presenting the menu
  ● taking orders
  ● serving and bussing
  ● billing and payment
  ● assisting guest departure
 	
Clearing and Re-setting
		7. execute the sequence of restaurant service following the safety precautions

PERFORMANCE STANDARD	The learners perform basic table setup and sequence of dining service following the safety precautions	

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Beverages ● alcoholic and non-alcoholic beverages ● bar tools and equipment	demonstrate an understanding of the concepts and principles of alcoholic and non-alcoholic beverages	1. differentiate alcoholic and non-alcoholic beverages 2. identify bar tools and equipment
Alcoholic Beverages ● types of alcoholic beverages (wine, spirit, liqueur, beer) ● ingredients/components of a cocktail (base, modifier, garnish ice) ● methods of mixing cocktails (building, stirring, shaking, blending, layering)		3. discuss alcoholic beverages 4. identify the ingredients and components of a cocktail 5. demonstrate the mixing methods of cocktails following the safety precautions
Business Opportunities in Food and Beverage Services ● business related to food and beverage service ● consumer analysis using primary and secondary data		6. apply the methods of preparing non-alcoholic beverages following the safety precautions
PERFORMANCE STANDARD	The learners create non-alcoholic beverages following the safety precautions that can be used in generating business ideas	

COMPONENT: **FAMILY AND CONSUMER SCIENCE**
SECTOR: **GARMENTS**
DESCRIPTION: This is one of the sectors under Family and Consumer Science consisting of the preliminary competencies in the specializations of Dressmaking and Tailoring. It covers the necessary procedures for producing upper and lower garments for both males and females.

QUARTER: I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Introduction to the Garments Industry • history of dressmaking/ tailoring • characteristics/ attributes of a dressmaker/tailor Career and Business Opportunities	demonstrate an understanding of the concepts and principles of making upper garments	1. discuss the concepts related to the garments industry

Upper Garments (Clothing)
• types
• styles
• parts
  o sleeves
  o collars
  o pockets
  o necklines
  o plackets
  o facing and interfacing
  o seams
		2. identify the types, styles, and parts of upper garments

Procedure in Making Upper Garments
• pattern drafting and cutting
  o body measurement
  o drafting front and back patterns
  o drafting basic/block pattern
  o manipulating basic/block pattern
		3. explain the procedures for drafting and cutting patterns

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
o techniques in cutting the final pattern		
● preparing and cutting fabric o laying-out pattern pieces o transferring marks onto fabric o rules for cutting the fabric		4. discuss the procedures for preparing and cutting fabric
● assembling procedures o preparing and cutting fabric o sewing and assembling upper garments ● altering of assembled/ completed upper garments		5. explain the procedures for assembling upper garments
● techniques in finishing garments o types of finishing touches (hemming stitches and fasteners) o trimming techniques o pressing techniques ● packaging and labeling		6. discuss procedures in making upper garments and finishing touches 7. produce upper garments or mini dresses with safety precautions
PERFORMANCE STANDARD	The learners perform the procedures in making upper garments following the safety precautions	

QUARTER: II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Lower Garments ● types ● style ● parts ● waistband	demonstrate an understanding of the concepts and principles of making lower garments	1. identify the types, styles, and parts of lower garments
Produce Lower Garments ● drafting and cutting patterns ● preparing and cutting fabric ● assembling procedure ● finishing touches		2. apply procedures in making lower garments following the safety precautions
PERFORMANCE STANDARD	The learners perform the procedures for making a lower garment following the safety precautions in accordance with industry standards	

Selling of Finished Garment Products
● costing of product
    pricing and promotional
    strategy
	demonstrate an understanding of the concepts and principles of selling finished garment products	3. perform selling of finished garment products

PERFORMANCE STANDARD	The learners sell finished garment products	

COMPONENT: **FAMILY AND CONSUMER SCIENCE**
SECTOR: **HEALTH AND WELLNESS MASSAGE**
DESCRIPTION: This is one of the sectors under Family and Consumer Science consisting of the preliminary competencies in the specializations of Wellness Massage and Caregiving. It covers the necessary procedures in wellness massage and care for newborns, infants, and toddlers without special needs.

