

Science Instruction Observation Form

Educator Name: Mr. Wetzel

Supervisor Name: Dr. Barry

Observation Date: 3/24/16

Observation Time/Duration: 15 min

Intended Observation Focus: Asking questions, planning and carrying out investigations

NGSS Practices *Which practices are observed?*

<u>Investigation Practices</u>	<u>Sensemaking Practices</u>	<u>Critiquing Practices</u>
<input checked="" type="checkbox"/> 1. Asking Questions	<input type="checkbox"/> 2. Developing and Using Models	<input type="checkbox"/> 7. Engaging in Argument from Evidence
<input checked="" type="checkbox"/> 3. Planning and Carrying Out Investigations	<input type="checkbox"/> 4. Analyzing and Interpreting Data	<input type="checkbox"/> 8. Obtaining, Evaluating, and Communicating Information
<input type="checkbox"/> 5. Using Mathematics and Computational Thinking	<input type="checkbox"/> 6. Constructing Explanations	

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

- Groups of students planned and carried out investigations to answer student-generated investigative questions
- Group 1:
 - Students' question: How can a fan change the speed of a ball?
 - Students generated hypotheses and procedures for their experiment to test the effect of a fan on the distance traveled by a ball
 - Hypothesis: "I think that when the fan blows the ball, it will go faster than the one that doesn't have the fan"
 - Students conducted their experiment and recorded data in a student-generated data table to show the distance the ball traveled in different conditions (with and without the fan, with and without the rug as a surface)
 - One student explains his results: the ball went the farthest distance "with the fan and no rug" because "nothing was stopping it" and "the fan pushed it farther"
- Group 2:
 - Students' question: If we stick a tuning fork in water, will it make waves?
 - Students generated hypotheses and procedures for their experiment, conducted their experiment, and recorded data in a student-generated data table
 - Student explained his group's results: We were "right and wrong" because the "long tuning fork made waves" and the "short tuning fork didn't"

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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				1	-----	2	-----	3	-----	4

Rationale for Levels: What impacted the ratings of the practices?Practice #1: Asking Questions

Mr. Wetzel provided opportunities for students to ask scientific questions and design investigations based on their questions. Questions from the first and second groups included:

- How can a fan change the speed of a ball?
- If we stick a tuning fork in water, will it make waves?

Mr. Wetzel's did not provide opportunities for students to evaluate the merits and limitations of these questions.

Practice #3: Planning and Carrying Out Investigations

Mr. Wetzel provides opportunities for students to engage in planning and conducting an investigation to answer a scientific question. In this open inquiry lesson, students designed their experiments by choosing variables, controls and investigational methods. For example, the first group designed an experiment to test the effect of the presence of a fan on the distance a ball traveled. In this experiment, students made decisions on which experimental variables to use (presence or absence of a fan), which variable to measure (distance the ball traveled), and the experimental procedures.