Birch Aquarium Project Kit

Congratulations! You're going to the Birch Aquarium! Use these project ideas to enrich your educational experience. Read through them before you go to make sure you understand the terms and concepts, and to help you determine if you want to expand upon any of them. You'll find fun facts and printable worksheets at the end of this packet.

a- elementary level activity b- middle school level activity c- high school level activity

Language Arts

Animals have language, too! Take some time to observe animals interacting with each other. How are they communicating to each other? How are they reacting to one another? Do you see positive or negative emotions in their communications? What are they trying to achieve? Is the way they are communicating effective? What can we learn from them? What are the differences in the ways mammals, amphibians, reptiles, and fish interact?

a. Draw a picture about what you see. Talk or write about it.
b. Write a few short paragraphs about what you see. Talk about it.
c. Write a short essay about what you see. Discuss ways in which we, as humans, can use some of our communication skills to better exist in harmony with one another. What kinds of communications should we avoid, and which should we employ more frequently?

Materials required: Notebook, pen/pencil
Submission: A copy of your writings/drawing, and any pictures/videos

Teaching or learning notes:

Applied Math

Animals eat a lot! How much animal food does the aquarium have to purchase and prepare? How many animals live at the park? Use technology or ask a docent/keeper/employee to get estimates, and use those estimates to calculate how much money the aquarium spends to feed its animals.

a. Choose one animal to research how much it eats in a day. Calculate how much food it would need in a year. Draw or write about your findings.
b. Choose one animal to research how much it eats. Calculate how much food it would need in a year, and estimate how much that food will cost. Then, multiply that figure by the number of that type of animal the aquarium takes care of. Record your calculations.
c. Calculate estimates of food needs for each animal, each type of animal, and all of the animals at the aquarium. Do this per day and per year. Estimate how much that would cost. Record your calculations.

Materials required: Notebook, pen/pencil, calculator or smartphone (optional)
Submission: Your calculations, estimations, and conclusions, and any pictures/videos

Teaching or learning notes:

Science

Every animal has a unique life history. A “life history” is the story of an animal’s life from birth (or fertilization) to adulthood (and death). How many different ways can an animal begin it’s life? Are some animals more independent as babies than others? Why do you think this is? What about their lives affect how vulnerable they are when they are born? What kinds of animals raise their babies, and what kinds don’t? How does this affect how many babies survive to adulthood?

a. Choose an animal to think about these questions for. Draw or write about your ideas.
b. Discuss and diagram the unique life history of one of the animals you see. Write a paragraph about your findings.
c. Discuss the life history of one of the animals at the aquarium. Write a short essay on your findings. Then, explore animal keeping. What kinds of things does the aquarium need to keep in mind about each animal's’ life history when it is designing its living space and their plan for taking care of it? Does the aquarium have breeding programs for any of the animals? What are they working on currently? Ask a keeper/docent/employee.

Materials required: Notebook, pen/pencil
Submission: A copy of your drawings, diagrams, maps, or designs, and any pictures/videos

Teaching or learning notes:

Social Studies

There can be a lot of people at the aquarium! How do they handle the crowds? What affect does the layout of the aquarium have on the movement of people? How does the design help both the animals and the people have an enjoyable time? Can you see these same principles in use in the planning of large cities or other social environments?

a. Notice how many people are at the aquarium. Discuss some of the things they do to control crowding and help make each guest's experience pleasurable. Write down the techniques you see and how often you see them being used.
b. Analyze the layout of the aquarium and if/why certain features were designed with the purpose of managing crowds. Use the map, and write down what you find.
c. Discuss crowd control and analyze the layout of the aquarium. Discuss the things you've seen in light of larger social environments you've been in. How universal are these techniques? What are your ideas for improving guest experience at the aquarium?

Materials required: Notebook, pen/pencil, park map
Submission: A copy of your writings/drawings, and any pictures/videos

Teaching or learning notes:

Fun Facts

- Birch Aquarium at Scripps has an annual attendance of more than 435,000, including more than 40,000 school children, and features more than 3,000 animals representing 380 species.
- The aquarium was established in 1903 after the Marine Biological Association of San Diego was created to conduct marine research in the local waters of the Pacific Ocean. The researchers outgrew their modest laboratory in the boathouse of the Hotel del Coronado and moved to a small laboratory at La Jolla Cove in 1905. Several years later, the association purchased 174 acres (70 ha) at La Jolla Shores for $1,000 at a public auction from the city of San Diego. The first permanent building at the new site was constructed in 1910. Today the Old Scripps Building is listed on the National Register of Historic Places.
- At 64,157 square feet, Birch Aquarium at Scripps is designed around a central lobby with entrances to exhibit areas. Display tanks contain 175,000 U.S. gallons of seawater.
- Seahorses may not look anything like your typical fish, but they actually are classified as fish. Characteristics that make them fish include a swim bladder to control buoyancy, gills to breathe, and fins to propel them through the water.
- Seahorses really love to eat. They feed almost constantly on tiny fish and plankton. The reason that they have to keep eating all the time is because their digestive systems work so quickly. Food passes right through them, so they need to continue consuming in order to stay alive. In fact, they can consume up to 3,000 brine shrimp in one day. Unlike other species, seahorses don’t have teeth or a stomach, so their digestive processes are very unique.
- Corals are not plants. They're actually animals and are are, amazingly enough, relatives of jellyfish and anemones. Though corals are animals, they do rely on photosynthesis to survive. But the coral polyps aren't doing the actual photosynthesizing. Microscopic algae, or zooxanthellae, live within the cells lining the digestive cavity of the polyp. As much as 90 percent of the energy a polyp needs comes from this symbiotic relationship. The other 10 percent comes from hunting the polyp does by extending its tentacles to catch prey.
- More people are killed every year by falling coconuts in Asia alone, than people being killed by sharks around the world.

Birch Aquarium

1. Draw a picture of your favorite creature at the Aquarium.

2. Describe 4 different ways that you saw animals move.

3. What is one thing you learned about jellyfish?

4. Describe or draw your favorite part of the Aquarium.

5. Fill the box with as many animal names or pictures of creatures you saw as you can.

6. What is one thing you learned about the ocean?

BONUS:

How many shark species can you find at the aquarium? List their common names and scientific names.