Quarter: I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Introduction to Wellness Massage • origin • health benefits	demonstrate an understanding of the concepts and principles of providing wellness massage services	1. discuss the origin of wellness and its services 2. explain the health benefits of wellness massage
Wellness Workplace Policy and Procedures • personnel • facilities • legal documents		3. determine the workplace requirements and policies for a wellness facility

Wellness Massage Services
• types
  o therapeutic
  o wellness
• pre-services
  o vital health information of clients
  o recordkeeping
		4. discuss the different types of massage

• Pre-Massage Procedures
  o draping
  o warm-up massage
		5. discuss the pre-massage procedures

Wellness Massage • Swedish • *Hilot* • post-massage procedures		6. apply the steps in providing wellness massage with safety precautions
PERFORMANCE STANDARD	The learners perform wellness massage services following the safety precautions	

Quarter: II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Fundamental Concepts of Caregiving
• clientele
  o without special needs
  o with needs
• types of caregiving services
  o in-bed patient
  o non-bed patient
	demonstrate an understanding of the concepts and principles of providing care and support to newborns, infants, and toddlers without special needs	1. discusses the concepts and principles in caregiving

Workplace Policy and Procedures Code of Conduct 1. Confidentiality 2. Dress code 3. Reporting misconduct 4. Patient's Bill of Rights Occupational, Safety, and Health (OSH) Standards in the Workplace • safety • sanitation hygiene		2. discuss workplace policy and procedures in providing care to clientele

Procedures in Providing Care and Support to Clientele (Newborns, Infants, and Toddlers without special needs)
• checking of vital signs
  o body temperature
• bathing
  o oral care
  o hair care
  o dressing and undressing
• bed making (unoccupied)
	demonstrate an understanding of providing care and support to newborns, infants, and toddlers without special needs	3. explain the procedures for providing care and support to clientele
		
		4. apply the appropriate caregiving procedures to newborns, infants, and toddlers without special needs

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
• feeding requirement		
PERFORMANCE STANDARD	The learners perform care and support to infants and toddlers without special needs	

COMPONENT: **FAMILY AND CONSUMER SCIENCE**
SECTOR: **FOOD PREPARATION**
DESCRIPTION: This is one of the sectors under Family and Consumer Science consisting of the preliminary competencies in the specializations of Cookery, and Bread and Pastry. It covers the necessary procedures in kitchen operations.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Introduction to Hot and Cold Kitchens • hot and cold kitchens • kitchen brigade	demonstrate an understanding of the concepts and principles of hot and cold kitchens	1. differentiate a hot kitchen from the cold kitchen 2. discuss the kitchen brigade system
Occupational Safety and Health (OSH) Standards in the Kitchen • safety • sanitation • hygiene		3. explain the importance of occupational safety and health in kitchen operations
Recipes and Food Cost • recipe • standardized recipe • instructional recipe • parts of a recipe • food cost • recipe quantification		4. familiarize themselves to each component/element of a recipe 5. perform recipe costing
Cutting Techniques		6. perform cutting techniques following the occupational safety and health standards
Salad and Salad Dressing • classifications of salad • components of a salad • types of salad dressing • guidelines for preparing salad and salad dressing		7. prepare salad and salad dressing following the safety standards
Stocks		8. discuss stocks (fond)

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
• stocks (fond) • uses of stocks • types of stocks		9. identify the types of stocks 10. discuss the steps of preparing stocks
Soup • classifications of soup • guidelines for preparing soups		11. prepare soup following the safety standards
PERFORMANCE STANDARD	The learners perform hot and cold meals following the safety standards	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Fundamentals in Baking • types of baked products • ingredients and substitutes • oven temperature requirement • mixing methods	demonstrate an understanding of the concepts and principles of preparing quick bread and yeast bread	1. discuss types of baked products 2. familiarize themselves with the different baking ingredients and their substitutes 3. identify oven temperature requirement for each baked product 4. explain the mixing methods used in baking

Breads
• quick breads
  o muffins
  o biscuits
• yeast breads
  o dough mixing methods
		5. discuss the different types of bread
		
		6. prepare bread

PERFORMANCE STANDARD	The learners prepare bread following the safety standards	

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
Business Ideas • food trends • product selling	demonstrate an understanding of the concepts and principles in business ideas	7. conceptualize business ideas in baking
PERFORMANCE STANDARD	The learners conceptualize business ideas in baking	

COMPONENT: **FAMILY AND CONSUMER SCIENCE**
SECTOR: **HOTEL SERVICES**
DESCRIPTION: This is one of the sectors under Family and Consumer Science consisting of the preliminary competencies in the specializations of Front Office and Housekeeping. It covers the necessary procedures for reservation and maintenance of public areas in the hotel.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Hotel Organizational Structures and Their Services Career Opportunities Front Office Department • front office operational functions Front Desk • uniformed services • concierge • front office accounting system • Private Branch Exchange (PBX)	demonstrate an understanding of the concepts and principles of hotel services	1. discuss the organizational structures of the hotel and their services 2. discuss career opportunities in the front office 3. explain the duties and functions of the front office department
Front Office Operations • front-house • back-house Front Office Operational Structure • front desk positioning • front office communication o internal and external communication • switchboard operators		4. explain front office operations 5. discuss the operational structure of a front office
Front Office Personnel • duties and responsibilities • attributes		6. discuss the front office personnel's responsibilities, attributes, and skills

