TASK 2: INSTRUCTION COMMENTARY

Respond to the prompts below (**no more than 6 single-spaced pages, including prompts**) by typing your responses within the brackets following each prompt. Do not delete or alter the prompts. Commentary pages exceeding the maximum will not be scored. You may insert **no more than 2 additional pages of supporting documentation** at the end of this file. These pages may include graphics, texts, or images that are not clearly visible in the video or a transcript for occasionally inaudible portions. These pages do not count toward your page total.

1. Which lesson or lessons are shown in the video clips? Identify the lesson(s) by lesson plan number.

[Lesson 2 is shown in video clip 1 and Lesson 4 are shown in video clip 2.]

2. Promoting a Positive Learning Environment

Refer to scenes in the video clips where you provided a positive learning environment.

a. How did you demonstrate mutual respect for, rapport with, and responsiveness to students with varied needs and backgrounds, and challenge students to engage in learning?

[Video 1

- .03: The clip begins with me saying “I like it” and smiling at the student who made the comment. This demonstrates a positive rapport with the student, as well as a respect for all answers, giving students the confidence to share anything that might be on their mind.
- .36: I call on a student that has a learning disability to share an idea about the viscosity of an item. I show respect by calling on the student by name, and I use his idea as an example in my instruction.
- .53: I call on the student by name, and use the student’s response of “honey” as a transition to the next idea. I ask the students how they get honey out of the bottle when it is too difficult. This related to the students’ lives, and challenged them to engage in the learning.
- 1:20: The students responded with “put it in the microwave.” I responded enthusiastically to this answer, and then related it to their prior knowledge, and used it as an example and a bridge to what factors determine the viscosity of something.
- 3:12: A student responds to the question correctly and I reply with “good.” A simple positive response to her correct answer, demonstrates a positive rapport, and a mutual respect with that student.
- 4:09: By asking questions regarding the content I just covered I provide a quick check-in for understanding, and make sure the students are still engaged and following along. I ask what it means for a lava flow to have a high viscosity. A majority responded that high viscosity means it is thicker. I build upon that response and relate it to a volcanic eruption.
- 4:50: I ask the students what happens if the magma has a high viscosity, and the gases have to build up over time. One student responds with “they burst.” I enthusiastically accept that answer, and gesture a big explosion. My enthusiasm and body gestures, as well as moving around the classroom keeps the students engaged in the content.
- 5:15: I mention that we will be using nacho cheese in the lab, and that they will have the opportunity to eat it afterwards. This is a little bit of a hook to keep the attention of the students while we work everything out to get ready for the lab.

- 5:55: I purposely group these three students together. These three work well together, but don't work well with other people. One of the students in this group is a high achiever, and does well helping lower achieving students work through labs and projects. The other two have IEPs, and need the help of a higher achiever. They will only take help from a classmate if they already have an established relationship with that classmate, which is why these three are put together. I respect and respond to their needs, and because I have developed a positive rapport with them, I know how to meet their needs in these situations.
- *6:10: At this time in the video, I pair two girls together that may or may not get anything accomplished. The problem is, if I don't pair these two girls together, they will shut down and not do anything they are asked. Sometimes when they are put together they do get work done, but sometimes they are off task. One of the girls is on a modified curriculum, and needs a lot of guidance. She also refuses to work if she is with students that don't motivate her. I add a high achieving student with the pair to keep them on task, and help with clarifying the instruction.
- *7:50: I tell students that in order to get chips to eat the nacho cheese, they must complete the entire lab. I use this as a motivator to do quality work, and engage in the learning task.
- *8:45: I demonstrate rapport with a student that needs a lot of motivation and redirecting to complete a task. I joke with her in a friendly way, and show that I do like her and care about her in order to attempt to motivate her to do her best work during the activity.
- *8:58: I ask for a volunteer and get an overwhelming response. Their willingness to help shows a mutual respect and a positive rapport with the entire class. I choose the student by name, and at 9:28, when he is walking up to help, he shows excitement about the opportunity to help me out.

Video 2

- 1:00: At one minute I visit one group of students to assist with their specific learning task. I reassure them and let them know they are on the right track. I responded to their needs, but I did not give them any answers. I only give them positive feedback, and keep them engaged in the task.
- 2:10: I demonstrate responsiveness by checking in on the "eruption center" team to clarify instruction for that group.
- 3:05: I have a personal interaction with a student who is on an IEP and needs more clarification in his learning task, which demonstrates responsiveness to students with varied needs. Many of the other students can figure out what their task is by working through it, while some students need a little more help and clarification.
- 3:20: I smile at a student to show that I like the enthusiasm. A simple smile shows a positive rapport, and ensures the student is doing a good job.
- 3:55: I bring a little drama to the situation, and act out as if I am on the island that the simulation is based on. This gets the attention of the students, makes them laugh, and keeps them engaged, while keeping the stress-level of the simulation high.
- 5:45: I visit the eruption center and provide some much needed guidance for them, as I could see they were feeling a little lost. Anytime a group seemed to be struggling with what they were supposed to be doing, I tried to recognize that, and provide as much guidance as I could to get them back on track.
- 7:25: The eruption center gives an announcement. I lead the rest of the class in giving a thumbs up that they heard the alert. A majority of students followed my lead, which

was an opportunity for me to make sure the students were still engaged in the simulation and still following along.

- 9:50: I bring more drama to the situation by acting as if I'm fed up with the scientists. I do this to add to the stress of the situation, and make them second-guess their decisions so they begin communicating more about what they are doing, and whether it is the right call. Every time I got involved, it challenged students to be engaged in the simulation.]

b. If relevant, describe what you did to ensure safety during the inquiry seen in the video clips.

