



SeaWorld/Busch Gardens Animal Adaptations

4-8 Classroom Activity

Animal Adaptation Activity

OBJECTIVE

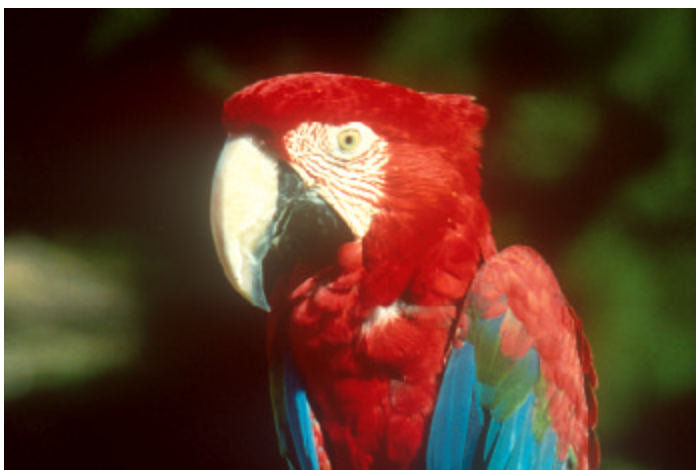
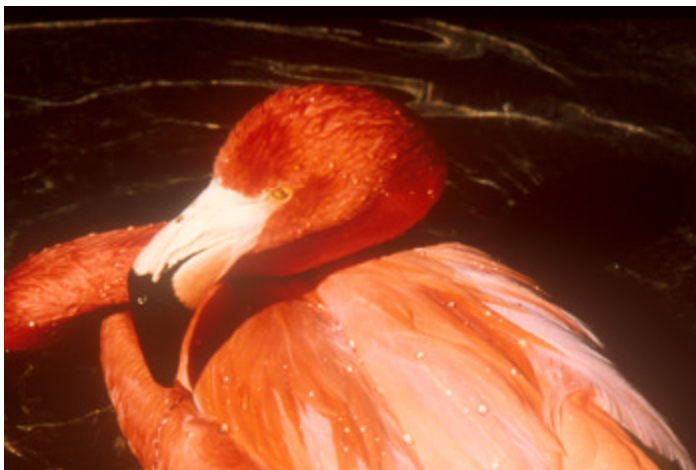
The student will identify various animal adaptations.

PREPARATION

See teacher preparation guide on page 13. Note: This activity will take approximately one hour to prepare all the stations.

ACTION

1. Divide the class into groups of two and explain that the students will be conducting several demonstrations that illustrate various animal adaptations.
2. Explain that there will be 13 demonstration stations set up in the classroom. (Note: Most of the demonstrations conducted within a classroom setting. However, demonstration 9 and 10 should be set up in a safe outdoor environment unless the classroom is equipped with adequate accommodations such as a sink and a window).
3. Explain that each station has been assigned a number 1 to 13. Next, assign one student group to each of the 13 stations. Each group should bring a blank sheet of paper and a pencil with them to write down answers to investigation questions (see step 5).
4. Explain that the student groups will rotate through each of the 13 demonstration stations, until all stations have been visited. The students will have 3 minutes at each station to conduct the demonstration. When the 3-minute time limit has been reached, the teacher will call "rotate" and the students are to move to the next station. The students should rotate between stations numerically.
5. Explain that there are demonstration instructions at each station. Once the demonstration is completed the student should answer the corresponding question about the investigation.
6. Review correct answers with the class using the teacher's key on page 19.



MATERIALS

For class:

- one small colander
- one nutcracker
- one bag uncooked rice
- one fishnet (for hair? for fish?)
- one set of tweezers
- one bag sunflower seeds
- two tall plastic glasses
- fifteen rubber bands
- three cake pans
- one slotted spoon
- one set of tongs
- two ping-pong balls
- one gravy baster
- one set of chopsticks
- two branches with leaves
- one bag of walnuts with shells (two walnuts per student)
- one small portable mirror
- two hanging suction cups
- two turkey basting pans
- one small funnel
- one large plastic bowl
- one pair gloves
- ten cotton balls
- one piece of black paper
- one piece of white paper
- two sheets of clear laminate
- one teacher preparation guide
- one teacher's key
- one instruction worksheet
- one gator/croc worksheet
- access to water faucet or 3-gallon jug

Per student:

- pencil
- sheet of paper (to write answers)

The bills of birds come in many shapes and sizes. From top, the flamingo filters small shrimp from the water; the hawk catches small rodents; the parrot cracks nuts; and the pelican scoops up fish.



alligator



crocodile

Teacher Preparation Guide

Set up the demonstration stations as directed below.