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
• skills Hotel Guest Cycle • pre-arrival • arrival • occupancy • departure		7. discuss the hotel guest cycle
Occupational Safety and Health (OSH) Standards in Hotels		8. explain the importance of occupational safety and health standards in hotels

Hotel Reservations and Processes
 • Reservation
  o types of hotel reservation
  o types of reservation
  o systems
  o sources reservation
  o managing reservation
 	
 • Reservation Process
  o hospitality ethics in communication
 • Receiving and Processing Reservation
  o denying reservation
  o cancelling of the reservation
		9. perform the hotel reservation following the safety standards

PERFORMANCE STANDARD	The learners perform the hotel reservation following the safety standards	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Housekeeping Department
• organizational structure
• personnel characteristics
    ○ physical
    ○ educational background
    ○ duties and responsibilities
    ○ skills
 	
Career Opportunities
	demonstrate an understanding of the concepts and principles of housekeeping operation	1. discuss the housekeeping organizational chart
		
		2. discuss the role and functions of a housekeeping personnel
		
		3. discuss career opportunities in the housekeeping department

Sections in the Housekeeping Department • Uniform Room • Tailor's Room • Laundry Area • Public Area • Flower Room • Lost and Found Section • Linen Room Storage • Desk Control Room • Executive Housekeeper Office		4. discuss the functions of the different housekeeping sections
Classification of Guest Rooms and Status • according to the number of beds • according to price, layout, facilities, and amenities		5. classify guest rooms 6. familiarize themselves with room status

Housekeeping Procedures
• cleaning methods
    ○ manual
    ○ mechanical
• care and maintenance of cleaning tools, supplies, and equipment
		7. explain the standard procedures of hotel housekeeping
		
		8. discuss housekeeping tools, supplies, and equipment
		
		9. discuss correct handling, storage, and disposal of used chemicals

• dandling, storage, and disposal of used chemicals in cleaning • 5R's of waste management		10. recognize the importance of 5R's in waste management
Public Area Sections in Housekeeping Department • lobby • reception • restaurant/bar/coffee shop • restrooms Maintenance of Public Areas in a Hotel		11. identify the public area section in housekeeping department 12. demonstrate the procedures in maintaining public areas in a hotel
PERFORMANCE STANDARD	The learners perform cleaning and maintaining public areas	

COMPONENT: **FAMILY AND CONSUMER SCIENCE**
SECTOR: **HANDICRAFTS**
Description: This is one of the sectors under Family and Consumer Science consisting of the preliminary competencies in the specializations of Needle Works and Leather Craft. It covers the necessary procedures in making handicraft products.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
Introduction to Needlecraft • history and development of needlecraft o trends Career and Business Opportunities in Handicraft Industry	demonstrate an understanding of the concepts and principles in needlecrafts	1. discuss the concepts in needlecraft
Needlecraft • techniques o embroidery o smocking o knitting o needlepoint • products • crocheted clothes • knit dress • patchwork • quilted fabrics		2. discuss the different techniques used in needlecraft 3. determine the different Quilting and Calado products
Quilting • styles • techniques and design • quilt patterns • supplies and materials		4. identify the styles, techniques, designs and patterns used in quilting 5. perform the steps in quilting following the safety precautions

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
• steps in quilting according to the products to be made		
Calado • techniques • characteristics • local designs • supplies and materials • steps in applying Calado design to fabric		6. identify the techniques used in Calado 7. describe the characteristics and designs of Calado 8. apply Calado designs on fabric following the safety precautions
PERFORMANCE STANDARD	The learners perform Calado and Quilting in creating products and designs	
Market Needlecraft Products • marketing strategies • packaging materials • product costing	demonstrates an understanding of the concepts and principles in marketing needlecraft products	9. discuss marketing, packaging, and product costing involved in marketing needlecraft products 10. sell finished products
PERFORMANCE STANDARD	The learners apply the technique of Calado and Quilting in creating products and designs	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Fundamentals of Leathercraft Origin of Leathercraft Leather Industries • materials, tools and equipment used in making leathercraft products • characteristics of a good leather • kinds of leather	demonstrate an understanding of the concepts and principles in leathercraft	1. explain the fundamentals of leathercraft

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Leather Preparation • curing • tanning • dyeing • dressing • finishing Process of Tanning Leather		2. discuss the methods applied in preparing leather
Produce Leather Products • stitches used in leathercrafting • patterns for leather products • steps in making leather products		3. discuss the stitches use in leather crafting 4. familiarize the patterns in different leather products 5. follow steps in producing leathercraft products 6. sell finished leathercraft products
PERFORMANCE STANDARD	The learners produce leathercraft products	

COMPONENT: **FAMILY AND CONSUMER SCIENCE**
SECTOR: **TOURISM SERVICES**
Description: This sector is composed of three (3) TVL specializations, Local Tour Guiding, Tourism Promotion, and Travel Services, clustered in a semester to master the required competencies in tour guiding and promotion.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...

