Science Instruction Observation Form

Educator Name: Ms. Aviles	**Supervisor** Name: Mrs. Ramoro
Observation Date: 5/11/16	Observation Time/Duration: 17:30 min

Intended Observation Focus: Planning and carrying out investigations, constructing explanations

NGSS Practices *Which practices are observed?*

Investigation Practices	*Sensemaking Practices*	*Critiquing Practices*
☐ 1. Asking Questions	☐ 2. Developing and Using Models	☐ 7. Engaging in Argument from Evidence
☒ 3. Planning and Carrying Out Investigations	☒ 4. Analyzing and Interpreting Data	☐ 8. Obtaining, Evaluating, and Communicating Information
☐ 5. Using Mathematics and Computational Thinking	☒ 6. Constructing Explanations	

Observation Evidence *What are the educator and students saying and doing?*

- Groups of students are carrying out an investigation to test the effect of different materials (e.g., sponge, foil, cheese cloth), which represent a "membrane", on how fast a beaker of water flows through the "membrane". The purpose of the experiment is to find which materials will make the best "membrane" for a frog habitat.
- The teacher provides step-by-step directions for students on how to set up the experiment. Groups of students perform each step of the experiment at the same time.
- Students make observations to describe how fast or slow the water travels through the material they are testing. Observations include: water flows "quickly", "it goes in fast and then it started to drip", "it started off slow then fast", "it went medium", "too fast".
- A group of students has a discussion about whether the foil with one hole would provide a good membrane for the frog habitat. One student says it would be a good membrane but another says that too much water went through the "membrane" at first, so it would not be ideal for the frog habitat. Later students suggest the coffee filter would be a good membrane for the frog habitat because the water slowly drips through. One student shared his prediction with his group: cheese cloth material is going to "work well"
- After the experiment is over, the teacher asks students which materials would make the best and worst membranes for the frog habitat. Students give one-word answers (e.g., coffee filter) and the teacher goes on to explain why the coffee filter and felt would make better membranes than the screen and gauze.
- The teacher instructs student groups to pick three materials to use in the membrane design for the frog habitat. Students then discuss which three materials to use when designing the membrane for the frog habitat.

NGSS Practices Progression *Where do the observed practices fall along the progression?*
Practice #: 1 2 (3) 4 5 6 7 8 1 ---- (2) ---- 3 ---- 4
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Practice#: 1 2 3 4 5 (6) 7 8 1 ---- (2) ---- 3 ---- 4

Rationale for Levels: *What impacted the ratings of the practices?*
Practice #3: Planning and Carrying Out Investigations *Ms. Aviles provides opportunities for students to engage in conducting an investigation to answer a scientific question, however, these opportunities are teacher-driven. The teacher provides step-by-step directions on how to carry out the experiment and does not give students the chance to make decisions about experimental variables or investigational methods.* *Practice#4: Analyzing and Interpreting Data* *Ms. Aviles provides opportunities for students to analyze and interpret the data from their experiment (i.e. observations of how fast or slow the water drips out of the "membrane"). Students group the data in a table and analyze their results to determine which materials would make the best "membrane" for the frog habitat.* *Practice #6: Constructing Explanations* *At the end of the experiment, she asked students which materials would make the best and worst membranes for the frog habitat. Students give one-word answers (e.g., coffee filter) and the teacher goes on to explain why the coffee filter and felt would make better membranes than the screen and gauze. In groups, students do engage in explaining which materials would make the best membrane for the frog habitat, but the students initiate this discussion. Students' group discussion is mostly descriptive. For example, one student says the foil with one hole would be a good membrane but another disagrees because "too much water went through it".*