

Science Instruction Observation Form

Educator Name: Mr. Kent

Supervisor Name: Dr. Williams

Observation Date: 10/8/16

Observation Time/Duration: 2 min

Intended Observation Focus: Engaging in Argument from Evidence, Analyzing and Interpreting Data, Constructing Explanations

NGSS Practices Which practices are observed?

<u>Investigation Practices</u>	<u>Sensemaking Practices</u>	<u>Critiquing Practices</u>
<input type="checkbox"/> 1. Asking Questions	<input type="checkbox"/> 2. Developing and Using Models	<input checked="" type="checkbox"/> 7. Engaging in Argument from Evidence
<input type="checkbox"/> 3. Planning and Carrying Out Investigations	<input checked="" 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 checked="" type="checkbox"/> 6. Constructing Explanations	

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

- **Context:** Students just completed an online simulation to investigate the how the amount of food and when it is eaten affect a runner's performance. Students are in the process of evaluating two claims:
- The male student argues that Desiree's decision (to eat small amounts of food at regular intervals throughout the race) is the "smarter" one while the female student argues that Abdi's decision (to eat a meal before the race) is more logical. When explaining her reasoning, the student says, "If you eat a lot before you run, you run faster". The male student points out that this claim contradicts the data from the online simulations ("At the three minute mark, his [Abdi's] energy starts to drop insanely fast").
- However, the female student struggles taking in this evidence, which contradicts her claim. For example, she responded with "maybe if Abdi ate more he would make it til the end." The male student provides more evidence to back up his claim: "Desiree went the whole way keeping his energy up around 90%." Again, the female student is struggling letting her claim go despite the evidence her partner has provided. However, she asks her partner to explain more about why he supports Desiree's decision. Her partner attempts to make sense of the data from the online investigation to explain the phenomenon: "Every time he eats...the glucose and the starch go into his digestive system and it goes into his blood stream and goes into his cells and that allows carbon dioxide to escape out of his mouth and that allows him to run faster and keep his energy up...without him crashing..."

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 #7: Engaging in Argument from Evidence- Level 4

Mr. Kent provided opportunities for students to engage in student-driven argumentation. The two students had different claims: The male student argued that Desiree's decision (to eat small amounts of food at regular intervals throughout the race) is the "smarter" one while the female student argued that Abdi's decision (to eat a meal before the race) is more logical. Both students provided reasoning behind their claims but only one student linked his reasoning to evidence from the online investigation. When critiquing each other's arguments, both students built on and questioned each other's ideas.

Practice #4: Analyzing and Interpreting Data- Level 3

Students were able to analyze and interpret with data from the online investigation. This practice is rated as a level 3 because it is unclear if students had the opportunity to make decisions about how to analyze the data. Students had the opportunity to make sense of data by recognizing patterns or relationships in the natural world (e.g., the runners' performance was affected by how much they ate and when they ate).

Practice #6: Constructing Explanations- Level 4

Mr. Kent provided opportunities for students to construct explanations that focus on how or why a phenomenon occurs (eating small amounts at regular intervals improves a runner's performance). One student was able to use appropriate evidence from the online investigation to support his explanation; however, the other student struggled using evidence from the online investigation because it contradicted her claim (i.e. eating more before a race improves a runner's performance).