Tourism Industry in the Philippines and the Roles of Agencies in Tourism Services
• concepts of tourism
• overview of the tourism industry in the Philippines
• agencies and their roles in tourism services -
    o government
    o private
    o financial
    o intermediary agencies
• sectors of the travel and tourism industry
    o accommodation
    o adventure tourism and recreation
    o attractions
    o events and conferences
    o food and beverages
    o tourism services
    o transportation sectors
    o travel and trade
 	
Career Opportunities in Tourism Industry sectors
• tour guide
• ticketing aide
• tour operator
	demonstrate an understanding of the concepts of the tourism industry in the Philippines	1. explain the concepts of tourism
		
		2. discuss the historical development of the tourism industry in the Philippines
		
		3. identify the key roles of the various agencies in tourism services
		
		4. examine the sectors of the tourism industry
		
		5. identify the career opportunities in the tourism sectors

• destination manager • travel writer • tour package consultant, etc		
PERFORMANCE STANDARD	The learners discuss the various tourism sectors and their functions	
Attributes of a Tour Guide • qualities • roles, functions, and duties	demonstrate an understanding of the attributes of an ideal tour guide	6. discuss the attributes of an ideal tour guide
Tourist Maps and Contents • sightseeing • qualified tourism • other types of tourism	demonstrate an understanding of the elements of tourist maps, types of attractions, events, and festivals	7. interpret the tourist maps and their contents
Attractions, Events, and Festivals • types of attractions • types of events in tourism festivals		8. identify the different attractions, events, and festivals of the regions
PERFORMANCE STANDARD	The learners display the roles and functions of a tour guide	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Tourism Information Sources
 • agencies
    o DOT
    o LGU
    o tourism offices
    o travel agencies
 • media
    o print
    o non-print
	demonstrate an understanding of gathering tourism information sources	1. identify sources of tourism information

Tourism Products and Services • tangible • intangible	demonstrate an understanding of tourism products and services	2. classify tangible and intangible tourism products and services

Tourism Promotions
   • tourism promotional tools
       o social media
       o newsletter
       o direct mails
       o videos
       o others
 	
Ethical Standards in Tourism Promotion
	demonstrate an understanding of the tools used in promoting tourism products and services	3. apply ethical standards in promoting tourism products and services

Tour Commentary (Tourist Guides Script)
   • types of commentary
       o required
       o informative
       o requested
       o optional
 	
Guidelines on Writing Tour Commentary
 	
Elements of a Tour Commentary
	demonstrate an understanding the concepts of a tour commentary	4. recite tour guide commentary/script

PERFORMANCE STANDARD	The learners perform competencies of a tour guide	

TECHNOLOGY AND LIVELIHOOD EDUCATION (TLE)
GRADES 9 or 10

COMPONENT: **INDUSTRIAL ARTS**
SECTOR: **AUTOMOTIVE AND SMALL ENGINE SERVICING**
DESCRIPTION: This is one of the sectors under the Industrial Arts consisting of the preliminary competencies in the specializations of Automotive and Small Engine Services. It covers the necessary procedures in ignition and engine servicing.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Automotive and Small Engine Services
 	
• development of an automotive engine
• service specifications manuals
  ○ service literature
  ○ generic service manuals
  ○ lubrication service manual
  ○ owners' workshop manuals
	demonstrate an understanding of the concepts and principles of ignition system servicing in automotive and small engines	1. interpret the fundamentals in automotive and small engine services

Automotive and Small Engine Servicing • tools and materials • consumables • equipment		2. discuss tools, materials, consumables, and equipment
Component Parts of Automotive and Small Engine Systems (Electrical) • ignition • starting		3. distinguish the component parts of automotive and small engine systems (electrical)

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
● charging ● computer ● lighting		
Diagrams of Engine Electrical System ● components ● signs and symbols		4. draw a diagram of an engine electrical system
Ignition System ● parts and functions		5. describe the parts and functions of the ignition system
Ignition System Servicing ● types of troubles ● types of diagnostic tests ● servicing procedure for the ignition system		6. apply servicing of the ignition system following the safety precautions
PERFORMANCE STANDARD	The learners perform ignition system servicing following the safety precautions	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
Engine Operation ● two-stroke cycle ● four-stroke cycle	demonstrate an understanding of the concepts and principles of engine servicing in automotive and small engines	1. differentiate types of engine operation
Engine Construction ● cylinder head, cylinder block, and manifolds ● crankshaft, bearings, rods, pistons, and rings		2. describe engine construction

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Engine Services
 	
● engine tune-up procedure
   ○ gas engine
   ○ diesel engine
		3. apply engine servicing following the safety precautions

