ANIMALS ALL AROUND

Hands-on learning! Students see, discuss, and touch animals, covering the topics of Adaptations, Life Cycles, Food as Energy, Family Characteristics. Discovery Center reptiles, amphibians, mammals, and birds are used during this tour. (Available as a Museum-to-Go.)

FIRST GRADE

Standards:
Science  Math  Language Arts  Social Studies

Life Science

Standard 1. CELLS:
Conceptual Strand 1: All living things are made of cells that perform functions necessary for life.
GLE 0107.1.1. Recognize that living things have parts that work together.

Teacher Questions, Pre-Tour
Q: What do cats and dogs eat? What body parts help them to eat their special food?
Q: Can a dog climb a tree? Why or why not? Can a cat climb a tree? Why or why not? What body parts help them do this?
Q: Dogs and cats are usually pets. Animals in the wild have to get their own food. What wild animal do you know? (Rabbits, squirrels, birds…) What body parts help them get their food or protect them?
Direction: In our visit to Discovery Center, we will see many different animals. These are not pets, but animals that could live in the wild. Look closely at them and listen to find out how they use different body parts to get their food, protect themselves, and find or make a place to live.

Teacher Questions, Post-Tour
Q: Name one animal that you saw at Discovery Center. Tell or draw the animal, draw its food, where it lives in the wild, and how it protects itself from danger (predators).

Standard 2. INTERDEPENDENCE:
Conceptual Strand 2: All life is interdependent and interacts with the environment.
GLE 0107.2.1. Distinguish between living and non-living things in an environment.

Teacher Questions, Pre-Tour
Q: How do you know something is living or not living (alive or not alive)? Name some living things. Name some non-living things. Is a tree or plant alive? Why or why not?

Teacher Questions, Post-Tour
Draw a picture of one of the animals you saw at DC. Write down some characteristics of this animal that prove it is alive.
GLE 0107.2.2. Know that people interact with their environment through their senses.

Teacher Questions, Pre-Tour
Q: What are your senses? Can you name them? Point to the part of your body that helps you: see, smell, taste, touch, hear.
Q: How do animals see, smell, taste, touch, hear?
Direction: When we go to DC, think about how the animals you will visit are able to see, smell, taste, touch, and hear.

Teacher Questions, Post-Tour
Q: Draw an animal you touched at DC. Tell about it. How did it feel to you?

Standard 3. FLOW OF MATTER AND ENERGY:
Conceptual Strand 3: Matter and energy flow through the biosphere.
GLE 0107.3.1. Recognize that plants and animals are living things that grow and change over time.

Teacher Questions, Pre-Tour
Q: How have you changed since you were a baby?
Q: What do you need to stay healthy and continue to grow and change? (water, food, air---and suitable space to live). What would happen if you didn’t have one of these things? (not survive, go someplace else, if possible)
Q: What does a squirrel or rabbit or snake need to stay alive and healthy? (water, food, air---and suitable space to live) What would happen if an animal didn’t have one of these things? (not survive, go someplace else, if possible)

Teacher Questions, Post-Tour
Q: What does the corn snake at the DC need to stay alive? (space, water, air, food---mice)
Q: What does the box turtle at the DC need to stay alive? (space, water, air, food---mealworms, fruits, & veggies)
(Younger children can draw, individually or in a small group, the corn snake or the box turtle and what each eats. Older children can write this or make a foldable with a picture of either animal on the front, then fold to include the other 3 necessary components for life.)

Standard 4. HEREDITY:
Conceptual Strand 4: Plants and animals reproduce and transmit hereditary information between generations.

GLE 0107.4.1. Observe and illustrate the life cycle of animals.

Teacher Questions, Pre-Tour
Q: How have you changed since you were a baby?
Q: How do baby birds look when they first hatch (pictures downloaded)? How do they change as they grow?

Teacher Questions, Post-Tour
Q: Name an animal you saw at DC. What do you think it looked like as a baby? (Teachers could assign animals they saw and have different students draw ‘baby pictures’ of this animal, and compile into an ‘Animal Baby Book’ as a post-tour wrap-up for this standard.)

GLE 0107.4.2. Describe ways in which animals closely resemble their parents.

Teacher Questions, Pre-Tour
Q: Has anyone ever told you that you looked like ‘Aunt Susie’ or that you resembled one of your grandparents? What about animals---how do they look like their parents?
Q: Do you think all animals look like their parents when they are very little? (compare chicks to hens or roosters, tadpoles to frogs, caterpillars to butterflies, etc.) [Some animals do NOT resemble their parents at first, but grow to resemble adult members of their species.]

Teacher Questions, Post-Tour
Q: Using the “Wetland Babies and Adults” worksheet at the end of this packet:
Directions: Draw a line connecting pictures of a juvenile with an adult wetland animal. Ask: “Which animal looks a lot like its parents when it was a baby? Which animal grows to look like its parent as it becomes an adult?” (Ex: ducks, dragonflies, muskrats, frogs).