- Station 1: Place a tall plastic glass filled with water and a gravy baster on the table.
- Station 2: Place a disposable cake pan filled with sunflower seeds on the table. Hide some rubber bands under the seeds. Set two chopsticks on the table.
- Station 3: Place several large nuts (brazil nuts, walnuts, etc.) and a nutcracker on the table.
- Station 4: Line the bottom of a disposable cake pan with sunflower seeds and then fill the pan with water. Place a slotted spoon at the station.
- Station 5: Place one fishnet and two ping-pong balls on the table.
- Station 6: Toss some rice grains in a large disposable cake pan and a set of tweezers on the table.
- Station 7: Place several bush branches with leaves and a set of tongs on the table. (Make sure there are enough leaves on the branches for each group to pluck two leaves).
- Station 8: Place a tall plastic glass filled with water, a small colander, a small funnel and a large plastic bowl on the table. Next, mix a small and even amount of rice and sunflower seeds together and place in the water glass.
- Station 9: Place a large disposable turkey basting pan on the ground and fill it with water. (Note: A gallon of water may also be needed to replenish the water as it is splashed out by the students).
- Station 10: Place a sheet of black and white construction paper separately out in the sun. If conducted in the classroom, this demonstration should be by a window where there is direct sunlight.
- Station 11: Place a small portable mirror and two hanging suction cups on the table. (The suction cups do not need to be adhered to any surface at this point).
- Station 12: Place a set of gloves or mittens (the gloves or mittens should match) on the table. Stuff one of the gloves with some stretched out cotton balls. Make sure there is still room for a hand to go in.
- Station 13: Cut out the alligator and crocodile shapes from the worksheet provided. Next, laminate each cut-out using clear rolled laminate. Place a disposable turkey-basting pan on the table and fill it half way with water.

Instruction Worksheet

Cut out each station's instructions and place them with their corresponding stations.

Station 1

Directions: Use the baster to absorb some of the water. Make sure the baster is empty before leaving the station.

Question: This experiment simulates which of the following bird beak adaptations?

- A. A scarlet macaw (*Ara macao*) crushing nuts.
- B. A rainbow lorikeet (*Trichoglossus haemotodus haemotodus*) sipping nectar.
- C. A roseate spoonbill (*Ajaia ajaia*) scooping fish out of water.
- D. An East African Crowned crane (*Baleria regolorum gibbericep*) picking insects from leaves and logs.

Station 2

Directions: Use the chopsticks to probe and pick up rubber bands from beneath the seeds. Make sure the rubber bands are hidden under the sunflower seeds again before leaving the station.

Question: This experiment simulates which of the following bird beak adaptations?

- A. A roseate spoonbill (*Ajaia ajaia*) scooping fish out of water.
- B. A barn owl (*Tyto alba*) eating its prey.
- C. A rainbow lorikeet (*Trichoglossus haemotodus haemotodus*) sipping nectar.
- D. A white ibis (*Eudocimus albus*) probing for worms.

Station 3

Directions: Each student cracks one nut using the nutcracker. Make sure to clean any mess made and set out two more nuts before leaving the station.

Question: This experiment simulates which of the following bird beak adaptations?

- A. A scarlet macaw (*Ara macao*) crushing nuts.
- B. A white Ibis (*Eudocimus albus*) probing for worms.
- C. A roseate spoonbill (*Ajaia ajaia*) scooping fish out of water.
- D. A rainbow lorikeet (*Trichoglossus haemotodus haemotodus*) sipping nectar.

Station 4

Directions: Use the slotted spoon to pick up some of the sunflower seeds. Make sure the sunflower seeds are placed back in the water before leaving the station.

Question: This experiment simulates which of the following bird beak adaptations?

