

GROW YOUR PALS PROGRAM GUIDE



THE NATIONAL FFA MENTORING PROGRAM

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LESSON 36

Creating an Underwater Observatory

Unit:
ENVIRONMENTAL SCIENCE

PRECEPTS

- F. Continuous improvement
- F5. Acquire new knowledge

NATIONAL STANDARDS

NS.K-4.1 Science as Inquiry



Lesson Type:
One-on-One

STUDENT LEARNING OBJECTIVES

As a result of this lesson, the student will ...

1. Construct an underwater observatory.
2. Observe and draw an item, reflecting on observations.





TIME

Instruction time for this lesson: **30-45 minutes.**



RESOURCES

American Red Cross – Water Safety Tips



TOOLS, EQUIPMENT AND SUPPLIES

- ✓ half-gallon paper milk carton (clean and dry)
- ✓ scissors
- ✓ heavy plastic wrap
- ✓ 1 heavy rubber band
- ✓ masking tape
- ✓ sketch paper
- ✓ pencil



KEY TERMS

The following term is presented in this lesson and appears in ***bold italics***:
observatory

INTEREST APPROACH



Think for a moment you are on a submarine that has a bottom you can see through. You are able to see all of the ocean creatures just as they are. What would that be like?

Allow your mentee to give responses and discuss what they would see.



What type of plants and creatures would you see?
What would it be like if you could make something that would allow you to see inside of your aquarium or aquaculture tank?

SUMMARY OF CONTENT AND TEACHING STRATEGIES

OBJECTIVE 1. | Construct an underwater *observatory*.



*After talking about what it would be like for your mentee to actually see underwater, it is important to discuss water safety rules. The underwater **observatory** can be used in all depths and situations of water so it is important to remind your mentee how to be safe.*



We are going to make an underwater **observatory** you can use to actually see fish, plants and even insects in your home aquarium or maybe even at the lake. Imagine all of the new information you are going to be able to learn once the **observatory** is made. You will have the opportunity to see all sorts of things you might not have been able to otherwise. It is always important to seek out ways to find new information or new ways of looking at things. The more information we have about a variety of topics, the more prepared we are to learn about and absorb our surroundings. Let's work on seeing just how much new information we are going to be able to learn today. Since we are going to be around water, let's cover some of the things we should always do to keep ourselves safe.

I. Water safety

- A. Always have an adult to supervise you around water.
- B. Learn to swim, if you haven't already.
- C. If going to a lake, choose a clean and well-maintained environment.
- D. Avoid drainage ditches and washes, especially after a hard rain

II. **Observatory**

- A. **Observatory** is a structure commanding a wide view of its surroundings

Use the following steps to create an observatory:

Cut off the top and bottom of the milk carton. Help your PALS measure enough plastic wrap to cover the entire carton. Have your PALS place the carton in the middle of the wrap, then pull the wrap up over the outside of the carton and into the top opening. While your PALS holds the wrap, tape the edges to the inside of the carton at the top. Help your PALS wrap the rubber band around the bottom of the carton to stretch and secure the plastic wrap.



Test the water scope in an aquarium or aquaculture tank. Have your PALS slowly place the carton bottom under the surface of the water. Help your PALS hold it still while looking through the plastic for something interesting.

OBJECTIVE 2. | Observe and draw an item reflecting on observations.



*Now that you have made the underwater **observatory** and tested it, if an aquarium or aquaculture tank is available it is time for your mentee to make some true observations with his or her **observatory**.*



Now is the time for you to pick an object using your underwater **observatory**. The key is to really study your object, and we are going to do this in several stages.

III. Exercises to remember objects



- A. Using your pencil and paper, you will have two minutes to draw your object without lifting the pencil.
- B. Using the same object, sketch it in five seconds; then 15 seconds; and finally, 30 seconds.
- C. Move away from the object, and take three minutes to draw the object the best you can from memory.



REVIEW/SUMMARY/EVALUATION

After seeing how your mentee does with the memory exercise, begin a conversation about what it took for them to remember the object.



How closely did you have to look at the object to be able to draw it?
Why do you think it is important to observe nature so closely?

It is important to remember forest rangers and outdoor guides use the observations they make to help maintain resources. They are also able to make decisions about how to use the natural resources we enjoy. It is rewarding when we are able to see all of the wonderful things that make up nature.

APPLICATION



Large Group Suggestion: *Visit one of the selected habitats to observe wildlife and plants.*



Continued One-on-One Discussion/Activity: *Identify careers in agriculture that would allow your mentee to manage his or her favorite habitat, and then discuss what that job would entail.*