

Agriculture and Fishery (Aquaculture)

Learner's Material

Module 1

This instructional material was collaboratively developed and reviewed by educators from public and private schools, colleges, and/or universities. We encourage teachers and other education stakeholders to email their feedback, comments, and recommendations to the Department of Education at action@deped.gov.ph.

**Department of Education
Republic of the Philippines**

**Technology and Livelihood Education – Grade 9
Agriculture and Fishery (Aquaculture)
Learner’s Material
First Edition, 2014**

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TECHNOLOGY AND LIVELIHOOD EDUCATION
AGRICULTURE AND FISHERY
Specialization
(Aquaculture)
Grade 9



Introduction

This learning material will equip you with the knowledge, skills and attitudes pertaining to Aquaculture. It covers one core competency that a Grade 9 Technology and Livelihood education (TLE) student ought to learn.

It is composed of six modules.

Module 1: Personal Entrepreneurial Competencies

Module 2: Environment and Market

Module 3: Conduct Pre-Operational Aquaculture Activities

Module 4: Changing the Water of Aquaculture Facility

Module 5: Monitor and Analyze Mortalities

Module 6: Prepare and Secure Aquaculture Facilities

As you go through the process of learning the six modules gaining the knowledge and skills in Aquaculture, you will have the readiness to participate in any fishery program of the government and promote economic progress of your community and the country.



General Objectives:

At the end of the module, you are expected to

- ❖ Demonstrate understanding of the underlying theories in aquaculture.
- ❖ Demonstrate understanding of one's Personal Entrepreneurial Competencies and Skill (PECs) in Aquaculture.
- ❖ Demonstrate understanding of environment and market in Aquaculture in one's town/municipality.
- ❖ Demonstrate understanding on the preparation of tools, equipment and aquaculture facilities for operation.
- ❖ Select appropriate method of water exchange in aquaculture facility.

- ❖ Determine and analyze mortality.
- ❖ Prepare and secure Aquaculture facilities.



What Is This Learning Material About?

Aquaculture

K to 12 – Technology and Livelihood Education

This learning material has 6 Modules. Each Module has the following parts.

- Learning Objectives
- Content Standards
- Performance Standards
- Pre-Assessment
- Reading Resources/ Instructional Activities
 - ◆ What to KNOW?
 - ◆ What to PROCESS?
 - ◆ What to REFLECT or UNDERSTAND?
 - ◆ What to TRANSFER?
- Post Assessment



How Do You Use The Module?

To get the most from every module, you need to do the following:

1. Begin by reading and understanding the Learning Objective/s, Content and Performance Standards. These will tell you what you should know and be able to do at the end of each module.
2. Find out what you already know by taking the Pretest. If you get 80% to 100% of the items correctly, you may proceed to the next Module. This means that you need not to go through the Module because you already know what it is about. If you failed to get 80% to 100% correctly, go through the Module and review especially those items which you failed to answer correctly.

3. Do the required Learning Activities. They begin with one or more Information Sheets. An Information Sheet contains important notes or basic information that you need to know. After reading the Information Sheet, test yourself on how much you learned by means of the Self-check. Do not hesitate to go back to the Information Sheet when you do not get all test items correctly. This will ensure your mastery of basic information.
4. Demonstrate what you learned by doing what the Activity / Operation /Job Sheet directs you to do.
5. You must be able to apply what you have learned in another activity or in real life situation.
6. Accomplish the Scoring Rubrics for you to know how well you performed.

Each lesson also provides you with references and definitions of key terms for your guide. They can be of great help. Use them fully.



Pre-Assessment

Directions: Provide information on what you already know in the first column (**K**), and what you want to know in the second column (**W**). You will record what you have learned in the third column (**L**) as the lesson progress. In the fourth column (**S**) So What is used to list ways in which the new knowledge will be useful to you in relation to Personal Entrepreneurial Competencies (PECs), Environment and Marketing (E&M), Conduct Pre-Operation Aquaculture Activities (CPOA), Changing Water of Aquaculture facility (CWAF), Determine and Analyze Mortality (DAM), Prepare and Secure Aquaculture Facilities (PSAF).

