**[Mammal Webquest](http://biowithoutwalls.com/ap-biology/animal-diversity-unit-plan/mammal-webquest/)**

[**http://biowithoutwalls.com/ap-biology/animal-diversity-unit-plan/mammal-webquest/**](http://biowithoutwalls.com/ap-biology/animal-diversity-unit-plan/mammal-webquest/)

Note: This webquest uses multiple websites. All will be linked from [www.biowithoutwalls.com](http://www.biowithoutwalls.com/) We will use this webquest and the primate webquest as study guides for a quiz.

1. Go to <http://www.mnh.si.edu/mammals/>.
2. Click on “What makes a mammal.”
   1. Using the tabs as a guide, list four characteristics mammals share.
   2. Click on the “Special Earbones” tab.
      1. Note that the skull pictured has 2 major holes in it. The larger one is the eye socket. The smaller one is the **temporal fenestra**, from the temporal bone (the plate of the skull through which it passes) and from fenestra, which is Latin for window. This hole is characteristic of **synapsids**, meaning animals with one major hole (beside the eye socket) in their skull. (More on this later.)
      2. What are the four bones listed?
      3. As you drag the slider, what changes occur:
         1. i.     To the back of the skull?
         2. ii.     To the temporal fenestra?
         3. iii.     To the arrangement of the bones at the hinge of the jaw?
3. What is the tympanum and when does it emerge?
4. Compare/contrast the arrangement of the bones 210 MYA and the modern opossum ear. How do these differ in terms of size? How do these differ in terms of arrangement?
5. Explain what evolutionary pressures might have led to these bones’ reduction in size and placement in the skull.
6. Sketch and list the bones of the ear. Note the common name for each (ear drum, etc.) and speculate as to why each is called that based on its structure/function.
7. Click on the “Mammary Glands” tab.
   1. Match each bottle of milk to the animal to which it belongs. We will be looking at milk production and distribution later.
   2. Click the “Blood” tab.
      1. From your word roots, define **ectothermic** and **endothermic.**
      2. Use the slider to show how body temperatures of the lizard and fox change over the course of a day. How does each vary as temperature varies?
      3. Looking at the lizard and fox, what adaptations does each have to deal with temperature fluctuations?
      4. Which animal likely spends more energy on temperature regulation? WHY? (Remember the respiration lab!)
      5. Although the site uses the words “cold-blooded” and “warm-blooded,” do “cold-blooded” animals always have “cold” blood compared to “warm-blooded” animals? Why are these terms inaccurate?
      6. What internal and external responses might each animal have to changes in temperature? (Sweating, etc.)
      7. Click on the section for “How” mammals evolved.
         1. Begin 270 mya with the Dimetrodon. What features does the dimetrodon share with mammals? What does it use the large sail-like flap on its back for?
         2. Click on “Cynodont.” What mammalian tooth characteristics does Cynodont have?
         3. Look at the extent mammals on the cladogram. What is the group of mammals least closely related to other mammals? What is the group of extent mammals second least related to other mammals? (More on this later.)
8. Comparing anapsids, diapsids and synapsids. Compare the skull structure in mammals to that of reptiles, including turtles.
   1. Anapsids: <http://www.ucmp.berkeley.edu/anapsids/anapsida.html>
   2. Diapsids: <http://www.ucmp.berkeley.edu/diapsids/index.html>
   3. Synapsids: <http://www.ucmp.berkeley.edu/synapsids/synapsida.html>
9. Compare monotremes, marsupials and placental mammals in terms of: <http://www.ucmp.berkeley.edu/mammal/mammal.html>. (Look at the cladogram at the bottom!)
   1. Reproduction.
   2. Milk production and distribution (especially for monotremes! You may have to do some digging.).
   3. Geographic location.
   4. Primates: Go to <http://nationalzoo.si.edu/Animals/Primates/Facts/Primateness/default.cfm>
      1. Primate Characteristics
         1. i.     Select and list three of the primate characteristics related to vision.
         2. ii.     Select and list three primate characteristics related to hand and limb structure.
         3. iii.     Select and list three primate characteristics related to behavior.
         4. iv.     Select and list three primate characteristics related to reproduction and offspring.
10. Human Classification
    1. i.     Suborder Haplorhini
       1. Who are the members of the suborder haplorhini?
       2. What are some characteristics of the haplorhini that humans exhibit? (You do not need to list them all – select and explain AT LEAST four.)
       3. ii.     Infraorder Catarrhini
          1. Who are the members of the infraorder catarrhini?
          2. What is the defining feature of the catarrhini? (Hint: look at what the name means!)
          3. What characteristics of catarrhini do humans exhibit? Which don’t humans exhibit? (You do not need to list them all – select and explain AT LEAST four.)
       4. iii.     Superfamily Hominoidea
          1. Who are the members of the hominoid superfamily?
          2. List and describe four characteristics of the hominoid superfamily.
          3. Which of these characteristics are present in humans? Which of these characteristics are not present in humans? (You do not need to list them all – select and explain AT LEAST four.)
       5. iv.     Family Hominidae
          1. Who are the members of the hominid family?
          2. What characteristics do humans share with other members of the hominid family?
          3. What characteristics don’t humans share with other members of the hominid family?