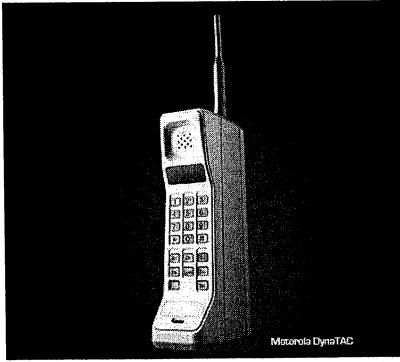


Which came first?

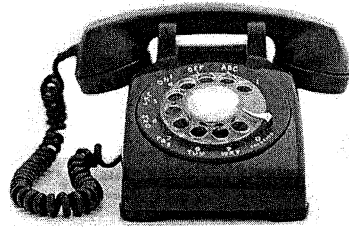
Purpose: To observe the evolution of phones over time

Procedure:

- 1) Sort the phones from oldest to youngest.
- 2) Note some are cell phones and some are landlines.
- 3) Pay careful attention to the key pad or lack of key pad
- 4) List the number for each phone from oldest to youngest on your lab sheet!



1



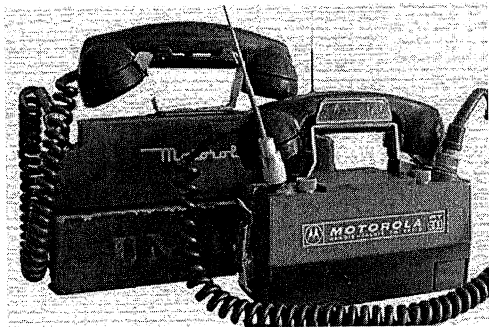
#6



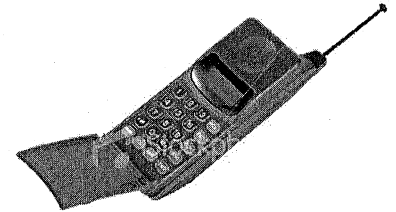
#2



#7



3



#4



5



#8

What do Ice Cores tell us?

Problem: How do ice cores give us clues to the past and give us warnings for the future?

Procedure: Watch the video and answer the following questions on your station handout.

<http://natgeotv.com/ca/extreme-ice/videos/national-ice-core-lab>

1. What is the significance of bubbles in the ice core?
2. What is the significance of the layers in the ice core?
3. What glimpse into Greenland's history do the ice core records show?
4. How do the recent ice core records show a similar scenario?
5. What is the explanation the video gives to the rise of carbon dioxide?

Name _____

Period _____ Date _____

INDEX-FOSSIL CORRELATION QUESTIONS

Answer these questions after you have identified and correlated the rock layers at the three parks.