- A. A rainbow lorikeet (*Trichoglossus haemotodus haemotodus*) sipping nectar.
- B. A scarlet macaw (*Ara macao*) crushing nuts.
- C. A roseate spoonbill scooping (*Ajaia ajaia*) fish out of water.
- D. A barn owl (*Tyto alba*) eating its prey.

Station 5

Directions: One student should hold the fish net and the other student should gently try to toss the ping-pong balls into it. Make sure the fish net and ping-pong balls are stationary before leaving the station.

Question: This experiment simulates which of the following bird beak adaptations?

- A. An East African Crowned (*Baleria regulorum gibbericep*) crane picking insects from leaves and logs.
- B. A white ibis (*Eudocimus albus*) probing for worms.
- C. A pink backed pelican (*Pelecanus reufscens*) temporarily storing fish in its gullet.
- D. A barn owl (*Tyto alba*) eating its prey.

Station 6

Directions: Use the tweezers to pick up some of the rice grains. Make sure the rice grains are back in the pan before leaving the station.

Question: This experiment simulates which of the following bird beak adaptations?

- A. An East African Crowned crane (*Baleria regulorum gibbericep*) picking insects from leaves and logs.
- B. A rainbow lorikeet (*Trichoglossus haemotodus haemotodus*) sipping nectar.
- C. A barn owl (*Tyto alba*) eating its prey.
- D. A pink backed pelican (*Pelecanus reufscens*) temporarily storing fish in its gullet.

Station 7

Directions: Each student will use the tongs to pick off one leaf from the branch. Make sure the plucked leaves are thrown away before leaving the station.

Question: This experiment simulates which of the following bird beak adaptations?

- A. A scarlet macaw (*Ara macao*) crushing nuts.
- B. A roseate spoonbill (*Ajaia ajaia*) scooping fish out of water.
- C. A white ibis (*Eudocimus albus*) probing for worms.
- D. A toco toucan (*Ramphastos toco*) plucking fruit from trees.

Station 8

Directions: Pour the water and its contents (rice and sunflower seeds) into the colander which is directly located over the large bowl. Try to get all the rice and sunflower seeds into the colander as the water passes through to the bowl. Make sure the water, sunflower seeds, and rice are put back in the plastic glass before leaving the station. (Place the funnel on top of the glass and pour the water back in, and then add the sunflower seeds and rice).

Question: This experiment simulates which of the following bird beak adaptations?

- A. A toco toucan (*Ramphastos toco*) plucking fruit from trees.
- B. A Chilean flamingo (*Phoenicopterus ruber chilensis*) filtering tiny plants and animals through water.
- C. A pink backed pelican (*Pelecanus reufscens*) temporarily storing fish in its gullet.
- D. A white ibis (*Eudocimus albus*) probing for worms.

Station 9

Directions: One student should take their hand and spread out their fingers as straight as possible. The student should try to paddle through the water with their fingers in the same spread out position. Next, using the same hand, move the fingers close together so that they form a paddle and repeat the procedure. Which method pushed more water? Make sure any water spilled is cleaned up before leaving the station.

Question: This experiment simulates which of the following animal adaptations?

- A. A black vulture (*Coragyps atratus*) using its claws to grip a perch.
- B. A bald eagle (*Haliaeetus leucocephalus*) using its talons to grip prey.
- C. An American crocodile (*Crocodylus acutus*) using its webbed back feet to swim through water after prey.
- D. A goat (*Capra hircus*) hoof used to climb on rocky surfaces.

Station 10

Directions: One student should place each of their hands on the black and white construction paper. Which one feels warmer?

Question: This experiment simulates which of the following animal adaptations?

- A. An addax antelope (*Addax nasomaculatus*) using its white coloration to keep cool in hot temperatures.
- B. A white polar bear (*Ursus maritimus*) camouflaging into its arctic habitat.
- C. A male lion (*Panthera leo*) using its mane to appear larger and more threatening.
- D. A giraffe (*Giraffa camelopardalis*) using its height to reach the tall vegetation of trees.

Station 11

Directions: Press the two hanging suction cups onto the mirror so that they stick. Lift the mirror into different positions such as upside down to try to get the suction cups to stop sticking. Make sure the suction cups are taken off the mirror before leaving the station.

