

Lab Title:...*What Happened Here?*.....Lab #.....

Lab Partners:.....

Your Lab Score will be based on the following:

**Neatness:** All labs must be **well-written and done in pencil** unless directed otherwise. There are to be no cross-outs or misspelled words. Questions should be answered in complete sentences.

**Accuracy:** Certain **questions will be checked** for accuracy.

**Completeness:** All questions are to be answered completely. There are to be **NO BLANKS** or incomplete sections.

**Lab Class Procedure:** You are to **follow directions** and use lab equipment properly, work for the entire period, and follow proper clean-up procedures

**Rubric:**

Lab Score Category	Points Earned											
Neatness	0	1										
Accuracy	0	1	2	3	4							
Completeness	0	1	2	3								
Lab Class Procedure	0	1	2									
<u>Total Lab Score</u>	0	1	2	3	4	5	6	7	8	9	10	

You are to submit all lab material with this lab report:

Comments:

## *"What Happened Here?"*

Background: In life, we are encountered by evidence that may not completely tell a story of what actually happened in a particular area. Evidence that is gathered through our senses is referred to as *observations*. Discrete pieces of data give us part of the story when a continuous stream of data is not available. One of the goals of science is to fill in the gaps left by the discrete data points as accurately as possible. When a scientist uses those observations to “fill in a gap”, it is called an *inference*. Scientists must also be ready to modify their inferences as new observations provide more information.

Purpose: To make inferences and explain what might have occurred based on observations.

### Part One: Discrete vs. Continuous Data

1. Watch the sequence of pictures streaming on the following website:  
[http://www.coolclassroom.org/cool\\_projects/lessons/miniunits/lesson1.html](http://www.coolclassroom.org/cool_projects/lessons/miniunits/lesson1.html)
2. In a few sentences, describe what happened in that sequence of pictures. Tell the story.
3. Compare stories with a person sitting near you. Are they the same? How are they different?
4. Now watch the video clip of what actually happened and briefly describe the actual “story”.
5. Which parts of your story were *observations*? Which were *inferences*? Complete the chart below:
 

Observations		Inferences
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6. Which method gave the most information about what she was doing?  
 (Circle one)      Photos      Video
7. Is the method you circled above *continuous* or *discrete*? (Circle one)

## Part Two: Using discrete data

Quite often, researchers don't even have access to continuous data. In some ways, science can be thought of as a way to objectively verify an inference made based on the discrete data available. Before we get to the verification part, let's practice inferring.

1. Working with a partner, examine the diagram of some fossil footprints (Figure 1.)
2. What types of organisms made these prints? Label them in the Figure 1.

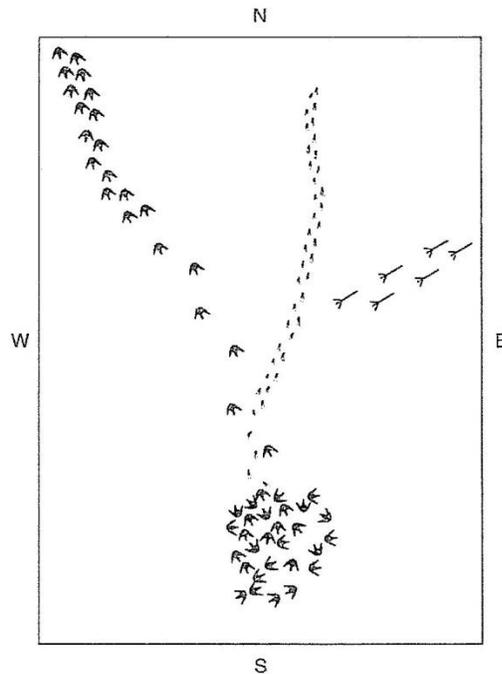


Figure 1

3. Since you did not actually observe those animals leaving those prints, you just made an inference. What did you base that inference on?
4. Now, tell the story. What happened here?

5. Give two examples of additional information about these fossils that would be helpful. For each, explain how each would help.

a.

b.

6. With a partner, look over figure 2. That shows another set of fossilized foot prints.

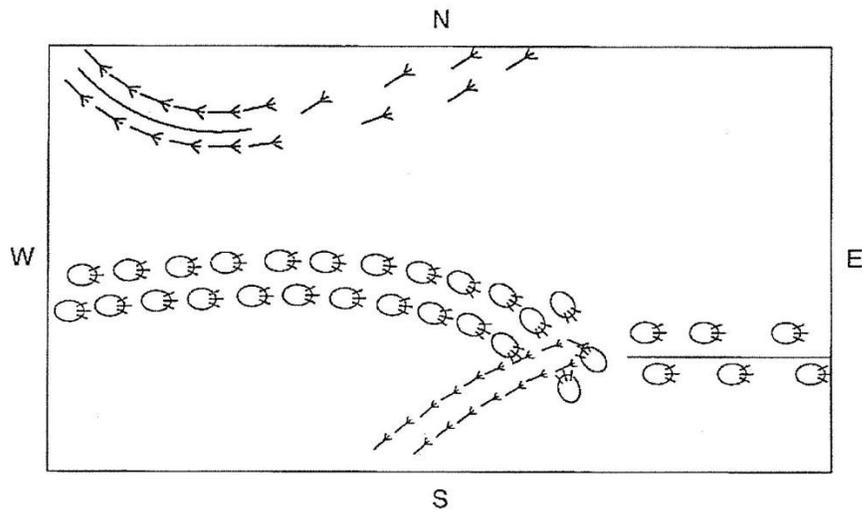


Figure 2

7. Make three observations about these fossil prints.

8. Fill in the gaps by making informed inferences based on your observations and tell the story of "What Happened Here?"

Conclusion: The following can be concluded from this lab experience. (What's the "take home message"?)

Analysis Questions:

1. Do you think anyone in class will have the same exact story as you (other than your lab partner and, even then, those stories better not be word-for-word.)
2. Why is it not always possible to determine what happened?
3. Do you think anyone could ever determine what exactly happened in Part Two? Why?

For extra credit, turn this sheet over...

Do some research and find an example of a scientific inference that was later disproven after more observations were made.

a) What was the original inference?

b) Who made it?

c) Who disproved it?

d) Describe the observations made to disprove it.

e) Describe the new, replacement understanding.

Where did you get this information?

Why is this source reliable?

Be prepared to share your research in class.