	K (Know)	W (Want)	L (Learned)	S (So What)
PECs				
E &M				

CPOA				
CWAF				
DAM				
PSAF				

Learning Goals/Targets

Having identified your strengths and areas for improvement, you are now ready to set your learning goals and target.

Now, think further and write your goals and targets below.

GOALS

TARGETS (specific objectives with dates indicated)



Module 1. Personal Entrepreneurial Competencies (PECs)



Have you ever thought of running your own business? Entrepreneurship has brought great success to some, but it's not a career path for all. Do you think you can handle the stress and hard work that go with running a small business enterprise? The key to succeed in a small business enterprise is your entrepreneurial ability to produce the desired results. Before embarking on your first business, it's worth spending some time evaluating your own preparedness for entrepreneurship. Try to examine your own personality and compare it with the Personal Entrepreneurial Competencies (PECs) of a successful entrepreneur. Ask yourself if you are ready to enter into the world of business. If your answer is yes, take this reminder: ***“Successful entrepreneurs continuously develop and improve their PECs”.***

Content Standard	Performance Standard
The learner demonstrates understanding of Personal Entrepreneurial Competencies (PECs).	The learner prepares an activity plan that addresses his/her development areas based on his/her PECs and improves further his/her areas of strength.



Learning Objectives:

1. Assess ones' Personal Entrepreneurial Competencies (PECs): characteristics, attributes, lifestyles, skills and traits.
2. Assess practitioner's characteristics, attributes, lifestyle, skills, and traits.
3. Compare one's PECs with that of a practitioner /entrepreneur.
4. Align one's PECs with that of a practitioner/ entrepreneur.

Hello there! Are you ready to assess yourself to become a successful entrepreneur in the future? As honest as you could, please answer the pre-assessment below.



Pre- Assessment

A. Matching Type

Directions: Column A lists the characteristics of a successful entrepreneur. Draw a line from the items in Column A that connects with the correct definition of terms listed in Column B.

Column A	Column B
1.Hardworking 2.Self-confident 3.Profit-Oriented 4.Goal-Oriented 5.Persistent 6.Responds to feedback 7.Willing to listen 8.Committed 9.Reliable and has integrity 10.Risk-taker	a. Ability to set realistic targets. b. Interest in money generation. c. Belief in oneself to succeed. d. Working diligently and industriously. e. Being able to listen to the advice of others. f. Obtaining useful feedback and advice from others. g. Being patient and strives to achieve the goal. h. Ability to take measured or calculated risks. i. Being honest, fair and trustworthy. j. A major priority in the entrepreneur's life.



Are you done? This time you will do another set of pre-assessment which could give you a better understanding of what this module is all about. Are you ready? So, let's begin!

B. Multiple Choice.

Directions: Read and study the situation that describes the entrepreneurial characteristics or attributes. Answer the question by writing the letter of your choice in your assignment notebook or in the answer sheet provided.

Mrs. Gina Magno opens her own processed fish product business. She knows that her personal entrepreneurial characteristics are insufficient to ensure a successful operation of the business that she has in mind. Your answers to the questions below will help in developing her PECs.

1. What PECs must she possess if there are customers who complain about the quality of her product?
 - a. Hardworking
 - b. Patient
 - c. Versatile
 - d. All of the above
2. Which of the following is NOT considered a characteristic of an entrepreneur?
 - a. Copes with failure
 - b. Dependent
 - c. Opportunity seeker
 - d. Persistent
3. If she wants to ensure a profitable business operation, what characteristic must she maintain?
 - a. Committed
 - b. Futuristic
 - c. Goal oriented
 - d. Opportunity seeker
4. Mrs. Magno follows the advice of a friend to be flexible especially if she intends to open a retail business. What PECs does Mrs. Magno demonstrate?
 - a. Open to feedback
 - b. Persistent
 - c. Reliable and has integrity
 - d. Confident

5. She tells Mary, her best friend that she has a strong will and does not give up in find a solution to a business problem. What PECs has been does Mrs. Magno demonstrate?
- a. Hard work
 - b. Persistence
 - c. Risk- taking
 - d. Confident



This time evaluate your own personal entrepreneurial characteristics to determine whether you too, can become an entrepreneur. If you are ready, you may begin!