Standard 5. BIODIVERSITY and CHANGE:
Conceptual Strand 5: A rich variety of complex organisms have developed in response to a continually changing environment.
GLE 0107.5.1. Investigate how plants and animals can be grouped according to their habitats.

Teacher Questions, Pre-Tour
Q: (Using a classroom plant) Ask students: What does this plant need to survive? (food, water, air, space)
Q: What does an animal, like a squirrel, need to survive? (food, water, air, space).
Q: How are the plant and the squirrel alike? How are they different?
Q: How might they depend on each other? (Tree provides shelter and food---nuts---for a squirrel. Squirrel ‘hides’ nuts for winter food, forgets, and ‘plants’ a new tree.)

Teacher Questions, Post-Tour
Q: Using the “Wetland Animals and Plants” worksheets at the end of this packet:
Using pictures of native species provided by DC, make a wall mural, drawing in the plants needed for survival in this habitat.
OR
Give each small group (3 students) a picture of a wetland animal they saw at DC. Ask them to paste the picture on a poster, then draw the habitat for that animal around it. Make sure that plant parts the animal needs in for food or shelter are drawn in.

Earth and Space Science

Standard 7. THE EARTH
**Conceptual Strand 7:** Major geologic events that occur over eons or brief moments in time continually shape and reshape the surface of the Earth, resulting in continuous global change.

**GLE 0107.7.1** Realize that water, rocks, soil, living organisms, and man-made objects make up the Earth’s surface.

**Teacher Questions, Pre-Tour**
- **Q:** How do you know something is living? Can you give an example of a living thing? Of a non-living thing?
- **Q:** What things do you see on the school grounds that are made by people? What do you see or feel that occurs naturally?

**Teacher Questions, Post-Tour**
- **Q:** Name two living things that you saw at the Discovery Center. How do you know they are living?
- **Q:** Name two nonliving things that you saw at the Discovery Center. How do you know they are non-living?
- **Q:** How can you tell if something is natural or man-made? Give an example from something you saw at the Discovery Center.

**Physical Science**

**Standard 9. MATTER:**
**Conceptual Strand 9:** The composition and structure of matter is known, and it behaves according to principles that are generally understood.

**GLE 0107.9.1.** Classify objects according to their physical properties.

**Teacher Questions, Pre-Tour**
- **Q:** Describe an object in the classroom in terms of what you can see or feel.
- **Q:** Describe an animal (if there are some in the classroom) in terms of what you can see (and feel, if that is allowed).

**Teacher Questions, Post-Tour**
- **Q:** Choose an animal you saw at the Discovery Center. Describe it in terms of what you saw, and in terms of what you could feel, if you touched the animal. How was touching it different from just looking at it? How is ‘your’ animal different from other animals at the Discovery Center? (If the animal you observed was a mammal, compare it to another animal at the DC, such as a reptile or amphibian.)

**Standard 10. ENERGY:**
**Conceptual Strand:** Various forms of energy are constantly being transformed into other types without any net loss of energy from the system.

**GLE 0107.10.1.** Investigate the effect of the sun on land, water, and air.

**Teacher Questions, Pre-Tour**
- **Q:** Do any of you wake up before the sun rises in the morning? Describe how the sun lights the Earth---is it like turning on a light switch?
Q: Tell how you know the sun provides heat as well as light.
Q: How do you think the sun’s heat will affect air? Water? A land surface?

Teacher Questions, Post-Tour
Q: Was the sun out the day you visited the Discovery Center? If your class walked on the boardwalk, ask them if they remember feeling warm when they were in the sunshine. Where was it cooler? (Hint: inside, under the patio awning, or in the shade of trees at the Discovery Center.)
Q: Was the parking lot at DC warm? Do you think it was cooler or warmer than the grassy area around it? Why?

Math

Standard 1. MATHEMATICAL PROCESSES:
GLE 0106.1.3. Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.

Teacher Questions, Pre-Tour
Q: How long do you think it will take us to drive to the Discovery Center? To eat our lunch? (estimate)
Q: How much time do you think each presentation will take? (estimate)

Teacher Questions, Post-Tour
Q: When did we go to the Discovery Center? (yesterday)
Q: Which activity took longer: eating lunch or driving to the DC? A DC activity or eating lunch?
Q: How long were we at the DC? In hours? In minutes? (estimate)

Standard 3. ALGEBRA:
GLE 0106.3.8. Determine whether a number is odd or even by pairing objects.

Teacher Questions, Pre-Tour
Q: There are 12 boys in the class, and 9 girls. Which number is odd and which is even? How can you tell?

Teacher Questions, Post-Tour
Q: There are 3 birds inside the DC: an owl, a finch, and a dove. Is 3 an odd or even number? How can you tell? (pairing)
Q: If you count 8 red-eared sliders in the turtle tank, is this an odd or an even number? What if you count 15 sliders? Is 15 odd or even? Prove it by pairing pictures or tokens to represent the turtles.

