

THE CHECKS LAB₃: Student Directions

Introduction

This activity is a simulation designed to help you experience how science works when figuring out past events, and that it is built on **evidence** that can be observed or inferred from clues in the natural world. However, this evidence can sometimes be confusing, seemingly conflicting, and apparently random. Furthermore, each new bit of evidence often creates more questions than it answers. This Lab shows how scientific explanations are only tentative explanations, because new discoveries may show that previous explanations were incorrect.

Directions

1. Each group of students will be given an envelope that contains a total of 16-17 checks written by people over a period of time. Do not look at the checks until instructed to do so. When directed, and without looking, remove any **four** of the checks at random from the envelope and place them on the lab table. Do *not* allow other groups to examine your data at this time.
2. With your team, observe the information on the checks. Think of the checks as clues to a series of connected events. Make quantitative and qualitative observations. **Record these in the table on your worksheet.**
3. Now try to figure out a possible storyline for the series of events suggested by the checks. You can disagree, but you must provide evidence. The result is your **inference #1**. **Record this on your worksheet.**
4. When directed, remove **four** more checks from the envelope. Use this new information to make quantitative and qualitative observations. **Record these in the table on your worksheet.**
4. Now form **inference #2** that describes the possible storyline. **Discuss, and record new result on your worksheet.**
5. When directed, remove **only two** more checks from the envelope. Use this new information to make quantitative and qualitative observations. **Record these in the table on your worksheet.**
5. Now create **inference #3**. **Record this on your worksheet.** Do **NOT** remove (or even peek at) any more checks.
6. When directed, your group will be given a few minutes to meet with other groups to compare data.
7. When instructed, each group will get back together to formulate a **final explanation** based upon all of the available data. Be sure to cite evidence to support your inference. **Record this on your worksheet.**
8. **Answer the Discussion Questions asked on your worksheet.** Be prepared for a **class discussion** after you answer those questions.

Name _____

THE CHECKS LAB WORKSHEET

1.

Check	Qualitative Observations	Quantitative Observations

2. Inference # 1:

3.

Check	Qualitative Observations	Quantitative Observations

4. Inference # 2:

5.

Check	Qualitative Observations	Quantitative Observations

6. Inference #3:

7. Additional Information discovered by talking with other groups.

8. In the space provided below, formulate a **final explanation** based upon all of the available data. Be sure to cite evidence to support your inference.

Discussion Questions:

1. What bits of information on the checks were valuable to your group when formulating your inferences?
2. What information was useless?
3. List any misleading information that was presented.
4. Why do we say that an inference in science is "tentative"?
5. Explain why qualitative and quantitative observations are used in science.
6. Is your final inference "correct"? Explain.