1. Which rock layers contained the same index fossils at Zion and the Grand Canyon?

2. Which rock layers contained the same index fossils at Zion and Bryce?

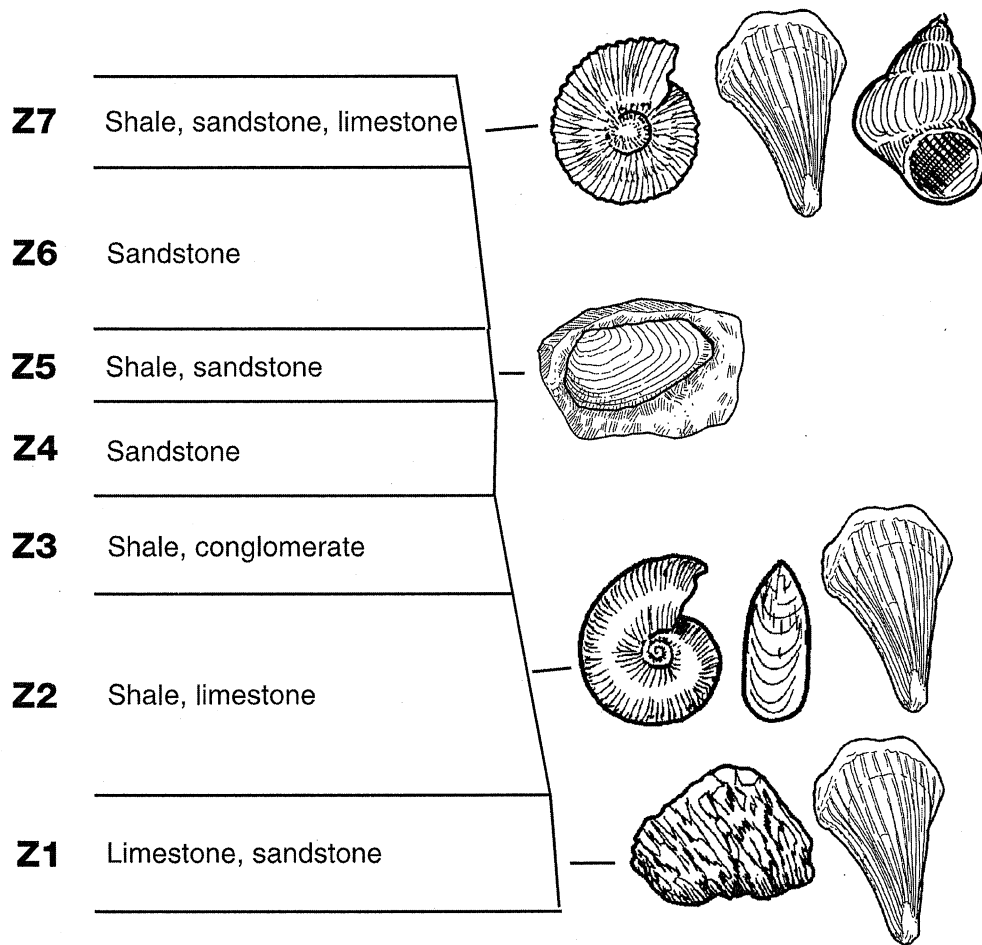
3. Which rock layers contained the same index fossils at Grand Canyon and Bryce?

4. Is rock layer B3 at Bryce older or younger than Supai Group at the Grand Canyon? How do you know?

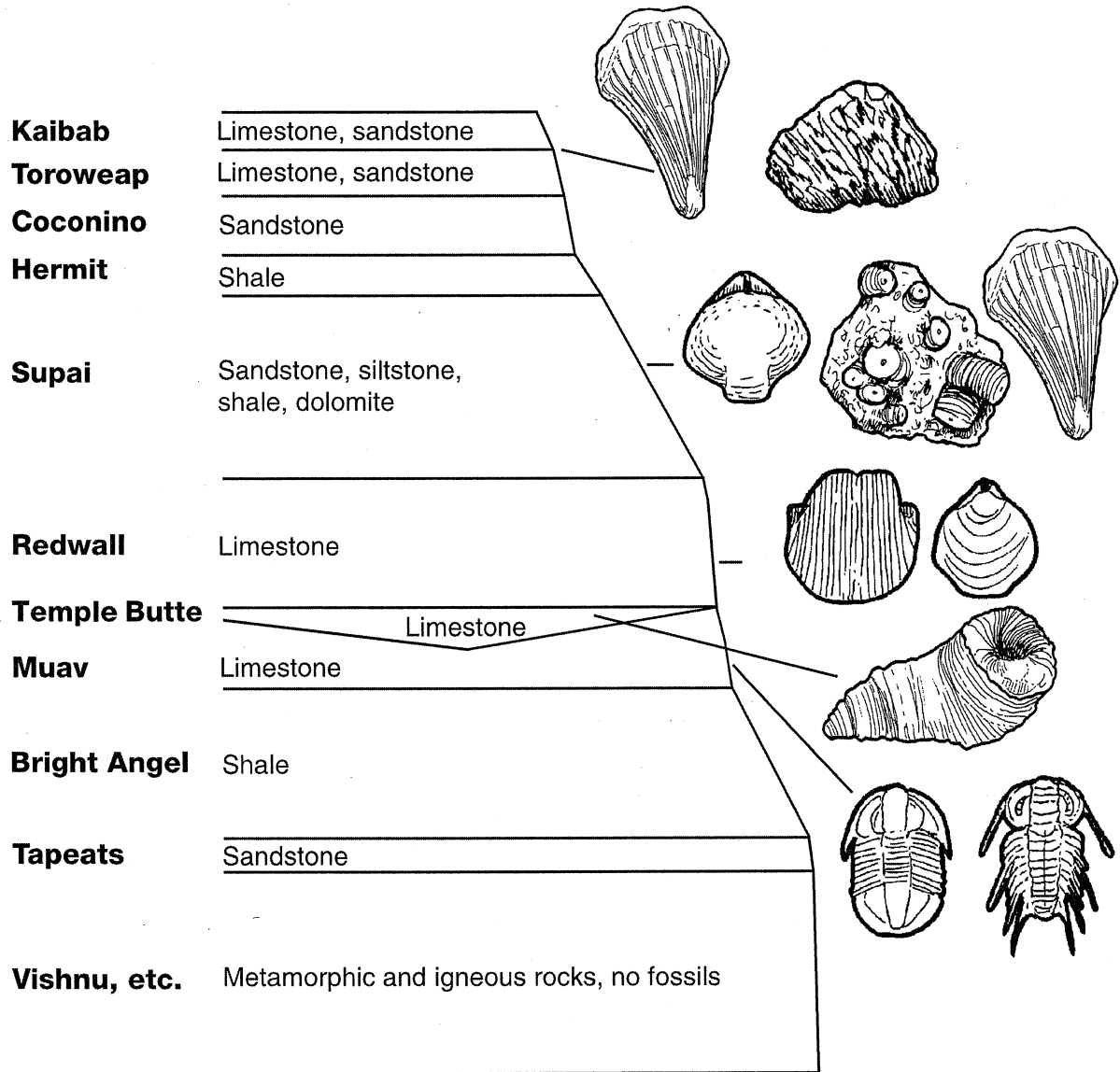
5. Is rock layer B2 at Bryce older or younger than rock layer Z1 at Zion? How do you know?