GLE 0106.4.7. Understand and use comparative words such as long, longer, longest; short, shorter, shortest; tall, taller, tallest; high, higher, highest.
Teacher Questions, Pre-Tour

Q: When we compare objects, we can see that they are different in certain ways. [have pictures of a child, a door, and a house]. A child may be tall, but a door is taller than the child, and the house is the tallest of these three things.
A mouse might be small, but a grasshopper is ________ (students should volunteer the word “smaller”), and an ant is the _________ (smallest) of the three.

Teacher Questions, Post-Tour

Q: Correctly compare these items from your visit to the Discovery Center, starting with the word “tall” to describe:

The log cabin: The log cabin at the DC is tall.

The slide at the DC is _____ (taller) than the cabin.

The roof of the DC is the ______ (tallest) of these.

Standard 5, DATA, PROBABILITY, and STATISTICS:
GLE 0106.5.2. Represent data in both horizontal and vertical form.

Teacher Questions, Pre-Tour

Q: If we count the number of pets the girls have, we might find 4 birds, 12 cats, 8 dogs, and 2 guinea pigs. (show this on the board in a vertical bar graph, leaving a space between each line to add boys’ pets next).
Add the pets the boys might have, pairing the same animals: 3 birds, 10 cats, 9 dogs, one white rat, and no guinea pigs.
Arrange girls’ and boys’ pet data in a horizontal bar graph, and compare both graphs. Is the information the same?

Directions for the DC tour: Be prepared to count and remember the number of turtles, ducks, other birds, etc. that you see at the DC.

Teacher Questions, Post-Tour

Q: List the animals you saw, and approximate numbers. In small groups, make a horizontal bar graph for this data, and then make a vertical bar graph for the same data.

Language Arts

Recommended Reading:

Nonfiction:

Animal Lives: The Rabbit by Sally Tagholm
Fun Facts About Lizards! By Carmen Bredeson
Fun Facts About Salamanders! by Carmen Bredeson
Hedgehogs by Mary R. Dunn
Snakes! Strange and Wonderful by Laurence Pringle
Who Eats What? Food Chains and Food Webs by Patricia Lauber
Why Do Snakes Hiss?: And Other Questions About Snakes, Lizards, and Turtles by Joan Holub

Fiction:
Ferret Fun by Karen Rostoker-Gruber
Good-Night, Owl! by Pat Hutchin
Hedgehog Haven: A Story of a British Hedgerow Community by Deborah Dennard
Hedgie’s Surprise by Jan Brett
Hungry Little Hare by Howard Goldsmith
Hurry Up, Hedgehog! by Dawn Bentley
Little Owl’s Night by Divya Shrinivasan
Near One Cattail: Turtles, Logs And Leaping Frogs by Anthony D. Fredericks
Owl Moon by Jane Yolen
Salamander Rain: A Lake & Pond Journal by Kristin Joy Pratt-Serafini
Turtle Splash!: Countdown at the Pond by Cathryn Falwell (Counting book from 10)
Verdi by Janell Cannon
The Winter Hedgehog by Ann and Reg Cartwright

Social Studies

Standard 5. HISTORY ---

Content Standard: History involves people, events, and issues. Students will evaluate evidence
to develop comparative and casual [sic] analyses, and to interpret primary sources. They will
construct sound historical arguments and perspectives on which informed decisions in
contemporary life can be based.

GLE.5.02. a. Recognize that change occurs over time.

b. Observe how sites in neighborhoods and communities change over time.

Teacher Questions, Pre-Tour

Q: How do you think this community looked 100 years ago? What would be different then from
the way it looks now?

Teacher Questions, Post-Tour

Q: At Discovery Center, the water comes from a spring that used to provide all the water for the
City of Murfreesboro. Why do you think water for Murfreesboro comes from a different source
now?

Standard 6. INDIVIDUALS, GROUPS, and INTERACTIONS:
**Content Standard:** Personal development and identity are shaped by factors including culture, groups, and institutions. Central to this development are exploration, identification, and analysis of how individuals, and groups, work independently and cooperatively.

**GLE 6.01.** Recognize the impact of individual and group decisions on citizens and communities.

**Teacher Questions, Pre-Tour**

**Q:** Where does the water in your house come from? (the city? The county? A well?)

**Teacher Questions, Post-Tour**

**Q.** The spring that creates the wetland at the Discovery Center provides water and a home for many plants and animals. When a person decides to throw trash in the wetland, how does that affect the plants and animals there? How does it affect you?
WETLAND BABIES AND ADULTS

Dragonfly

Frog

Duck

Musk rat
WETLAND ANIMALS AND PLANTS

Butterfly

Water Strider

Dragonfly

Salamander

Wood Duck

Fish

Frog

Crawfish

Spider

Snail
WETLAND ANIMALS AND PLANTS

Heron

Muskrat

Otter

Snake

Turtle

Raccoon
WETLAND ANIMALS AND PLANTS

Pickerel Weed

Arrowroot

Duckweed

Water lily

Cattails