Question: This experiment simulates which of the following animal adaptations?

- A. An American crocodile (*Crocodylus acutus*) using its webbed back feet to swim through water after prey.
- B. A goat (*Capra hircus*) hoof used to climb on rocky surfaces.
- C. Tokay geckos (*Gekko gecko*) using their special adapted feet to climb smooth surfaces.
- D. The sitatunga antelope (*Tragelaphus spekii*) using its banana shaped hoof to stay on top of marshland.

Station 12

Directions: One student should wear a glove on each of their hands. One of the gloves has cotton in it. Which hand feels warmer (the one with the cotton or the one without)? Make sure the gloves are put back on the table and any cotton put back into the correct glove before leaving the station.

Question: This experiment simulates which of the following animal adaptations?

- A. A goat (*Capra hircus*) uses its dense wooly undercoat in cold temperatures.
- B. An addax antelope (*Addax nasomaculatus*) using its white coloration to keep cool in hot temperatures.
- C. A white polar bear (*Ursus maritimus*) camouflaging into its arctic habitat.
- D. A fennec fox (*Vulpes zerda*) using its furry feet to stay on top of the sand.

Station 13

Directions: Place the alligator and crocodile shapes in the water at one end of the bowl. They should be evenly lined up as if they are about to race. Gently push forward each shape with the same amount of force. Which one went farther (the alligator or crocodile)? Make sure the alligator and crocodile are taken out of the water before leaving the station.

Question: This experiment simulates which of the following animal adaptations?

- A. American alligator (*Alligator mississippiensis*) babies have light colored bands on their bodies to camouflage in the shallow waters.
- B. American alligators (*Alligator mississippiensis*) and crocodiles (*Crocodylus acutus*) use nictitating membranes to cover their eyes to cover their eyes under water.
- C. American alligators (*Alligator mississippiensis*) and crocodiles (*Crocodylus acutus*) use their webbed feet for swimming.
- D. An American crocodile (*Crocodylus acutus*) has a more streamline nose than the alligator to search for more aquatic prey.

Teacher's Key

Station 1

Question: This experiment simulates which of the following bird beak adaptations?

B. A rainbow lorikeet (*Trichoglossus haemotodus haemotodus*) sipping nectar.

Station 2

Question: This experiment simulates which of the following bird beak adaptations?

D. A white ibis (*Eudocimus albus*) probing for worms.

Station 3

Question: This experiment simulates which of the following bird beak adaptations?

A. A scarlet macaw (*Ara macao*) crushing nuts.

Station 4

Question: This experiment simulates which of the following bird beak adaptations?

C. A roseate spoonbill scooping (*Ajaia ajaia*) fish out of water.

Station 5

Question: This experiment simulates which of the following bird beak adaptations?

C. A pink backed pelican (*Pelecanus reufscens*) temporarily storing fish in its gullet.

Station 6

Question: This experiment simulates which of the following bird beak adaptations?

A. An East African Crowned crane (*Baleria regulorum gibbericep*) picking insects from leaves/logs.

Station 7

Question: This experiment simulates which of the following bird beak adaptations?

D. A toco toucan (*Ramphastos toco*) plucking fruit from trees.

Station 8

Question: This experiment simulates which of the following bird beak adaptations?

B. A Chilean flamingo (*Phoenicopterus rubber chilensis*) filtering tiny plants and animals from water.

Station 9

Question: This experiment simulates which of the following animal adaptations?

C. An American crocodile (*Crocodylus acutus*) using its webbed back feet to swim through water after prey.

Station 10

Question: This experiment simulates which of the following animal adaptations?

A. An addax antelope (*Addax nasomaculatus*) using its white coloration to keep cool in hot temperatures.

Station 11

Question: This experiment simulates which of the following animal adaptations?

C. Tokay geckos (*Gekko gekko*) using their special adapted feet to climb smooth surfaces.

Station 12

Question: This experiment simulates which of the following animal adaptations?

A. A goat (*Capra hircus*) uses its dense wooly undercoat to keep warm in cold temperatures.

Station 13

Question: This experiment simulates which of the following animal adaptations?

D. An American crocodile (*Crocodylus acutus*) has a more streamline nose than the alligator to search for more aquatic prey.