C. Self- Assessment

Directions: Below is a list of Personal Entrepreneurial Competencies (PECs) of a successful entrepreneur. Put a check mark on the 2nd column that indicates your strong PECs. The check mark on the 3rd column are those PECs that need to be developed.

Personal Entrepreneurial Competencies of an Entrepreneur	My Personal Entrepreneurial Competencies	
	Strength	Need to be Developed
Hardworking		
Self-confident		
Builds for the future		
Profit-oriented		
Goal-oriented		
Persistent		
Copes with failure		
Responds to feedback		
Demonstrates initiative		

Willing to listen		
Sets own standards		
Copes with uncertainty		
Committed		
Builds on strengths		
Reliable and has integrity		
Risk-taker		



Did you enjoy examining yourself? You can become a successful entrepreneur someday. Please don't feel bad when you discover that you still have PECS to be developed. Continue your exploration to find answers to these underdeveloped PECs



What to KNOW?

Lesson1. Important Entrepreneurial Traits

The following are the fundamental characteristics of an entrepreneur:

1. **Hard working:** If you are determined to run your own business, you must concentrate on your work either as a producer or a seller. The success of your business depends on how much time and effort you will spend on it.
2. **Self- Confidence:** You must have a strong faith in your ability despite the problems that you may encounter along the way.
3. **Future-Oriented:** Once you enter in a line of business, you must understand that you are in a non-stop contract. It may take several years to build up a business to a reasonable standard. The goal of most successful business people is to build a secure job with a stable income based on their own ability.

4. **Profit-Oriented:** When you enter into the world of business, obviously, you are looking for income because you know that this will be your bread and butter not only for you but also for your family. Therefore, you must see to it that the business can generate income. Another plan of action is to expand your own business through the use of your generated income.
5. **Goal-Oriented:** An entrepreneur is forward looking. You must have an advanced preparation for your business. You must set a long-term goal for the activities that are needed, an extensive preparation for the production process and procedures that you need to go through to acquire, human and non-human resources. Everything in your business **will have to be** set clearly, organized, and well-planned depending on the goal you want to achieve.
6. **Persistence:** Differences in opinion and judgment. Your opponent can be a part of the rejection on what you intend to do for your endeavor. As an entrepreneur, you must be firm, strong-willed, and stick or follow what you believe is the best.
7. **Copes with Failure:** “Learn from your mistakes”. As an entrepreneur, you must learn how to deal with the frustrations and failures. Instead, turn these into productive learning experiences.
8. **Responds to Feedback or Open to Feedback:** You must be concerned to know how well you are doing and keep track of your performance. You must obtain useful feedback and advice from others.
9. **Takes the Initiative:** A successful entrepreneur takes the initiative. You must put yourself in a position where you, personally, are responsible for the failure or success of your business.
10. **Shows Willingness to Listen:** Take time to listen to the advice, suggestions, and recommendations of fellow entrepreneurs. It will help your business grow.
11. **Set your Own Standards:** This involves developing and using logical, step-by-step plans to reach the goal; offering evaluation alternatives, monitoring progress, and switching to successful strategies. To be a successful entrepreneur, you must take into consideration that sales and production depend on your own standards.

12. **Copes with Uncertainty:** Pursue your vision to be a successful entrepreneur. You should know how to handle unusual events that may happen in the business. These include problems in; managing the workers, the delivery of goods and services, and the demand and production. You must be patient in dealing with these uncertainties.
13. **Shows Commitment:** You should know that in your business, personal needs, attachment to your friends, families, and relatives are set aside. You must separate the money for your business from the amount that you need to spend for personal obligations and lifestyles.
14. **Builds on Strengths:** Successful business people base their work on strengths. Use your manual skills, and knowledge in creating products or services. Use also your knowledge in trade and industry, and the ability to make and use a wide network of contacts to build your business.
15. **Reliable and has Integrity:** An entrepreneur must build a good reputation, and possess the courage to do the right thing. Do what you say, walk your talk, be loyal, and be fair in dealing with the subordinates and costumers.
16. **Risk-Taker:** Risk sometimes cannot be anticipated. When misfortunes happen, consider these as challenges. Work them out and set good alternatives. Risks may result to loss of your business or even bankruptcy.