6. What do you think the environment was like at the time layer B9 was being deposited at Bryce?

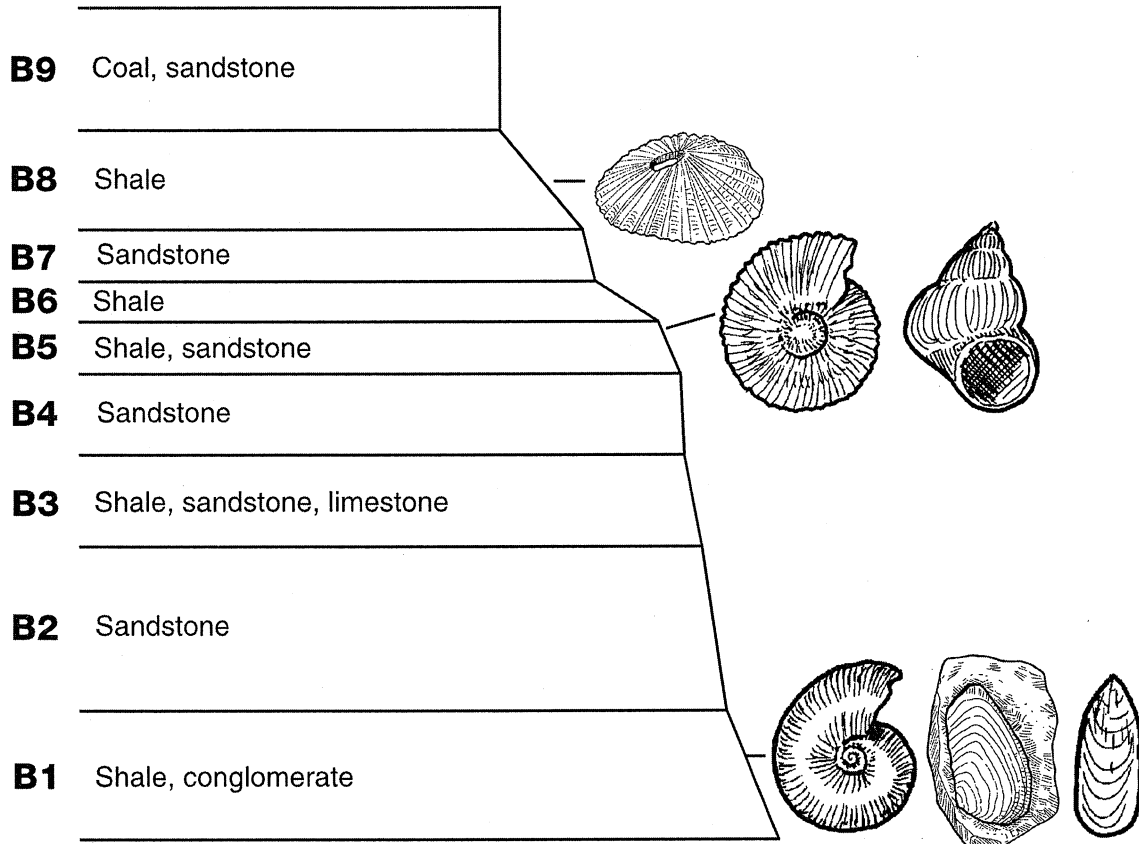
ZION NATIONAL PARK FOSSILS



GRAND CANYON FOSSILS

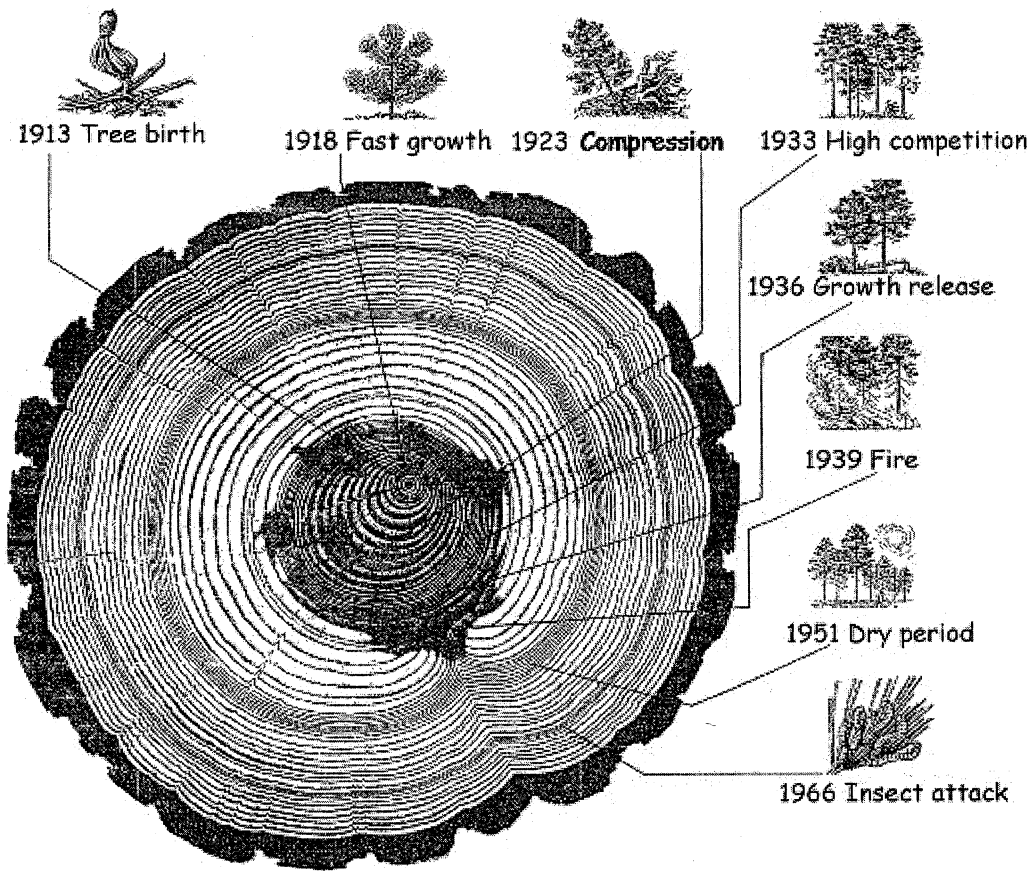


BRYCE CANYON FOSSILS



Dendrochronology Station

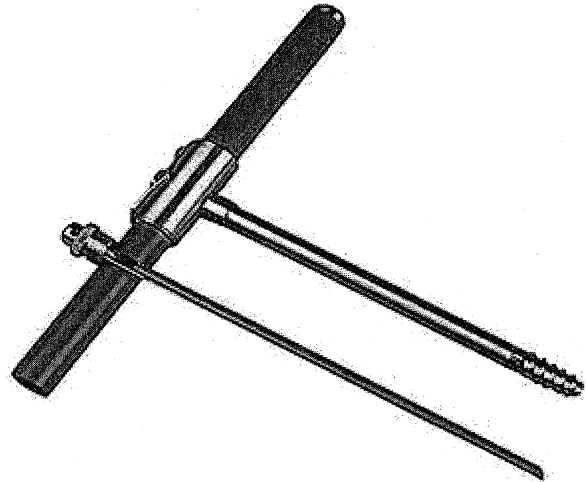
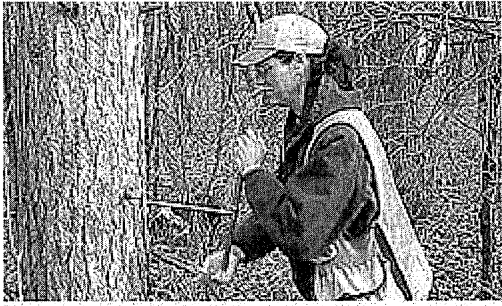
Dendrochronology is the study of growth rings in trees for the purpose of analyzing past climate conditions or determining the dates of past events. Each year a tree puts on a wide light colored growth layer of wood called springwood followed by a dark layer called summerwood. Study the diagram below and then answer the questions.



