



LAB 6 – MUSEUM OF NATURAL HISTORY 2009 VERSION

NAME: _____

- From the **Constitution Ave. entrance (Federal Triangle Metro stop)** proceed directly ahead past the museum shops and take the escalator up to the Rotunda.
- From the **Mall entrance (Smithsonian Metro Stop)** walk directly into the Rotunda.

The Fénykövi Elephant

The mammal you see before you is an African Elephant (*Loxodonta africana*). This is a real animal skin not a statue! It was a gift to the National Museum of Natural History from José Fénykövi who "collected" the elephant in Angola in 1955. It is the largest mounted elephant in the world. It measures 13 feet 2 inches at the shoulder and 33 feet 2 inches trunk to tail. In life it weighed approximately 12 tons.

The hide delivered to the museum was stiff as a board, three inches thick, and weighed 2 tons. It took over a year for taxidermists Norman Deaton and William L. Brown to prepare it for display and they considered it their masterpiece. The skin is mounted over an interior mannequin that is supported by a lightweight wood frame.

It has been on display in the Rotunda for over three decades, and was renovated in 1999 to display the elephant in an array of plants and animals typical of its native Angola.

Hall of Dinosaurs & Fossil Mammals (to the right of the Fénykövi elephant, if you come in the Mall entrance)

1. Locate the illuminated Sabre-tooth cat skull and outline seen on the wall and find the display on **Carnivory**.
 - For each of the feeding types listed below list (1) the specific type of tooth or teeth modified, (2) other modified features that are described in the exhibit and (3) the scientific name (*Genus* and *species*) of one of the animals used to illustrate each feeding type.

Slicing Flesh–

Crushing Bone–

Omnivores–

Chewers–

2. Enter the Ice Age exhibit. To your right, you will see three horse skeletons displayed together at the entrance. As you pass the horse skeletons, you will find the skeleton of ***Eremotherium rusconii*** in the "South American Immigrants" display on your left.

- What present day mammal is of comparable size?
- What present day mammals is ***Eremotherium rusconii*** most closely related to?

3. Also in this display you will find the skeleton of the **Glyptodont** (*Glyptotherium arizonae*).

- What present day mammal is it most closely related to?
 - What mammal from a different order shows convergence with this species? (HINT: compare Glyptodont to the mounted specimens in the **Hall of Mammals**)
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Proceed to the **Hall of Bones** (second floor).

4. Name four skeletal characteristics that distinguish whales and porpoises from other mammals (Look up).

- 1.
- 2.
- 3.
- 4.

5. At the end of the mammalian bones exhibit (just past the room with the whale skeletons) is a round room where you will find many comparative displays of vertebrate characteristics. Examine the third window on your right.

- How do the teeth of the **Baleen whale**, **Walrus** (*Odobenus rosmarus*), and **seal** (*Lobodon carcinophagus*) differ?

Baleen whale -

Walrus -

Seal -

Proceed to the **Kenneth E. Behring Family Hall of Mammals** (first floor, on the opposite side of the Rotunda from the Hall of Dinosaurs)

6. Find 4 pairs of mammals from different orders that show convergent anatomy associated with mode of locomotion, diet, or predator defense. Give the common names of the mammals and describe how they are convergent.

1.

2.

3.

4.

7. Based on the exhibits focusing on African mammals, what are the major abiotic (non-living) influences driving the evolution of mammals? (HINT: Be sure to watch the videos/animations and read the exhibit captions.)

The next questions focus on exhibits near the **Evolutionary Theater**.

8. Name the oldest known mammal fossil specimen. How long ago do paleontologists think it lived?

9. Examine the display on bats. Each of the bats in the case has different dietary requirements (which can be inferred from the display). Give the common name for each of the bats and describe the anatomical differences do you see (especially their heads and feet) that might be associated with these different diets.

10. Many placental and marsupial mammals have acquired similar adaptations through convergent evolution (e.g. due to similar evolutionary pressures rather than descent from a common ancestor). Based on the information in the **Australia exhibit**, give common names of two of these placental-marsupial species “pairs” and describe the adaptations that they share.

1.

2.

11. The **South America exhibit** is organized around the theme of spatial and temporal separation of mammalian niches in a Neotropical rainforest. Name the three types of niches, and for each niche give one characteristic that is shared by mammals inhabiting that niche.

1.

2.

3.

12. Based upon the **North America/Frozen North exhibit**, name two adaptations in other mammals for dealing with an extremely cold environment. At least one of these adaptations should involve similar biological principles compared to a mammalian adaptation for dealing with very hot environments (HINT: see the **Africa** exhibit again if needed). How does this adaptation to a cold environment compare with adaptations to a hot desert environment?

13. What adaptations for increased speed have been acquired by pronghorn antelope? Why did they evolve?