PERFORMANCE STANDARD	The learners perform engine servicing with safety precautions	
Service Costing ● flat rate manuals ● manpower (labor cost) ● material costs	demonstrate an understanding of the elements of cost for labor and materials for servicing	4. calculate labor and material costs for services
PERFORMANCE STANDARD	The learners compute costs for labor and materials for services	

COMPONENT: **INDUSTRIAL ART**
SECTOR: **ELECTRICAL AND ELECTRONICS SERVICING**
DESCRIPTION: This is one of the sectors under the Industrial Arts consisting of the preliminary competencies in the specializations of Electrical Installation and Maintenance, Electronics Product and Assembly Servicing, and Domestic Refrigeration and Air-conditioning Servicing. It covers the necessary procedures in household electrical installation, electronics product assembly, and residential refrigerant maintenance.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
Fundamentals of Electrical and Electronics Services	demonstrate an understanding of the concepts and principles in electrical, electronics, and domestic refrigerant system services	1. discuss electrical and electronics services
Materials and/or Components for Electrical Installation and Electronics Servicing and Repair • electrical components • electronics components (passive and active components • types of Printed Circuit Board (PCB)		2. differentiate the types of materials and/or components for electrical installation and electronics servicing and repair
Circuit Diagrams • schematic • wiring • block • line diagram		3. draft a circuit diagram
PERFORMANCE STANDARD	The learners create a circuit diagram	
Household Electrical Installation • switches (SPST, SPDT, 3-way, 4-way, ganged switches) • convenience outlets • circuit protection devices Power Supply Assembly etching process		4. apply procedures in household electrical installation following the safety precautions 5. apply procedures in power supply assembly with safety precautions

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
• soldering practices • power supply assembly (bridge-type rectifier with 12V output)		
PERFORMANCE STANDARD	The learners perform household electrical installation and electronic product assembly procedures following the safety precautions	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...

Residential Refrigeration
• refrigeration system
  o mechanical
  o electrical
• refrigeration cycle
• types of refrigerants
  conventional and inverter type
	demonstrate an understanding of the concepts and principles in electrical, electronics, and domestic refrigerant system services	1. differentiate the two kinds of refrigeration systems

Preventive Maintenance Servicing • household electrical system • household electronic products • residential air-conditioning		2. apply preventive maintenance servicing procedures following the safety precautions
PERFORMANCE STANDARD	The learners perform preventive maintenance servicing following the safety precautions	
Service Costing • manpower (labor cost) • material costing	demonstrate an understanding of calculating the costs of labor and materials for servicing	3. calculate labor and material costs for services
PERFORMANCE STANDARD	The learners calculate labor and material costs for the rendered services	

COMPONENT: **INDUSTRIAL ARTS**
SECTOR: **RESIDENTIAL CARPENTRY**
DESCRIPTION: This is one of the sectors under the Industrial Arts consisting of the preliminary competencies in the specializations of Carpentry. It covers the necessary procedures in wood project fabrication, repair servicing of interior and exterior components of a residential house that covers doors, windows, floors, roofs, ceilings, countertops, stairs, railings, wall partitions, and decorative molding.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Introduction to Carpentry ● rough carpentry ● finishing carpentry ● woodworking ● fabrication	demonstrate an understanding of the concepts and principles in carpentry works	1 discuss principles and concepts in carpentry
Career/Business Opportunities		2. discuss career/business opportunities in carpentry
Wood Lumber, Bamboo, and Rattan Types ● types of wood lumber, bamboo, and rattan ● wood lumber cuts and applications ● defects ● new technologies for bamboo-made products		3. discuss the wood lumber, bamboo, and rattan classification

Carpentry Byproducts
● wood
  ○ plywood
  ○ plyboard
● non-wood
  ○ composite materials
  ○ engineered bamboo
		4. recognize the use of carpentry byproducts

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Forestry Regulatory Laws • DENR Administrative Orders 2021-05 ("Rules and regulations governing the establishment, harvest and transport of bamboo") • DENR Administrative Orders 2021-11 ("Revised regulations governing the establishment and operations of wood processing plants") • DENR Administrative Order No 89-04 ("Rattan cutting contract and other party to cut gather and transport rattan")		5. discuss the principles and concepts related to forestry regulatory laws
Wood Lumber Computation and Pricing • board meter computation • board foot computation		6. apply wood lumber calculation and pricing

Carpentry Power Tools and Equipment
• power tools
  o circular saw
  o jigsaw
  o miter saw
  o planer
  o router
• equipment
  o bandsaw
  o jointer machine
  o table saw
  o wood lathe machine
		7. demonstrate the use of power tools and equipment following the safety precautions

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...
Maintenance of Power Tools and Equipment • storage • care		8. demonstrate the maintenance of power tools and equipment
Handling and Storing of Consumables • hardware • laminations • wood • wood fasteners • wood finishing materials		9. discuss the handling and storing of consumables
Common Wood Joint • butt • mortise and tenon joints • splice miter		10. demonstrate procedure in wood joints with safety
PERFORMANCE STANDARD	The learners perform making wood joints following the safety precautions	