Now look at your sample and count either the summerwood or springwood to determine this tree's age.

1. How old is this tree?
2. Was there a fire in this tree's past?
3. Was there a drought in this tree's past? How do you know?

An increment borer is a tool a scientist uses to determine dendrochronology without cutting down the tree.



Sample 1



bark

Using the above core sample to answer these questions.

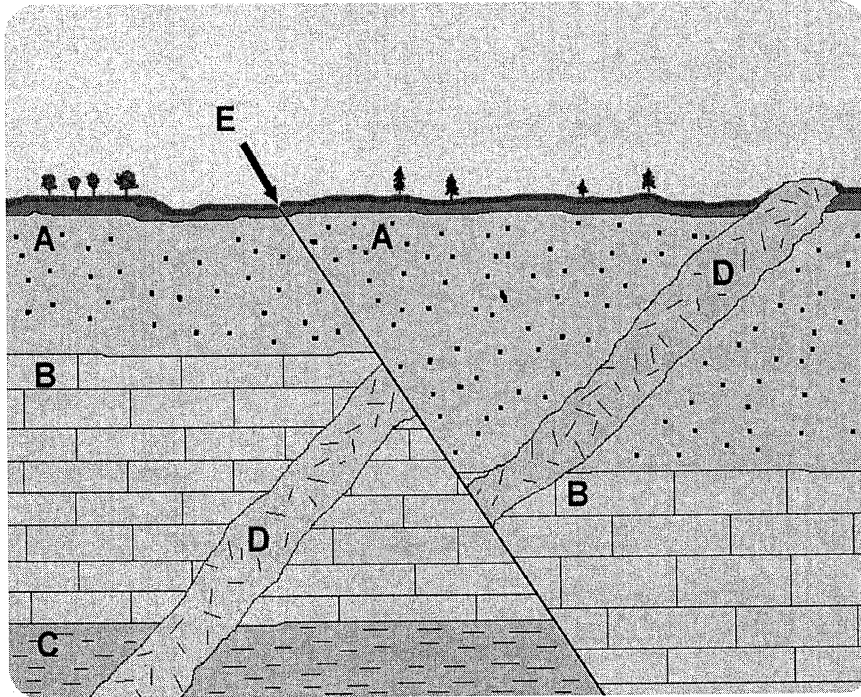
4. How old is this tree?
5. How many droughts has this tree seen?
6. When did the first drought occur and how long did it last?

**EARTH SCIENCES - STRATIGRAPHY
CORRELATION ACTIVITY**

PROBLEM: How can the principles of stratigraphy be used to do relative age dating?

PROCEDURE:

Exercise I. This drawing shows a cross-section, or a side view, of the rock layers below the Earth's surface. The trees show where the surface is. Each rock layer is identified by a letter. Using the principles of stratigraphy, answer the following questions about the cross section.



1. Which rock layer is the oldest? Which rock is the youngest?
2. Between what two layers has erosion occurred? How can you tell?
3. What do you think happened to at letter "E"? How can you tell?
4. The Law of Superposition states that letter "D" is younger than letter "A". Do you agree with this statement? Explain

Geologic Event Cards

Problem: What are some major events in Earth's history and how are they sequenced?


