Science Instruction Observation Form

Educator Name: Ms. Jones | **Supervisor** Name: Mr. Alire

Observation Date: 1/15/16 | Observation Time/Duration: 6:30 min

Intended Observation Focus: Developing and Using Models, 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?*

- At the beginning of this unit on sound energy, students were given the driving question: Why can a singer shatter a glass with his voice? Throughout the unit students created and refined models that supported their explanation of this phenomenon.
- After watching video clips of this phenomenon, students shared their observations with their partners to explain what was going on in the video. For example, one student said, "I think it's vibrating and maybe shaking…and then it gets so shaken and then it just breaks". The teacher gave students graphic organizers to diagram and explain their initial ideas about what was going on in the video.
- Later on in the unit, students experienced various activities and demonstrations on sound production, force and energy of vibrations, and resonance. The teacher talked with students about developing appropriate scientific models (using labels, arrows, etc.) to explain phenomena. Students were given the chance to revisit their initial ideas about the phenomenon in the video before refining their ideas in subsequent models. Students also had the opportunity to discuss their ideas with each other and refine their explanations of the phenomenon. By reviewing students' refined models, the teacher was able to identify students' misconceptions and gaps in their knowledge throughout the unit to further guide instruction.
- At the end of the unit, groups of students came to a consensus to develop a model to explain how the singer shattered the glass with his voice. Students were then given an opportunity to critique other group's models and provide feedback to help each other further refine the models and explanations.
- The teacher gave students a chance to further develop their ideas about sound energy on posters. Students were given sentence strips to support their explanations and connect them with evidence from the activities.

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)
Practice #: 1 2 3 4 5 (6) 7 8 1----------2----------3----------(4)

Rationale for Levels: *What impacted the ratings of the practices?*
<u>Practice #2: Developing and Using Models</u> *Ms. Jones provided students with opportunities to create models focused on explaining a phenomenon (how the singer shattered the glass with his voice). Students had the opportunity to develop and refine their models throughout the unit before coming up with a consensus model in groups. Students were then given the opportunity to critique other consensus models by providing feedback to support further refinement.* *<u>Practice #6: Constructing Explanations</u>* *Throughout the unit, Ms. Jones provided students with multiple opportunities to construct explanations that focused on explaining how or why the phenomenon occurred. Students used evidence from sound energy activities, demonstrations, and readings to support the explanation of the phenomenon in their models. Ms. Jones also gave students a chance to further develop their ideas on sound energy on posters. She scaffolded this activity by providing sentence strips to support their explanations and use of evidence.*