Project Planning
• Parts of Project Plan
  o title
  o objectives
  o tools and materials
  o safety
  o precautions
  o procedures
  o working
  o drawing
• costing and canvassing of materials
• project market value
		11. prepare a project plan

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Fabricated Wood/ Bamboo/Rattan Project (furniture /fixture)		12. apply procedures in wood/bamboo/rattan projects following the safety precautions
Types of Wood Finishing ● laminating ● painting ● pyro finishing ● varnishing		13. apply procedures in wood/bamboo/rattan finishing following the safety precautions
PERFORMANCE STANDARD	The learners perform wood/bamboo/rattan project fabrication following the safety precautions	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Carpentry Works in Residential Structure ● roofs ● ceilings ● doors ● windows ● floors ● partitions ● stairs and railings ● cabinets	demonstrate an understanding of the concepts and principles of carpentry works in residential structures	1. discuss the importance of carpentry works in residential structure
Materials and Consumables for Residential Carpentry Repair According to the following: ● fasteners ● finishing materials ● hardware ● lumber materials		2. classify materials and consumables for residential carpentry repairs following the safety precautions

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Residential Repair Cost Estimate ● material costing ● fixed labor costing (minimum wage)		3. prepare an estimate of residential repair cost-based outputs
Residential Carpentry Repairs ● roofs ● ceilings ● doors ● windows ● floors ● partitions ● stairs and railings ● cabinets		4. apply procedures in residential carpentry repairs with safety precautions
PERFORMANCE STANDARD	The learners perform residential carpentry repairs following the safety precautions	

COMPONENT: **INDUSTRIAL ARTS**
SECTOR: **RESIDENTIAL MASONRY AND TILE SETTING**
DESCRIPTION: This is a course in Industrial Arts consisting of the preliminary competencies in the specializations of Residential Masonry and Tile Setting. It covers the necessary procedures for site preparations, concrete reinforcements, formworks, concrete preparations, classification of tiles, and tile setting.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Masonry Works
● indoor construction
  o flooring works
  o block laying works
  o plastering works
  o precast installation works
● outdoor construction
  o building construction
  o roads
  o bridges
  o boundary
  o landmark
  o amusement parks
	demonstrate an understanding of the concepts and principles in masonry works	1. identify masonry works

Masonry Works
● materials
  o aggregates
  o cement
  o lime
  o CHB and bricks
  o reinforce steel bar
● consumables
  o GI wire
  o nails
  o lumber
  o plywood
● roughing-up tools
● masonry surface finishing tools
		2. differentiate materials, consumables, tools, equipment, and special tools in masonry works

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
● special tools 　○ H-frame scaffolding 　○ wheelbarrow 　○ mixing board 　○ mortar box ● equipment 　○ bagger mixer 　○ jackhammer 　○ humper tamper 　○ cut-off machine		
Single-Story Residential plan ● floor plan 　○ dining room 　○ living room 　○ bedroom 　○ kitchen 　○ comfort room ● elevation plan		3. illustrate a single-story residential plan
Site Preparation ● excavation ● backfilling ● compaction *(note: Mock-up Board may be used if the site is unavailable)*		4. apply site preparation following the safety precautions
Concrete Reinforcement ● classification of steel bar 　○ corrugated bar 　○ size of steel bars ● spacing of steel bar ● steel tying		5. identify types of steel bars 6. apply procedures in concrete reinforcement following the safety precautions

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...

Formworks
   ● assembly
   ● disassembly
		7. apply procedures in formworks assembly and disassembly following the safety precautions

Concrete Preparation ● types of mixture proportion ● mixing concrete ● depositing of concrete ● curing concrete		8. apply procedures in concrete preparation following the safety precautions
PERFORMANCE STANDARD	The learners perform concrete preparations following the safety precautions	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners...	LEARNING COMPETENCIES The learners...

Classification of Tiles
   ● ceramic tile
   ● porcelain tile
   ● marble
   ● glass tile
   ● terracotta tile
   ● quarry tile
   ● concrete tile
   ● natural stone tile
	demonstrate an understanding of the concepts and principles in tile setting works	1. discuss the classification of tiles

Tools, Materials, and Equipment in Tile Setting
   ● Tools
      o tile scriber
      o straight edge
      o margin trowel
      o finishing trowel
      o gauging trowel
      o notch trowel
      o pointing trowel
		2. demonstrate tools, equipment, and materials for residential tile setting

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

o spiral mixer
o spacer
o tile nipper
● Equipment
   o wet saw
   o table wet saw
   o tile cutter
   o angle grinder
● Consumables
   o fine sand
   o cement
   o lime
   o grout		