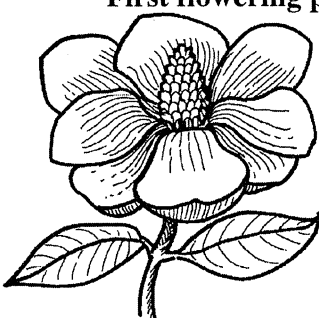
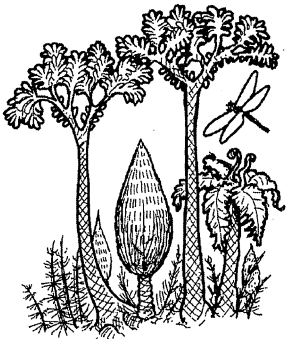
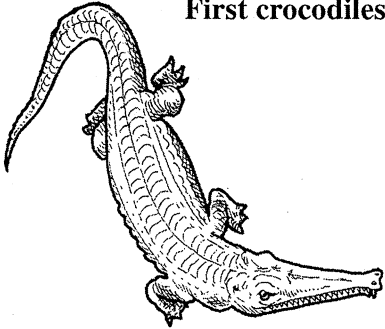


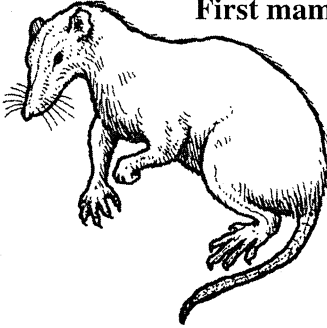
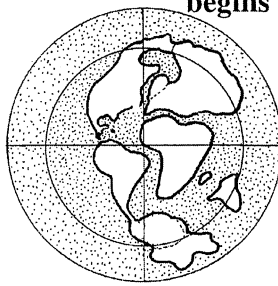
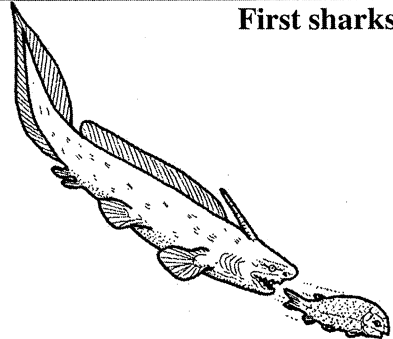

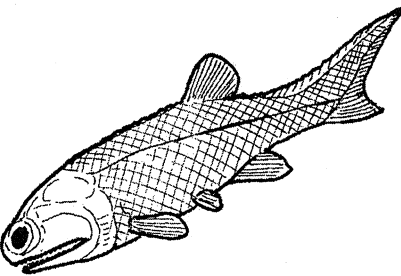
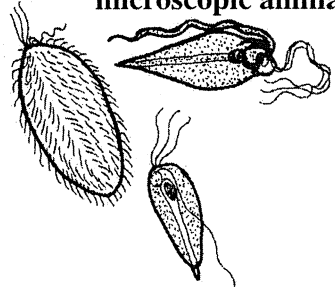
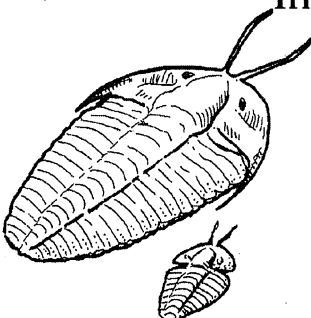
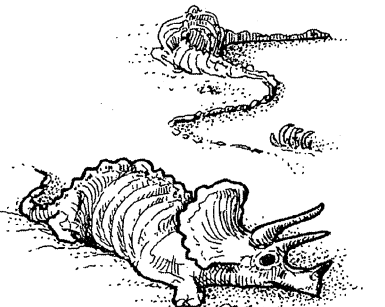

Procedure:

1. Place the event cards in order.
2. When you think you have them in correct order, raise your hand to retrieve the answer key.

Analysis:

1. What is your score?
2. What surprised you the most about the correct order?
3. What were your mistakes?

EVENT CARDS A

 <p>Archaeopteryx (early bird)</p>	 <p>First flowering plants</p>	 <p>Forests of coal plants</p>
 <p>First crocodiles</p>	 <p>Recorded written history</p>	 <p>Water appeared on Earth's surface</p>
 <p>First mammals</p>	 <p>Pangaea, the supercontinent, begins to divide</p>	 <p>First sharks</p>
 <p>Neanderthal man (1400 cc brain)</p>	 <p>First bony fishes</p>	 <p>Protozoa (single-celled, microscopic animals)</p>
 <p>Trilobites</p>	 <p>Dinosaur extinction</p>	 <p>Grass</p>

Traces of Tracks Station

Paleontologists can learn a lot from trace fossils. The figure below shows fossil footprints. The larger prints were made by a dinosaur. The smaller prints were made at the same time by a small mammal. Can you infer what happened?

