

# Lesson Plan

**COURSE TITLE:** Aquaculture Science

**LESSON LENGTH:**

**TOPIC:** “Planning for success”

**OVERVIEW:** In this lesson, students will learn how to calculate the number of broodfish needed to produce a desired number of fingerlings and what factors influence their survival. They will also design a spawning container based on given specifications that take the size of the fish into account. They will explore how seasonal changes and temperature effect egg production and spawning.

**ALABAMA CONTENT STANDARD(S):**

- Describe processes and environmental characteristics that effect growth rates of aquatic animals (AS13)
  - Ex: reproductive habits, seasonal changes
- Describe infrastructure necessary for aquaculture production (AS10)

**LEARNING OBJECTIVES:**

Students will be able to:

- Determine the number of pounds of broodfish needed to produce a desired number of fingerlings
- Explain the effects of seasonal changes on spawning and egg production
- Identify the most common method of spawning in broodfish management
- Construct a suitable spawning container
- Estimate the number of spawning containers needed and the approximate spacing in a given pond

**MATERIALS AND EQUIPMENT NEEDED:**

- Paper
- Pen/pencil

**TECHNOLOGY RESOURCES NEEDED:**

- Computer
- Printer
- LCD Projector
- Microsoft Word and PowerPoint
- Internet Access

CONTENT	INTEGRATED CONTENT CODE	LEARNING ACTIVITIES	RESOURCES	TIME ON TASK
<p>Material to be covered in this lesson:</p> <ul style="list-style-type: none"> <li>• Required number of broodfish to produce desired number of fingerlings</li> <li>• Required number of spawning containers needed in a given pond</li> <li>• Effects of seasonal changes on spawning and egg production</li> <li>• Common method used for spawning in broodfish management</li> </ul>	<p>R, W, M, CT, MS, DM</p>	<ul style="list-style-type: none"> <li>• Open with a question: “How many pounds of broodfish would you stock in your broodfish ponds to produce 1,000,000 fingerlings?” Ask, “How many spawning containers should you place in a pond?”</li> <li>• Present the PowerPoint estimating the number of broodfish and spawning</li> <li>• Students will complete the handout on number of broodfish needed to produce a given number of fingerlings</li> <li>• Students will design a spawning container based on some given specifications. They will then calculate the amount of containers needed in a given pond.</li> </ul>	<p>PowerPoint Presentation</p> <p>See Attached Handout</p> <p>See Attached Handout</p>	

**VARIED ASSESSMENT STRATEGIES:** Students will be evaluated on their ability to complete both handouts which present a variety of questioning methods that promote higher-order thinking. They will design a spawning container based on the broodfish requirements and estimate the number of broodfish needed to produce a desired number of fingerlings. The students will also be given a quiz on the material from the presentation.

**PROVISIONS FOR INDIVIDUAL DIFFERENCES:**

# INTEGRATED CONTENT CODES

## **BASIC SKILLS**

R=READING SKILLS

W=WRITING SKILLS

C=COMMUNICATION SKILLS

SS=SOCIAL STUDIES

M=MATH

S=SCIENCE

IR-INTERPERSONAL RELATIONSHIP SKILLS

CL=COMPUTER LITERACY SKILLS

## **PROCESS SKILLS**

DM=DECISION MAKING SKILLS

PS=PROBLEM SOLVING SKILLS

CT=CRITICAL THINKING SKILLS

## **EMPLOYABILITY**

ES=EMPLOYABILITY SKILLS

MS=MANAGEMENT SKILLS

WA=WORK ATTITUDES

TW=TEAMWORK

## **LEADERSHIP SKILLS**

IM=INTEGRATION OF LEADERSHIP

CTSO=CAREER/TECHNICAL STUDENT ORGANIZATION

LD=LEADERSHIP DEVELOPMENT SKILLS

**THE MORE INTEGRATION THE BETTER**

**Estimating Number of Broodfish:**

To produce 2,000,000 fingerlings you need to estimate how many pounds of broodfish you should stock in your ponds.

Hint: There are some conditions that you should consider when trying to reach your desired number of fingerlings. These conditions are a major deciding factor when estimating the approximate number of broodfish to stock.

Given the average percentages from the PowerPoint and the desired number of fingerlings, calculate approximately how many pounds of broodfish you should stock in your ponds.

Desired number – **2,000,000 Fingerlings**

**Design a Container:**

Design a container that will be used in your broodfish pond for spawning. The container should meet the following specifications. Draw your container in the space provided below. You should also calculate the number of containers needed for a 3-acre pond.

- Estimate the girth of the male
- Use a length/weight chart estimate the length and determine the minimum area needed to turn around (min.  $\frac{2}{3}$  length shortest dimension)
- Must sink or provide anchor
- Must be a material that will not rapidly deteriorate under water
- Must be economical, something that can be applied to even the smallest farms