Tile Installation ● floor bed preparation ● tile-cutting techniques ● tile installation techniques ● grouting techniques ● polishing techniques		3. apply procedures in tile installation following the safety precautions
PERFORMANCE STANDARD	The learners perform tile installation following the safety precautions	
Service Costing ● material costs ● labor costs	demonstrate an understanding of masonry/tile installation services computation	4. compute masonry/tile setting service cost
PERFORMANCE STANDARD	The learners compute masonry and tile setting service cost	

COMPONENT: **INDUSTRIAL ARTS**
SECTOR: **RESIDENTIAL PLUMBING**
DESCRIPTION: This is one of the sectors under the Industrial Arts consisting of the preliminary competencies in the specializations of Technical Drafting and Residential Plumbing. It covers the necessary procedures in drafting floor plan layout, pipe installation, and repair.

QUARTER I/II

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Fundamentals of Residential Plumbing ● plumbing system ○ drainage ○ waste ○ water supply - hot and cold	demonstrate an understanding of the concepts and principles in residential plumbing works	1. discuss the residential plumbing system and its components
Residential Floor Plan with Plumbing Layout ● features ○ floor plan ○ plumbing layout – drainage – waste – water supply ○ plumbing system diagram (isometric)		2. discuss the different features of a residential floor plan with plumbing layout
Drafting Floor Plan with Plumbing Layout ● drawing tools, materials, and draft design ● walls, doors ○ fixtures ○ signs and symbols		3. draft the floor plan with the plumbing layout
		4. draft the fixtures, signs, and symbols on the floor plan with plumbing layout & its diagram

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

o plumbing system diagram (Isometric)
o dimensioning
   - elements
   - systems
   - methods
		5. label the floor plan with plumbing layout and its diagram with dimensions

PERFORMANCE STANDARD	The learners draft floor plan with plumbing layout and its diagram with dimensions	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
Handling and Storing of Consumables ● joints ● fittings ● fixtures ● adhesive ● de-clogger ● sealants	demonstrate an understanding of the concepts and principles in residential plumbing works	1. discuss the handling and storing of consumables
Hand Tools ● cutting ● reaming ● threading ● de-clogger Maintenance of Hand Tools ● storage ● care		2. demonstrate the use of hand tools and equipment following the safety precautions 3. demonstrate the maintenance of hand tools following the safety precautions

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Pipe Installation
  ● specification, measurement, and design
  ● pipe joining and fitting method
 	
Pipe Installation Testing
		4. apply procedures in pipe installation with safety precautions
		
		5. apply procedures in testing pipe installation with safety precautions

Pipeline Testing and Troubleshooting
  ● types of troubles
  ● types of tests
    o leak test
    o system test
    o pressure test
		6. apply procedures in pipeline testing and troubleshooting following the safety precautions

Pipeline Repair		7. apply procedures in pipeline repair following the safety precautions
PERFORMANCE STANDARD	The learners perform pipeline services following the safety precautions	

Plumbing System Repair
  ● material costing
  ● manpower (labor costing)
	demonstrate an understanding in repair service cost	8. compute repair service cost

PERFORMANCE STANDARD	The learners compute pipeline services cost	

COMPONENT: **INDUSTRIAL ARTS**
SECTOR: **SHIELDED METAL ARC WELDING (SMAW)**
DESCRIPTION: This is one of the sectors under Industrial Arts consisting of the preliminary competencies in the specializations of Shielded Metal Arc Welding. It covers necessary procedures in welding techniques, joints, defects, and repair.

QUARTER I/III

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Introduction to Arc Welding Processes
• arc welding processes
  o Shielded Metal Arc Welding (SMAW)
  o Flux-Cored Arc Welding (FCAW)
  o Gas Metal Arc Welding (GMAW)
  o Gas Tungsten Arc Welding (GTAW)
  o Submerged Arc Welding (SAW)
  o Plasma Arc Welding (PAW)
	demonstrate an understanding of the concepts and principles in shielded arc welding works	1. discuss the arc welding processes

Parts and Functions of Shielded Metal Arc Welding (SMAW) Machine
• types and uses of SMAW Machine
  o transformer
  o rectifier
  o inverter
  o motor engine generator
• procedures in setting up of SMAW Machine
		2. demonstrate setting-up of welding machine based on required specifications and/or manufacturer's instructions following the safety precautions

Types of Welding Positioners, Jigs, and Fixtures • uses and Functions • weld locations		3. assemble welding positioner, jigs, and fixtures according to job requirements following the safety precautions

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
o fieldwork o stationary		
Types of Weld Joints and Procedures • butt joint • tee joint • corner joint • lap joint • edge joint		4. differentiate the types of weld joints and procedures
Welding Codes and Standards • American Welding Society (AWS) • American Society of Mechanical Engineers (ASME)		5. discuss welding codes and standards based on AWS and ASME
AWS Electrode Specifications • tensile strength • position of the weld • type of electrode coating • current supply (AC/DC) and polarity		6. distinguish electrodes according to job specifications
Plate Welding Positions and Preparations • welding positions o flat o horizontal o vertical o overhead o groove weld position o fillet weld position • cutting and edge preparations • mechanical • gas • plasma		7. distinguish plate welding positions 8. apply plate cutting and edge preparations following the safety precautions

