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Hope to see you there!

Nancy B.
Have you ever seen a blue-ringed octopus or a sea dragon? They are just two of the many creatures that live in the oceans of our world. Almost 70% of the earth’s surface is covered with water. And water is home to all kinds of plants and animals, from tiny minnows to great white sharks! This means there are lots of places to use your Aquascope, and lots of plants and animals to observe.

Because you will be using your Aquascope in water, it is important that you review basic water safety. Do this with an adult.

Name three things that you think would be cool to observe with your Aquascope:

__________

__________

__________

Imagine you grow up to become a marine biologist (a person who studies living things in the ocean). Imagine studying dolphins, sharks, fish, stingrays, giant squid, underwater plants, or maybe even mermaids! (OK, just kidding about the mermaids.) With an adult’s help, look online to see what marine biologists do and the tools they use. Draw yourself at work. Show what you are working with—animals, scientific tools, a boat, snorkel or scuba equipment, or an aquarium, etc.

Describe what you’re doing as a marine biologist:

__________

An adult should always be with you when using your Aquascope!
THE BIG PICTURE
You can do this activity anywhere there's water, such as a small stream, a pond, a bathtub, a sink, or even a big puddle of water after a rain shower. You might even see sharks in the rain puddles—IF there are pictures of sharks at the bottom of the puddles!

Remove the two top tubes from your AquaScope. Using only the green body, peer into the water. In the top circle, draw a few objects that you see. Then, replace the top two tubes and view those objects with your entire AquaScope. Draw what you see in the other circle.

Don't forget to turn on the light to see if the view changes.

How did the view change when you used the entire AquaScope?

Six magnification

Baths are just one example of how we use water in our daily lives. Draw three pictures showing other ways that we use water every day.

TUB TIME
Rub-a-dub-dub. Time for a bath in the tub! But before you hop in the tub, use your AquaScope to search for dangerous sea creatures, or just explore a few underwater sites, such as the bathtub bottom, drain, soap, washcloth, or bath toys. This is a good time to work on focusing your AquaScope. Using your AquaScope in the bath is also a great way to clean your AquaScope, especially if you have been using it in salt water.

Use your AquaScope thermometer to check the water temperature. How warm is your bathwater? _______ °F  _______ °C (circle your unit of measurement)

The average human body has a temperature of about 98.6°F (37°C). Is your bath water hotter, colder, or the same as body temperature? Circle one: hotter  colder  same

Add some bubble bath to the water. Observe the bubbles with your AquaScope.

Enjoy your bath and use your AquaScope to check your toes for dirt! When you get out, dry off and then trace your toes in the box. Give each toe a silly sea name like "Coral Reef" or "Sandy Beach." Decorate around your toes with a beach or underwater scene.
CURRENT CONDITIONS

You don’t need to travel to the Nile River or the Mississippi River for this activity. All you need is a small flowing stream. Using your AquaScoop, you can peer into the water from the riverbank, or if it’s safe, you might even stand in the water.

Use your AquaScoop to explore below the surface of the water. Use your hand to stir up the streambed (the dirt at the bottom of the stream). Watch how the sediment swirls and swirls around rocks. Then hold very still and keep watching.

What happens to the sediment over time?

________________________________________________________

Locate an object on the bottom of the streambed. (If the water is murky from stirring up the streambed, move a little bit upstream.) If possible, pick something about as large as your hand.

Estimate the length of the object. Length ___________ in or cm (circle the unit you used).

Measure the length of the object using the ruler on your AquaScoop.

Actual Length: ___________ in or cm

Do objects appear bigger or smaller under water? ______________

Yikes! You must have spent too much time in the water and you’ve begun to shrink! Pretend you have shrunk into a teeny tiny person floating down the stream atop your AquaScoop. Write about the adventures you would have. What would you see? Who would you meet? And don’t worry, when you get to the end of your adventure and land along the shore, the warm sunshine will bring you back to your normal size!

TITLE: __________________________________________________

By: ____________________________________________________

_______________________________________________________

_______________________________________________________

_______________________________________________________

_______________________________________________________

_______________________________________________________

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_______________________________________________________

_______________________________________________________
“SEA” THE CREATURES

For this activity, you don’t need a submarine or a shark cage, but you will need a body of water where you know you will see some live creatures. If you have a field guide for your area, take it with you or go online and research animals in the body of water you’ll be observing. Shown here are some living things you might see in fresh water (such as a pond, lake, stream, or river) or in salt water (such as the ocean or a tide pool).

FRESHWATER ORGANISMS

- water strider
- tadpole
- whirligig beetle
- mosquito larva
- dragonfly larva

MARINE ORGANISMS

- sea anemone
- geese neck barnacle
- acorn barnacle
- mussel
- chiton
- parwinkle snail
- hermit crab
- oyster
- sea star
Look at several different animals through your AquaScope. Draw what you see and record the information for the animal next to your artwork. Use the thermometer on your AquaScope to measure the water temperature.

