Name:
Class:

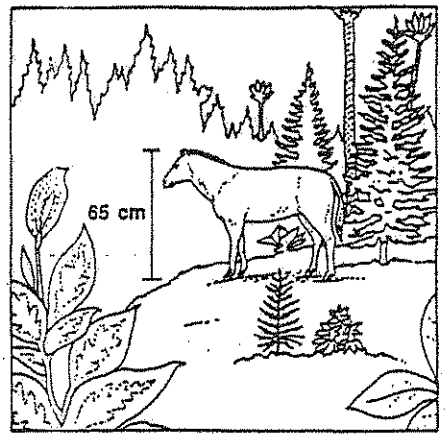
Fossil Horses

Most organisms, live, die, decompose and leave no trace of having lived. Under certain conditions, an organism's remains or tracks may be preserved as a fossil. Fossils provide evidence for an organism appearance, when it lived, where it lived, and how it lived. Analysis of fossils also shows us that organisms have changed through time.

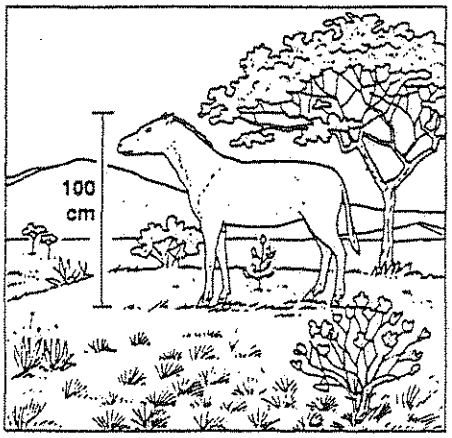
Objective:
Analyze fossil horses and present day horses to conclude changes in their size, bone structure, teeth shape/size, and environment.

Procedure:
1. Examine the feet and teeth diagrams of the horse species. Identify and color the bones accordingly:
   Toe bones (x) in red Ankle bones (w) in green
   Foot bones (y) in blue Heel bones (z) in yellow
2. Create a data table to record your observations of each species. Include for each; the name and age of when the species lived, the over all environment it lived in, the general size of the animal. Measure and record in mm the size of the tooth and size of the foot (black in diagram). Count and record the number of toes, number of bones in the foot, ankle and heel as well as overall number of foot bones.

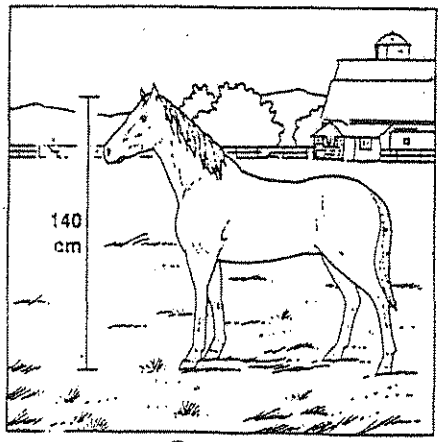
Hyracotherium
55 million years ago



Miohippus
30 million years ago



Merychippus
13 million years ago



Equus
Today

Name:
Class:

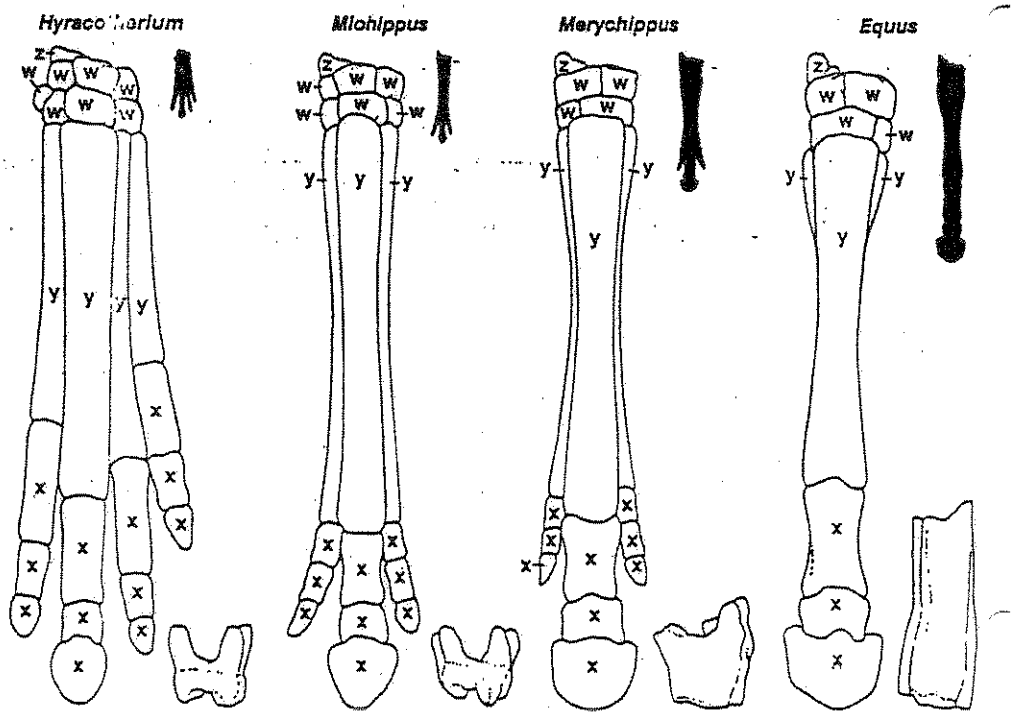


FIGURE 2. Forefoot bones and teeth of horses

Questions:

1. How has the size of the horse species changed over time?

2. What are some advantages of being small? Of being big?

3. What are some disadvantages of being small? Of being big?

4. How does the size of the animal relate to the environment it lives in?

5. How has the foot changed over time? (foot length, toe number and toe size & shape)

6. What are some advantages of having more or less toes, bigger or smaller feet as it relates to the environment?

7. How has the tooth size and shape changed over time?

8. What are teeth used for in horses? What might be the advantage of having smaller or bigger teeth relate to the habitat change?