

Greater Cleveland Aquarium

BASIC TRAINING

Teacher Guide



Theme: Animals' Basic Needs for Survival

Grade Band: K – 2

Program Length: 1 hour 30min

Overview

Navigate this intellectual obstacle course and become a first class expert on animal basic needs. A series of observations on water ecology, biodiversity and adaptations will culminate in students constructing a simulated habitat for a fish in the aquarium.

Goal

Students will identify basic needs of animals and how their adaptations and habitat serve to meet those needs. Students will also recognize the names and locations of bodies of fresh and saltwater, and the importance of keeping Earth's water clean.

Standards

| Grade | Strand | Topic | Content Statement |
|-------|----------------------|---|---|
| K | Life Science | Physical and Behavioral Traits of Living Things | Living things are different from nonliving things |
| K | Life Science | Physical and Behavioral Traits of Living Things | Living things have physical traits and behaviors, which influence their survival. |
| K | Measurement and Data | Describe and compare measurable attributes | Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. |
| 1 | Life Science | Basic Needs of Living Things | Living things have basic needs, which are met by obtaining materials from the physical environment. |
| 1 | Life Science | Basic Needs of Living Things | Living things survive only in environments that meet their needs. |

| | | | |
|-------|---------------------------------|------------------------------|--|
| 1 | Earth Science | Sun, Energy, and Weather | The physical properties of water can change. |
| 2 | Life Science | Interactions within Habitats | Living things cause changes on Earth. |
| K - 2 | Science Inquiry and Application | | Plan and conduct simple investigations. |
| K - 2 | Science Inquiry and Application | | Communicate about observations, investigations and explanations. |

Objectives

1. Discuss the five basic needs of living things.
2. Examine how much of Earth is covered in water and what differentiates freshwater from saltwater.
3. Obtain the proper vocabulary to describe bodies of fresh and saltwater.
4. Recognize that animals live in habitats that meet their basic needs
5. Recognize that certain animal adaptations provide a better chance for survival.
6. Compare natural habitats to man-made habitats focusing on how each provides an organism's basic needs.

Vocabulary

Habitat

Freshwater

Shiner

Survival

Yellow Perch

Mackerel

Basic need

Sand Tiger Shark

Trait

Shelter

Seahorse

Observation

Saltwater

Giant Pacific Octopus

Pre-Activities

Lessons to help prepare your students and enhance your field trip experience:

1. What's That, Habitat? Adapted from Project Wild K-12 Curriculum and Activity Guide.
 - a. Introduce the concept of basic needs. Have students generate a list of basic needs for humans. The list should include food, water, shelter, and air.
 - b. Give the students a piece of paper and a drawing implement. Have students draw a picture of where they live that includes where they find their basic needs. Students can label the faucet "water" and label the refrigerator "food" etc.
 - c. Introduce the term habitat. Habitat: where a living thing lives and gets everything it needs to survive.
 - d. Give students a second piece of paper and have them draw a habitat for their favorite animal. Students should include all of the basic needs for their animal.
 - e. Compare the human habitats to the animal habitats. Though the basic needs may look slightly different (different food source, different homes, etc.) the basic needs of all living things remain the same.
 - f. On the back of each picture, have students write and complete the sentence "This is a good habitat because..."
 - g. Extensions:
 - i. Include space and arrangement in the list of basic needs. Could people survive in a single room with 40 other people? Could a Sand Tiger Shark survive in a 10 gallon tank? What would happen if the bathroom in your house was 9 miles away from the kitchen? Discuss how space and arrangement play an important role in survival.
 - ii. Discuss the differences between wild and domestic animals. Make a list on the board or sort pictures of different animals to distinguish between them. How are the basic needs of these animals met?
7. Introduce students to the animals and habitats they will be studying at the aquarium. The Yellow Perch - River, Sand Tiger Shark – Coral Reef, Seahorse – Sea Grass, and Giant Pacific Octopus – Kelp Forest. See the additional resources section for more information.
8. Familiarize the students with the aquarium by viewing the aquarium map and by visiting the Greater Cleveland Aquarium website: www.greaterclevelandaquarium.com

Post-Activities

Lessons for the classroom to help reinforce concepts from your field trip experience:

1. Explore the habitats of terrestrial animals. Discuss how these animals' needs are met. Compare and contrast to animals in the aquatic biome.
2. Create a shadow box habitat for one of the four habitats investigated during the aquarium trip (river, coral reef, sea grass and kelp forest).
 - a. Help students recall the items they collected for each aquarium habitat (rocks, logs, crickets, gravel, etc.).
 - b. Have students recreate that habitat inside of a shoe box. Students can use paper, crayons, glue, and whatever recycled craft materials they have available.
 - c. To get started, check out this website; it has good ideas on how to prepare the shoebox, make 3D items, etc.
http://www.firstpalette.com/Craft_themes/Animals/coralreefdiorama/coralreefdiorama.html
3. Investigate differences between fresh water and salt water with the egg experiment.
 - a. Review which bodies of water on Earth contain salt water and which bodies contain freshwater.
 - i. Use pictures of oceans, rivers, lakes, etc. as visual aids.
 - ii. Have students find oceans on a globe.
 - b. Fill a glass with salt water (2 cups water and $\frac{1}{4}$ cup salt) and another glass with fresh water.
 - c. Dip popsicle sticks into each glass to let students taste the difference. Have students write down observations and descriptions.
 - d. Have students predict what will happen when you put an egg in each glass. Have students write down their hypothesis.
 - e. Place an egg in each glass. The saltwater egg floats while the freshwater egg sinks. Have students record the results.
 - f. Discuss why this happens: salt water is denser, allowing the egg to float.



Additional Resources

Yellow Perch

<http://m.greaterclevelandaquarium.com/fish.php?id=121&tank=24>

<http://wildlife.ohiodnr.gov/species-and-habitats/species-guide-index/fish/yellow-perch>

Sand Tiger Shark

<http://m.greaterclevelandaquarium.com/fish.php?id=45&tank=5>

<http://animals.nationalgeographic.com/animals/fish/sandtiger-shark.html>

Seahorse

<http://m.greaterclevelandaquarium.com/fish.php?id=25&tank=21>

<http://animals.nationalgeographic.com/animals/fish/sea-horse/>

Giant Pacific Octopus

<http://m.greaterclevelandaquarium.com/fish.php?id=292&tank=18>

<https://www.youtube.com/watch?v=aoCzZHcwKxI>

River

<http://www.eoearth.org/view/article/152862/>

<http://www.bbc.co.uk/nature/habitats/River>

Coral Reef

http://education.nationalgeographic.com/education/news/coral-reefs/?ar_a=1

<https://www.koriosbook.com/read-file/coral-reef-teachers-guide-reef-relief-founders-pdf-214899/>

Sea Grass

http://gulfsi.usgs.gov/gom_ims/pdf/pubs_gom.pdf

<http://ocean.si.edu/seagrass-and-seagrass-beds>

Kelp Forest

<http://oceanservice.noaa.gov/facts/kelp.html>

<http://oceanfocus.org/focus-areas/threatened-habitats/kelp-forests/>



Education Department

Greater Cleveland Aquarium

2000 Sycamore Street

Cleveland, Ohio 44113

www.greaterclevelandaquarium.com



OHIO LAKES & RIVERS:
Follow the stone path through our forest and check out our bubbling "brook" and our new reptiles and amphibians including salamanders, newts, snakes and turtles.

LAKES & RIVERS OF THE WORLD:
Enjoy four individual regions through this gallery: Australia, Asia, South America and Africa. On this journey you meet eastern snake-neck turtles in Australia, archerfish, and one very special giant gourami in Asia, coelacelated catfish, and an Amazon river turtle in South America, and spurred tortoises from Africa. Pay

special attention to these tortoises; they are gentle creatures with playful personalities who encourage you to interact with them by touching their shells.

DISCOVERY ZONE:
First, discover facts about water pollution and learn about what you can do to help. We must remember that creating awareness is an incredible challenge; our oceans, lakes and rivers are depleting on us. Don't forget to look up at what comes next; the base of one of the Powerhouse's original smokestacks is now home to a moon jellyfish exhibit. Learn about their life stages, from polyps to fully grown jellies, and watch as they "glow" in the dark.

PACIFIC:
Here you see fish from the Red Sea, Eastern Asia, Indonesia and the northern cold water regions. Of the many, pay close attention to the venomous lionfish, the black and white snowflake eels, the bicolor, sea stars and the giant Pacific octopus.

COASTAL:
Check out our 11,000 gallon Touch Pool, seahorse exhibit, and live coral exhibit in our Coastal gallery. At our Touch Pool, learn the official "two-finger touch" technique and interact with our friendly stingrays.

TROPICAL REEF:

This corridor features fish from Fiji and Hawaii including the playful rabbitfish, the burrfish and angelfish.

SHARK SEATUBE:

Home to four species of sharks and an amazing variety of aquatic life, this splendor co-exist in the exhibit with sand tiger sharks reaching up to 8' long. Let our Seatube fascinate you as you walk through this wonderful subaquatic world, allowing extraordinary viewing access to sharks, moray eels, groupers and more.

EXPLORATION STATION:

The Exploration Station is designed as a research vessel and is located on the second floor of the Powerhouse, next to the Cafe. This exhibit features hands-on interactive fun especially for our younger guests. Stop by to meet our most electrifying resident, the electric eel, presented by FirstEnergy.

