

# Observation vs. Inference

## 4<sup>th</sup> or 5<sup>th</sup> Grade

Kelly Krupa

### **Benchmarks:**

(4<sup>th</sup>) SLC 8: A. Students will evaluate and provide written observations of experiments (including measurements, attributes, etc.) from a variety of sources (i.e., other students, books, media, etc.) and determine if results are derived from direct observations or inferences.

(5<sup>th</sup>) SLC 3: Students will clearly understand the difference between an inference and observation and will make inferences about observations they have made.

### **Objectives:**

To help students understand the difference between an observation and an inference in scientific studies.

### **Materials:**

- 2 plastic cups (one larger and wider than the other)
- Water

### **Initial Demonstration:**

Get everyone's attention and tell them to observe/watch, with their eyes, ears, noses, any of their senses.

Take 2 cups (one slightly smaller, skinnier than the other) and put one inside the other. Turn the cups upside-down and catch the smaller cup as it falls out of the larger cup. Repeat if necessary. Take water and fill the larger cup about half way, but no more. Over a bucket or something to catch water, smooch the smaller cup into the larger until they are fit together. Quickly turn both cups upside-down and let go of the bottom. The smaller cup should stay in the larger one now. Repeat if necessary.

### **Target Observations/Responses:**

- When there is no water in the large cup, the small cup falls out
- Where there is water in the large cup, the small cup falls out
- The small cup stays in the large cup because the water holds it in

### **Procedure:**

Write all observations on the board. Go through and clarify any questions and make sure that everyone saw or understands all observations made. Discuss which observations are something that everyone saw versus what everyone thought. Remember, an observation is something made with one of your senses. If anyone says because, most likely it is an inference rather than an observation.

Ask students why it is important to write down and tell other people only what we saw at first and not what we thought? When we talk about what we saw that is an observation, when we draw conclusions about what we see, that is an inference. Once the

experiment is performed and all data collected, then one can start making inferences about what the experiment meant and how we can use it.

**Target Model:**

*-An observation is something we saw or experienced with our senses; an inference is something we think is happening because of our observations.*

*-It is important to separate observations and inferences because the other people can make their own views – your view could be wrong.*