What to PROCESS:



Activity1: Aligning one's PECs

Directions: Choose from the list below the characteristics and traits that best describe your own personal entrepreneurial characteristics. Find ways on how to align them according to the personal characteristics of an entrepreneur which were discussed earlier. Write your answers in the activity sheet provided.

Creative	Resourceful	Persistent	Organized	
Independent	Confident	Risk taker	Observant	
Competent	Trustworthy	Optimistic	Passionate	
Flexible	Sensitive	Committed	Strong-minded	
Knowledgeable	Hardworking	Decision-maker	Dynamic	
Efficient	Persevering	Decisive	Reliable	Courteous

Example: My PECs

My PECs	My Simple Definition	Things to do to align with PECs of a successful entrepreneur.
1.Creative		
2.Organized		
3. Competent		
4. Observant		



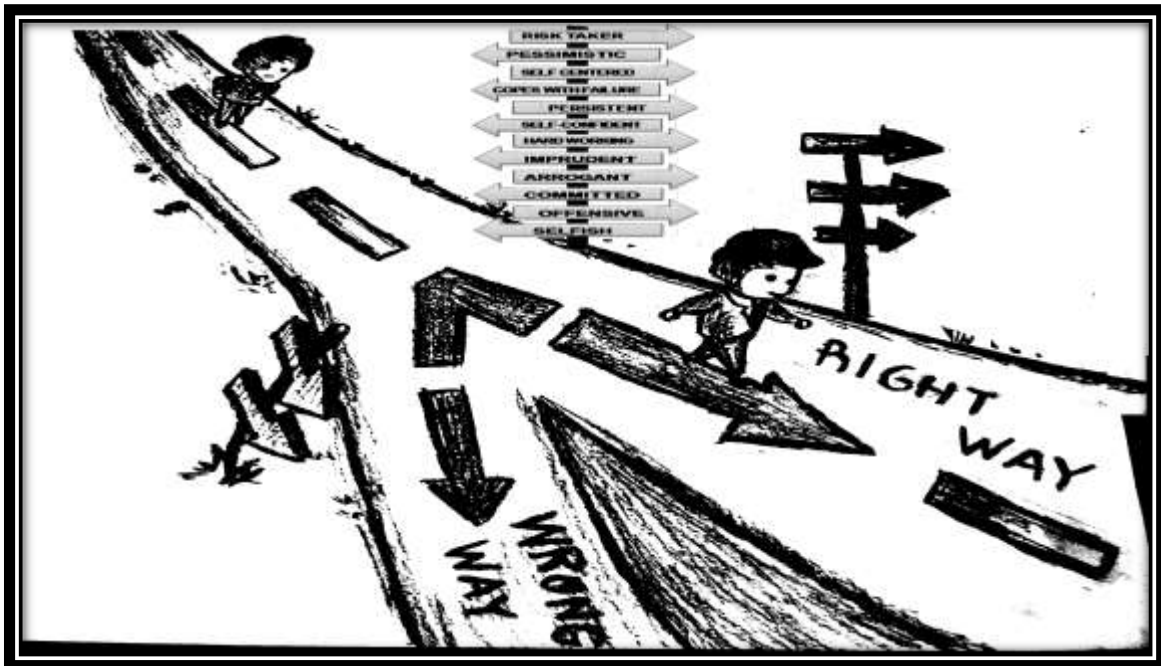
Try to design a concept map that indicates your traits, characteristics and skills that you need to possess in order to become a successful entrepreneur.