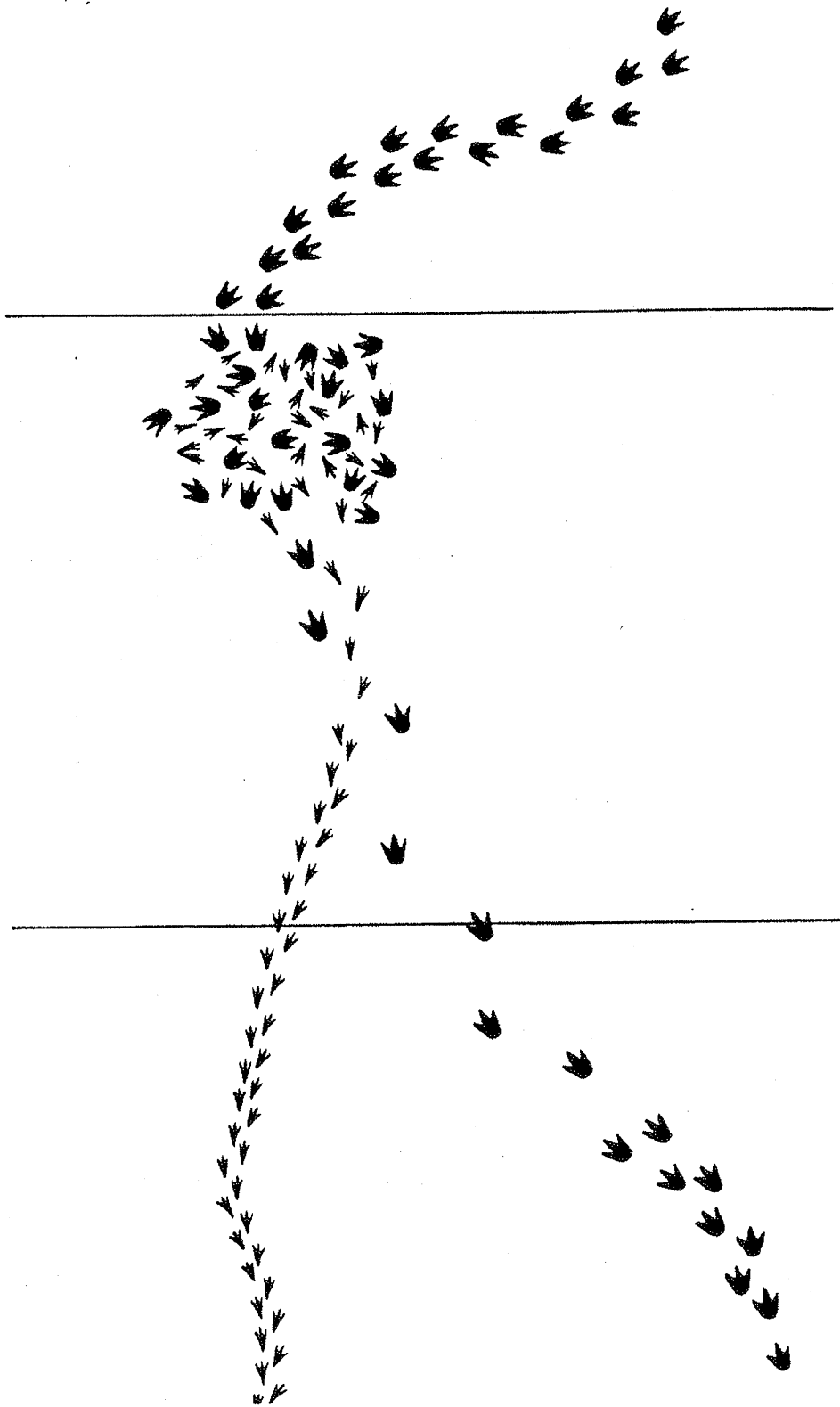
Answer the following questions.

1. From which direction did the dinosaur come? From which direction did the mammal come? Use section A
2. Did either animal change its speed? How can you tell? Use section A
3. What prints lead away from the meeting of these animals? Use section C
4. How do you interpret these trace fossils? Tell what happened. Use section B

NAME _____

DATE _____

Integrating the Sciences: Try Your Hand at Paleontology



Peppered Moth Simulation

Problem: How has the peppered moth evolved over a short period of time?

Procedure:

1. Go to the following link and follow each step and practice through the simulation.

peppermoths.weebly.com

Write a summary of the activity on your paper.