

# Student Experience LESSON: Prolonged Observations

## **When**

Prior to the expedition

## **Disciplines**

Scientific Inquiry skills – observation

## **Description**

Students participate in an exercise conducting a prolonged observation of a known object. Students will compare how their observations change as the observation time passes. This activity meant to teach the importance of careful, sustained observation as a “scientific tool”.

## **Learner outcomes**

The student will:

- Record the observations of a known object for 20-30 minutes.
- Participate in a discussion analyzing the experience of conducting a prolonged observation.
- Understand that this type of observation is useful in the development of answerable scientific questions and data collection.

## **Materials**

- Students need blank paper and writing utensils
- Something to observe. It is best if the first object students observe is something that is small (and not necessarily complex) and familiar.
  - Examples: watch, book, pencil, water bottle, small plant, a specific area on the ground/floor.
  - For students who have a hard time sitting for this length of time, have them observe something that they can move around and view from different perspectives.

## **Background**

Many times students are only required to make observations for very short periods of time. Prolonged observation may dramatically alter students’ perceptions, but it requires time and patience. In order to observe past one’s original perceptions, more than 20 minutes must be spent observing the object. Students as young as 5 or 6 years old are capable of doing these extended observations. A part of the exercise is designed to help students to see how their observations change over the time period. The teacher will give directions, within the allotted time period, for students to record specific time intervals during the observation period. These records will aid the follow-up discussion.



### **Suggested procedure**

#### Individual Observations

- 1.** Ask students to select an object to observe. Explain that they are going to spend some time making observations of their object and that it will be longer than they usually spend looking at something. They should NOT pick a second object to observe in the time period. It is important that they stick with the original object they selected.
- 2.** Tell the students that they can make written (text-based) observations or visual (drawings, sketches) observations. Remind them also that observations can be made using any of their five senses, as long as it is safe. Tasting an object, like a watch or a piece of money, that has been exposed to a lot of bacteria is probably not a good idea. Using single senses (like shutting their eyes as they feel the object with their fingers) may help heighten the sense of touch and help them to look at the object differently when their eyes are open.
- 3.** Start the clock. Every five minutes, ask the students to make some sort of mark on their papers (such as a star) indicating where this time interval occurs within their observations. You (the teacher) will want to walk around the room/area and help students who may be stumped or encourage others to expand their observations. If students get stuck, brainstorm a little with them. They may indicate that they feel like they have nothing more to see. You can suggest trying to: a) Look at the object from a different angle; b) Turn it over and look at the "back"; c) Find things to count; d) Find shapes within it; e) See how many different colors it has; and f) Figure out new uses for the object. It is best, for most students, if this is a quiet time. You can remind them that they will be encouraged to share after the observation time.

#### Small Group or Think, Pair, Share Discussion

- 4.** After the observation period is over, allow students to spend 5-10 minutes sharing their observations with another person in a think-pair-share format. It sometimes helps to have students do this with some goals (or questions to answer) in mind.

Examples of questions that could be used for this portion of the activity include:

- How were your observations in the first five minutes different than those in the last five minutes?
- Did you feel like you were "done" at a certain point? Why?
- Did you feel like you did not have enough time? Why?
- Do you note any sort of trend to your observations over time – did they go from more detailed to less detailed or vice versa? Do you notice any other patterns?
- Why do you think we did this activity? What did you learn from it?
- What sort of questions do you have now about your object?
  - Did your observations help you come up with any of these questions? Which ones?

Large/Whole Group Discussion

(Note: The whole group discussion at the end of this activity is very important. If there is not enough time to do the entire lesson in one period, it would be better to make the break between classes be between the observation and the think-pair-share than after the think-pair-share and the whole group discussion.)

5. Goals of the whole group discussion are to get students to share their varying experiences and to lead them to identify the many benefits of this type of observation. Discussing broad observations to more detailed or detailed to more broad is one way to introduce inductive and deductive thinking. Discussing the questions students have about their objects resulting from their observations is a good place to introduce the concepts of answerable and unanswerable questions.

This long observation activity may be a very difficult thing for students, especially ones who have not had a chance to spend this kind of time focusing on one object before. One way of dealing with this might be to do this lesson two or three different times – increasing the observation period from 15 to 20 to 30 minutes each time.

**Extensions** (The first activity is also mentioned briefly in The “Candle” lesson)

“Recognition is perception arrested” –John Dewey

1. Lead a discussion on this quote – what does John Dewey mean? Why might this be a bad thing? How might the prolonged observation as a technique help to eliminate this problem? When might it be a good thing? When do you not need to or have time to analyze what you are looking at? An example might be when one arrives at a green light in a car. Analysis of the makeup of the light might make the people behind you in a car a little perturbed!
2. The following story can be used to encourage students to think about while reviewing their own experience.

Developing Good Eyes

Harry Wolcott (1981) tells the story of Nathaniel Shaler who, in the late 1800's at age 18, began a tutorial in the lab of Louis Agassiz, the eminent biologist-naturalist of his time in the US

[Shaler] was directed to sit at a small table with a rusty tin pan on it. Agassiz placed before him a small fish, directing him only to “study it” without damaging the specimen and to confine his attention to the specimen itself, rather than consulting printed sources or conversing with other individuals in the laboratory.

After about an hour, Shaler...had completed his examination and was ready to proceed to a more challenging task.... To his mounting distress, however, Shaler realized that Agassiz...had no immediate intention of returning to question him. Not that day, not the next, not for a week. And so Shaler committed himself anew to the task of observation—and in due course felt he had learned a hundred times more than in his cursory initial inspection....

[O]n the seventh day...Agassiz approached and inquired, "Well?" His question unleashed an hour-long explication, while Agassiz sat on the edge of the table and puffed a cigar. Suddenly, he interrupted with the statement, "That is not right," and walked abruptly away.

Fortunately, Shaler interpreted Agassiz's behavior as a test of whether he could do hard, continuous work without constant direction. He returned to his observation task afresh, discarding his original set of notes and working up detailed new ones for some ten hours a day for another week. And at the end of that time... he had results that astonished himself and apparently satisfied Agassiz, for although there were no words of praise, Agassiz subsequently placed before him a new and more complicated task and told him to see what he could make of it. That task took two months.... (Wolcott, 1981, pp. 248-249)

### **Reference**

Wolcott, H.F. (1981). Confessions of a "trained" observer. In T.S. Popkewitz and B.R. Tabachnik (eds). *The Study of Schooling*. New York: Praeger.