Activity 2. My PECs that need to be further improved

Directions: At the center of the street are arrows where positive and negative characteristics and traits are written. Pick out the positive PECs that

you are already strong at, and write them down below the blank arrows on the left side. PECs written on the arrows at the right side are the negative characteristics that need to be further improved.



What to REFLECT and UNDERSTAND?

Strengthening your Identified PECs

Here are your guides on how to strengthen your own PECs.

1. React positively to criticisms and be open to feedback.
2. Always demonstrate positive attitude to achieve a desired goal.
3. Always project strong and well-balanced behavior.
4. Always exercise the assertive style in your work environment.
5. Avoid being too passive and too aggressive.
6. Don't let anyone worsen your business life.
7. Prioritize your business goal rather than your personal goal in order to become a successful entrepreneur.
8. Acquire specific skills for creating and maintaining a conducive work environment.
9. Be responsible in everything you do in your business.
10. Always observe business ethics in putting up a business.



Hello! I'm here once again check whether you have achieved a certain point when you could honestly tell that you are already successful in strengthening your own PECs.

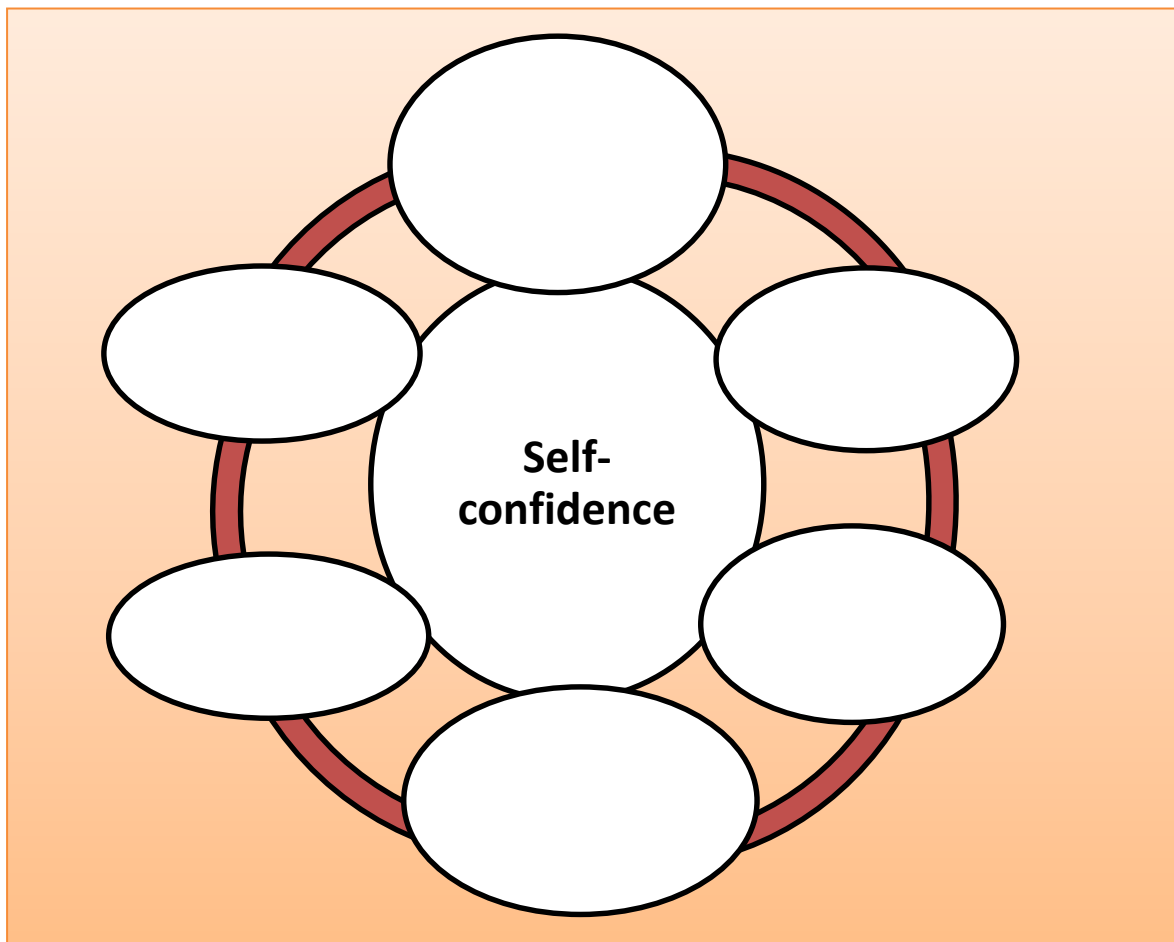
Let's see!



