**Observation:**

Observation is a key skill necessary for outdoor exploration and study of the effects of various events and changes on the environment. Understanding the difference between observation and inference is a foundational concept.

To assist the students in understanding observation vs. inference there will be numerous “provocaciones” presented that students must respond to using their understanding of observation and inference.

The first “provocacion” is very simple.

**Provocacion: Magical Clear Marble Appearance**

**Materials:**

Two clear beakers; Clear water beads; Water; Tray

Using the table on the following page, ask students to observe what you are showing them, and record their observations. Remind them that valid observations are those that describe what they saw, heard, felt, tasted or smelled. Information that comes to us directly through our five senses is what we may categorize as an observation. Making assumptions beyond what we saw, heard, felt, smelled or tasted, or making predictions about what is going to happen, go in the category of “inference

**First Observation:**

Of the two beakers, each half filled with water. One will have only water in it; one will have water and clear water beads. The students will be unable to detect the presence of the water beads in the second beaker because the angle of light diffraction of the beads is equivalent to that of water’s, thus they appear “invisible”.

**Second Observation:**

Walk around the room allowing students to smell the liquid and to “feel” it by splashing a little bit on those that want it. Have students observe, reminding them that observations are only those pieces of information that we obtain through our 5 senses, and record their observations.

**Third Observation:**

Tell the students that you are now going to do “magic”. Reach into the beaker with the water beads, put one in your hand and close your hand, pretending to be holding water. Pretend to press very hard and to be “forming” something with the water in your hands, not allowing students to see what you are holding as you press and form. Then, announcing that it is “done” open your hand and show them the “magic marble” that has appeared in your hand. Have students observe and record

**Additional Observations:**

Ask for any other observations.

|  |  |  |
| --- | --- | --- |
|  | **OBSERVATION** | **INFERENCE** |
| **Observation #1** **After looking at the two beakers, write a description of what you see** |  |  |
| **Observation #2****After getting a chance to smell and possibly feel the substance in the beaker, write a description** |  |  |
| **Observation #3****After watching what happens with the two substances in the beakers, write a description of what you saw** |  |  |
| **Additional Observations****Add any additional observations**  |  |  |

Assessment:

 Use this as an informal, formative assessment tool. Have students share out their observations, noting who does and does not understand the difference between observation and inference. Ask students to share their observations in small groups, asking them to give each other feedback as to whether the “observation” that has just been shared is or is not an observation and why.

**Inference:**

Ask students to now go back and fill in their thoughts about what might be going on, guesses, ideas, and predictions in the “INFERENCE” column.

Assessment:

 Ask students to share their inferences. with the entire group this time