Science Instruction Observation Form

Educator Name: Mr. Kent   **Supervisor** Name: Dr. Williams

Observation Date: 3/12/16   Observation Time/Duration: 20 min

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

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?*

- Students are divided into equal groups and seated in two concentric circles for a genetic-based discussion
- Mr. Kent outlines the roles for each group
  - Inner circle: actively participate
  - Outer circle: listen and takes notes on their iPads
- Mr. Kent also leaves an empty chair in the inner circle for any outer circle students who have a "burning question" that they want to ask.
- Mr. Kent provides sentence starters for the science seminar to aid discussion (e.g. I agree/disagree because…, It is likely/unlikely that…, etc.)
- Mr. Kent directs the outer circle to their listening guides where they must keep track (e.g. tally, make note) of things to listen for and the specific evidence used
- Inner circle students are actively participating in scientific argumentation around the question: What kind of allele causes the glowing trait?
- Students are crafting arguments around one of three possible claims (inner circle asked by Mr. Kent to focus on claims 2-3)
  1. The allele for fluorescence is dominant.
  2. The allele for fluorescence is non-dominant.
  3. The allele for fluorescence is incompletely dominant.
- Inner circle students are using a pedigree chart (projected on board) of different genetic crosses of cats as evidence in their arguments
- Mr. Kent directs inner circle to incorporate data from crosses of jelly fish into their arguments as well.
- A few students in the inner circle discussion talk more often than the others
- Mr. Kent has students from both groups (inner, outer) communicate with a partner to answer the questions, "What do you think is the strongest evidence you heard so far?" and "Which claim do you think is right?"

- Seems to be a growing student consensus that claim 1 is the strongest because the pedigree evidence makes claims 2 and 3 highly unlikely

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?*
Practice #7: Engaging in Argument from Evidence; Level 3 Mr. Kent's students engaged in predominantly student-driven argumentation. The students' claims included evidence from pedigree charts and jelly fish cross data and reasoning from their knowledge of genetics inheritance. Students seemed to agree for most of the discussion, and therefore did not really engage in much critique of each other's arguments. *Practice #4: Analyzing and Interpreting Data; Level 3* Students analyzed pedigree charts and jelly fish cross data to make sense of competing claims. It is unclear whether students made decisions on how to analyze data in a previous lesson, however students did not make decisions on how to analyze this data within this lesson. Their analysis involved the recognition of patterns and relationships in the data to explain the genetic inheritance patterns for the glowing trait.