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Welding Defects and Inspection Methods
• defects
  o types
  o causes
  o remedies
• Non-Destructive Testing (NDT)
• Destructive Testing (DT)
		9. distinguish welding defects and inspection methods

PERFORMANCE STANDARD	The learners perform plate cutting and edge preparations	

QUARTER II/IV

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…

Shielded Metal Arc Welding (SMAW) Processes and Techniques
• welding techniques
  o current setting
  o length of arc
  o angle of electrode
  o speed of travel
  o selection of electrode
	demonstrate an understanding of the concepts and principles in shielded arc welding works	1. explain welding techniques

Striking an Arc • scratching • tapping		2. apply the methods of striking an arc following the safety precautions
Weld Beads • types • characteristics		3. apply weld beads in flat and horizontal positions following the safety precautions
Weld Repairs • weld defects removal and excavation		4. apply weld repairs with safety

CONTENT	CONTENT STANDARD The learners…	LEARNING COMPETENCIES The learners…
• re-welding procedures		
PERFORMANCE STANDARD	The learners perform Shielded Metal Arc Welding processes and techniques	
Service Cost • material costing • manpower (labor costing)	demonstrate an understanding of computing cost services	5. compute the service cost based on the job requirements
PERFORMANCE STANDARD	The learners compute the service cost based on job requirements	

IV References:

Autor, D H, Levy, F, & Murnane, R J () *The skill content of recent technological change : an empirical exploration* National Bureau of Economic Research

American Association Of Colleges For Teacher Education Committee On Technology And Innovation (2008) *Handbook of technological pedagogical content knowledge (TPCK) for educators* Routledge For The American Association Of Colleges For Teacher Education

Bransford, J D, Brown, A L, & Cocking, R R (2000) *How people learn : brain, mind, experience, and school* National Acad Press

Critical Skills Survey Executive Summary (nd) https://wwwamanetorg/assets/1/6/2012-critical-skills-surveypdf

Darling-Hammond, L, Fickel, L, & Al, E (2006) *Powerful teacher education : lessons from exemplary programs* Jossey-Bass, Cop

Duncan, A () *Teacher preparation : reforming the uncertain profession : address by the Secretary of Education to the Teachers College of Columbia University* US Dept of Education

Emas, R (2015) *The Concept of Sustainable Development: Definition and Defining Principles* https://sustainabledevelopmentunorg/content/documents/5839GSDR%202015_SD_concept_definiton_revpdf

https://wwwgooglecom/url?q=https://wwwtesdagovph/Uploads/File/TRCode/Promulgated%2520Training%2520Regulations%2520as%2520of%2520March%25202016pdf&sa=D&source=editors&ust=1633048951784000&usg=AOvVaw05Ss5fT2_qgtbvt-zrbS3t

https://wwwgooglecom/url?q=https://teacherofscicom/learning-theories-in

https://wwwgooglecom/url?q=https://aseanorg/wp-content/uploads/2012/05/ASEAN-MRA-TP-Handbook-2nd-Edition-2018pdf&sa=D&source=editors&ust=1633048951764000&usg=AOvVaw0y3WGbGBAz9kMCdTiuJag_

https://wwwgooglecom/url?q=https://chedgovph/wp-content/uploads/2018/03/CMO-62-BS-Hospitality-Tourism-Managementpdf&sa=D&source=editors&ust=1633048951762000&usg=AOvVaw1ZezQI76kzjNlXVlloqMaA

https://wwwresearchgatenet/figure/21-st-Century-Skills-Education-Competitiveness-Partnership-for-the-21-st-Century-2008_fig4_314029289

Levine, A () *Educating school teachers* Education Schools Project

Lim, C P, Chai, C S, & Churchill, D () *Leading ICT in education practices : a capacity-building toolkit for teacher education institutions in the Asia-Pacific* Microsoft Partners-in-Learning (Asia-Pacific)

Office of Educational Technology (2015) Office of Educational Technology https://techedgov/netp/

Tomson, O (nd) The Spiral Progression Approach in the K to 12 Curriculum *Wwwacademiaedu* Retrieved September 9, 2022, from https://wwwacademiaedu/34849755/The_Spiral_Progression_Approach_in_the_K_to_12_Curriculum

Unleashing the Future: Educator (2010) In *ERIC* Project Tomorrow https://ericedgov/?id=ED536063

Wiggins, G P, & McTighe, J () *The Understanding by design guide to advanced concepts in creating and reviewing units* ASCD