

NEW!

Aquaculture PAC

The Aquaculture CPU introduces students to an often-overlooked portion of agriculture. The course includes a broad scientific component, including biology, animal care and feeding, and physical science. Math skills are also heavily used. In addition, students engage economic topics through activities that simulate an aquaculture farm.

Key Features:

- In-depth look at the vital role of water quality in aquaculture, including continuous, hands-on water quality testing by students.
- Anatomy and physiology of fish and other aquatic life are examined, including disease, parasites, and feeding habits.
- Focus on the business side of an aquaculture farm, including marketing, costs, and profit analysis.



Topics Covered:

- The aquaculture industry and markets
- Effects of environmental changes on aquatic life, such as temperature, oxygen content, and other physical and chemical factors
- How diet affects livestock growth and farmer yield
- Other factors that can affect the health and growth of aquatic life, including disease, parasites, and stressors
- Identifying equipment used in aquaculture
- Aspects of agribusiness, including record keeping and other good business practices

Academic Concepts and Skills:

- Reading
- Writing
- Math
- Physical science
- Biology/ecology
- Business/entrepreneurship
- Problem solving
- Research
- Teamwork
- Resource allocation
- Technological literacy



Aquaculture PAC
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The **Aquaculture PAC** involves the study of the history of aquatic resources and their development into a marketable culture. Students will also have a better understanding of how aquatic resources are used in the practice of aquaculture.

- Discover how adding one piece of material can make a structure significantly stronger.
- Define aquaculture.
- Identify current trends in fish production.
- Explore common aquaculture practices.
- Consider why aquaculture is regarded as one possible solution to the world's food supply problem.
- Analyze crop production from hatchery through consumer.
- Explain why water quality management is important to the aquaculturist.
- Describe composition and physical states of water.
- Define hydrologic cycle.
- Identify current aquaculture markets.
- Discuss why water quality is important to both aquaculture and to your daily life.
- Test the temperature of water.
- Define dissolved oxygen.
- Describe how dissolved oxygen is changed.
- Test the dissolved oxygen level of water.
- Properly use hazardous materials.
- Discuss why you might need to know the temperature and dissolved oxygen content of a pond where fish are produced and how this might be affected by the weather.
- Define pH.
- Test pH of water.
- Describe how the unit "parts per million" is used.
- Explore the career of aquaculture farmers.
- Discuss how you would raise the pH levels in a pond in your area that has low pH values, what materials you would need, and how could you get them.
- Test the total alkalinity of water.
- Test the total hardness of water.
- Describe the purpose of monitoring alkalinity and hardness.
- Explain why monitoring total hardness and alkalinity in a pond used to raise fish is important and how you could manage a pond that has high alkalinity.
- Test the nitrite level of water.
- Describe the digestive system of catfish.
- Determine the effect on metabolic rate of fish by a variety of variables.
- List four forms of feed.
- Identify use of feed forms.
- Calculate feed rates.
- Discuss how knowledge of feeds and feeding rates is necessary in aquaculture and how this might have affected how you fed your own fish in the past.
- State the best growing conditions for a given species.
- Describe the food cycle.
- Identify the basic anatomy of catfish.
- Create a development plan for a chosen species.
- Analyze markets available.
- Describe management functions used to create a profitable business.
- List and describe three records that must be maintained by an aquaculture business owner.
- Explore the career of agricultural scientists.
- Discuss factors that may influence what aquatic species an aquaculturist decides to culture and how each of these affects his or her decisions.
- Test the ammonia level of water.
- Define disease.
- Classify stressors.
- Determine the causing agent of described symptoms.
- Consider if it is easier for a farmer who raises cattle to spot disease or its signs in livestock, or for a aquaculturist raising fish.
- List equipment used in harvesting fish.
- Explain why getting the fish to market might be a problem.
- Define turbidity.
- Explore the career of agricultural chemicals inspectors.
- Compare several pieces of equipment necessary to harvesting fish to those used by farmers of other types of livestock.
- List the materials needed to start an aquaculture business.
- Describe basic management functions used to create a profitable business.
- Identify records which must be maintained by an aquaculture business owner.
- Determine the causing agent of described symptoms.
- Discuss how an aquaculture business can benefit from a good marketing plan and what the results might be without one.
- Complete challenges to meet several high-level problem-solving objectives.
- Compare harvesting fish raised through aquaculture and catching large numbers of fish in open waters.
- Discuss how much you think a person would need to start an aquaculture business.
- Discuss some of the types of plants and animals, besides fish, that an aquaculturist might grow or breed.
- Discuss how aquaculture farms can help keep our supply of seafood stable in spite of increasing pollution of open waters.
- Select appropriate vocabulary terms based on the definitions provided.
- Test your comprehension of concepts gained during this course.
- State and explain your opinion of the Aquaculture PAC.