Place

Date and Time

Type of Water: Fresh Salt

Water Temperature ________ ºF or ºC

Size of Creature __________ in or cm

Three words to describe this animal ____________________________

__________________________

__________________________

__________________________

__________________________

__________________________

Place

Date and Time

Type of Water: Fresh Salt

Water Temperature ________ ºF or ºC

Size of Creature __________ in or cm

Three words to describe this animal ____________________________

__________________________

__________________________

__________________________

__________________________

__________________________

When you go swimming, you might use a pink snorkel to breathe and wear blue swimming fins on your feet. This is because humans aren’t naturally adapted to swim underwater. But underwater creatures don’t need pink snorkels or blue fins. They all have structural adaptations that give them everything they need to survive underwater. Crabs have hard shells for protection, frogs have webbed feet for swimming, and tadpoles have gills to breathe. Take a look back in the water and find an interesting creature to observe. What structural adaptations does it have?

Imagine you are going to be living underwater and you are allowed to pick some structural adaptations for your life below the surface. What adaptations would you choose? Draw yourself with structural adaptations for living underwater.
“SEA” THE BEHAVIORAL ADAPTATIONS

Have you ever been chased by a tiger? If you have, you probably ran to survive! Running is a behavior that humans use to protect themselves. Animals also have behaviors adapted for survival. There are all sorts of behavioral adaptations. For example, a crab will bury itself for protection, and a frog will warm itself by sitting in the sun. Look into the water and find two creatures to study. Identify the creatures and record two behaviors for each.

Creature One
I see a ____________________________

This creature is doing the following:
1. __________________________________
2. __________________________________

Creature Two
I see a ____________________________

This creature is doing the following:
1. __________________________________
2. __________________________________

Back flaps are easy below the water’s surface! Astronauts train under water because it’s a lot like being in the weightless world of space. Imagine you are in the weightless underwater world. Draw yourself doing something silly under water.
GOING WITH THE FLOW

You don’t have to swing on a vine through a jungle to find interesting plants. All you need is a simple body of water where there are underwater plants or algae growing. How can you tell if it’s a plant? Usually, if it’s green and not a frog, it’s a plant! Underwater plants can look really cool through your AquaScope. Often they are covered with strange and amazing details that you might not see with the naked eye, but show up clearly when magnified through your AquaScope. Shown here are just some of the many plants and algae you might encounter. Look in a field guide or online to find out what plants and algae are in your area.

FRESHWATER PLANTS AND ALGAE

- duckweed
- waterweed
- filamentous green algae
- coenoball
- water lily

MARINE WATER PLANTS AND ALGAE

- surfgrass (Phyllospadix torreyi)
- red coralline algae (Corallina officinalis)
- sea lettuce (Ulva lactuca)
- dead man’s fingers (Codium fragile)
- bladder wrack (Fucus gardneri)
- rockweed (Sargassum compressa)
Doodle an Amazing Arrangement of Underwater Plants in the Underwater Vase

Look at several different plants or algae through your AquaScope. Draw what you see and record the information for the plants next to your artwork. Different plants prefer different water temperatures.

Place: ____________________________
Date and Time: ____________________
Type of Water: Fresh Salt
Water Temperature _________°F or °C
Size of Plant _________ in or cm
Three words to describe this plant: ________________________________

Place: ____________________________
Date and Time: ____________________
Type of Water: Fresh Salt
Water Temperature _________°F or °C
Size of Plant _________ in or cm
Three words to describe this plant: ________________________________

Use the thermometer on your AquaScope to measure the water temperature. Turn on the light and see how the view changes. Plants love light. They use it to make food!
**BUBBLE TROUBLE**

When you see bubbles in water outdoors, it doesn’t always mean the water is boiling or that fish are taking a bath! Bubbles have many causes and are created when little bits of air or gas are caught in the water. Find a body of water where bubbles or foam are being formed by moving water. Put your Aquascope in the bubbles—just barely under water. How far down into the water do you need to go to pass all of the bubbles? (Use the ruler on your Aquascope.)

Look at the bubbles and watch how they move. Many people find the movement of bubbles fascinating.

Describe how the bubbles move.

________________________________________________________________________

________________________________________________________________________

What colors do you see within the bubbles?

________________________________________________________________________

Use coloring supplies to color the bubbles to make a picture or pattern.

In the treasure chest, draw a treasure you might find at the beach, on the shore, or in the water.

Object

Object As Seen With Aquascope’s 6x Magnification

Keep on exploring—above and below the surface!

— Nancy B.