Activity 1 My techniques to strengthen PECs

Directions: From the given chart below, write at least six techniques on how you could strengthen your own PECs. Write the PECs that you feel you still need to focus on to strengthen them.

Example: Self-confidence





What to TRANSFER:



Preparation of an Action Plan

Culminating Activity

Directions: Examine yourself once again. Make a list of PECs that you need to strengthen. Then, prepare an action plan to develop them further. You may opt to follow the suggested format below. You may improve or change it as long as it suits your own plan of action.

Sample Action Plan

Specific Purpose Statement: (<i>Your vision of your future</i>) Ex. Developing self-confidence in retail business.						
Focus Area	Current Situation	Goal	Measures of Success	Actions Required	Time Frame	Reward/ Recognition
My PECs	I need to develop my undefined characterise -tics need for my retail business. such as: _____ _____ _____ _____	To exercise my own PECs during selling and producing products/ services -To become successful in my chosen business.	Achieve 100% completion of development of my own PECs through selling and production of products, and proper manner in dealing with people.	-Selling finished products derived from culminating activities in my chosen career. -Participate in skills competition sponsored by the NGO, and GOs	-During the culminating activities -After learning the principles, theories, and process in the chosen business	-Earns expected income -Outstanding performance in selling and promoting products and services



Answer the post assessment below to determine whether there is a significant increase in your understanding of PECs.

Good Luck!



Post-Assessment

A. Matching Type

Directions: Column A lists the characteristics of a successful entrepreneur. Draw a line from the items in Column A that connects with the correct definition of terms listed in Column B.

Column A	Column B
1. Hardworking	a. Ability to set realistic targets.
2. Self-confident	b. Interest in money generation.
3. Profit-oriented	c. Belief in oneself to succeed.
4. Goal-oriented	d. Working diligently and industriously.
5. Persistent	e. Being able to listen to the advice of others.
6. Responds or open to feedback	f. Obtaining useful feedback and advice from others.
7. Willing to listen	g. Being patient and strives to achieve the goal.
8. Committed	h. Ability to take measured or calculated risks.
9. Reliable and has integrity	i. Being honest, fair and trustworthy.
10. Risk-taker	j. A major priority in the entrepreneur's life.

B. Multiple Choice

Directions: Read and study the situation that describes entrepreneurial characteristics. Then answer the question by writing the letter of your choice in your assignment notebook or in the provided answer sheet.

Mrs. Gina Magno opens her own processed fish products business. She knows that her personal entrepreneurial characteristics are insufficient to ensure a successful operation of the business she has in mind. Your answers to the questions below will help in developing her PECs.

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 - a. Hardworking
 - b. Patient
 - c. Versatile
 - d. All of the above

2. Which of the following is NOT considered as a characteristic of an entrepreneur?
 - a. Copes with failure
 - b. Dependent
 - c. Opportunity seeker
 - d. Persistent

3. If she wants to ensure a profitable business operation, what characteristic will she maintain?
 - a. Committed
 - b. Futuristic
 - c. Goal oriented
 - d. Opportunity seeker

4. Mrs. Magno follows the advice of a friend to be flexible especially if she intends to open a retail business. What PECs does Mrs. Magno demonstrate?
 - a. Open to feedback
 - b. Persistent
 - c. Reliable and has integrity
 - d. Self- confident

5. She tells Mary, her best friend that she has a strong will and does not give up in finding a solution to a business problem. What PECs does Mrs. Magno demonstrate?
 - a. Hard work
 - b. Persistence
 - c. Risk- taking
 - d. Self-confidence