[In video clip 2, I have the room rearranged to be more conducive to working in a team, as well as made it easier for students to travel around the room which was required by the activity.]

3. Engaging Students in Learning

Refer to examples from the video clips in your responses to the prompts.

a. What was the process by which students selected or collected evidence and/or data to support evidence-based explanations of or predictions about the real-world phenomenon being investigated?

[At 7:20 in video 1, I demonstrate the instruction for the laboratory exercise. I use the lab materials to show students what they will be doing, and what they will be using. The students would be using straws to blow in the two substances (nacho cheese and vegetable oil) and making detailed observations. They would be using those observations to relate to the viscosity of magma and how that affects volcanic eruptions. The students would then be performing a flow test, where they would poor the two substances out from the same height, and record the time it took to flow into another container. After the two exercises, students would use what they just observed, and what we discussed to answer the questions as they related to viscosity and volcanoes.

At .20 seconds into the video, one of the groups, the eruption center, makes an announcement of no alert, and at .22 seconds I deliver data to the three other groups for "hour 2." The students received data for 6 different hours regarding temperatures of water wells and wind speed and direction, amount of deformation on hillsides, and seismic activity. Each team used a map and a key to decipher their data, and deliver information to the eruption center. The eruption center then takes all the information, and makes a decision on what to alert the inhabitants of the island where they are monitoring two volcanoes. I keep notes on what the eruption center concludes for each hour, as you can see at .40 seconds, 5:12, and 6:40. At 1:00, I help a student decipher the hour 2 data, but as the hours go on I help less and less, as they need to figure it out on their own. At 1:50, a student in the eruption center group is seen deciphering data that was delivered to him. I give a little bit of guidance throughout so they are not completely frazzled and lost. For example at 2:00 I advise the eruption center to wait until they have data from all the groups before making a decision on the alert. At 2:32 I deliver the data for hour 3. The students seem stressed because I didn't give them much time with hour 2, but it adds all the more fun to the simulation. At 2:55 the eruption center is relating their data to the map of the island and trying to figure out where the safest location might be. I give the eruption center more guidance at 5:48 to decide what the alert color is, and what volcano they are alerting. I also encourage them to communicate more clearly with their writer. At 5:54 I deliver the data for hour 4, and then hour 5 at 8:05. The eruption center makes an alert announcement at 7:20, and I lead the class in giving them a thumbs up that we heard their alert.]

b. Explain how you engaged students during a scientific inquiry in

- using evidence and/or data and science concepts to construct an **evidence-based explanation** of or **prediction about a real-world phenomenon** and
- supporting or refuting alternative explanations or predictions.

[In video 1, students were engaged early on, in the first minute of the video, when we made a chart on the whiteboard and the students named different products and we determined the viscosity as a class. We used examples the students are familiar with to explore high and low viscosity before moving on and relating it to lava and magma. The lab the students did then explored how different viscosities affect volcanic activity by relating what they saw with products they are familiar with to what they know about volcanoes. At 1:20, students determine one of the factors that influence viscosity, as I relate it to honey and how they might get honey out of a container if it doesn't want to flow.

Throughout video 2, students are engaged in using inquiry to analyze and interpret data to construct a prediction about the eruption of volcanoes on a simulated island. Their jobs are to use the data to keep residents of the island safe. This is evident throughout the video. I keep the students engaged by continuing to distribute data, and adding to the frenzy by acting as if I'm a frazzled resident of the island, as evident at 3:55 and 9:50. At 2:00, I tell the eruption center to wait for all their data, which was, in a way, refuting their predictions at the time. At 2:20, a student shows me information that was collected. I support their explanation, and give them the go ahead to deliver their information to the eruption center.]

c. Describe how your instruction linked students' prior academic learning and personal, cultural, or community assets with new learning.

[The first 1:20 of the video, I relate the students personally to the instruction. The students are adding products they are familiar with to a viscosity chart, and then we discuss microwaving honey to get it to flow easier. For many students, this was a relatable moment. At 2:39 in video 1, I visit the students prior knowledge on magma and lava by asking the difference between the two. I know this is prior knowledge, because it is a topic visited earlier in the learning segment. At 1:55, we discuss the idea of density, which is something the students learned earlier in the year. I visit more prior knowledge related to the periodic table at 3:40.]

4. Deepening Student Learning during Instruction

Refer to examples from the video clips in your explanations.

a. Explain how you **elicited and built on student responses** to promote thinking and develop understandings of science concepts, scientific practices through inquiry, **AND** the phenomenon being investigated.

[At .53 seconds in video one, I use the student response as a leeway to the next topic of conversation. I question how one might get stubborn honey out of a container. The students thought about it, and one student shared that he puts it in the microwave. This was the exact answer I was looking for, as I was moving in to the factors that influence viscosity, temperature being one of them. At 4:09, I relate everything they just learned about viscosity to the central focus of earth's processes. I challenge the students to think what would happen if a volcano has magma that is high in viscosity. One student responds that it would "burst" at 4:50. He was correct, the volcano would be more explosive.

At 3:37 in video 2, I ask the eruption center to determine the eruption alert. This allowed them to revisit their specific instructions to determine what they were supposed to write on the board. At 3:55 I bring a little drama to the situation, which challenges the students to revisit their data to make sure they are making the correct decisions, as well as start making decisions quicker. At

5:45, I again guide the eruptions center to really think about their alert announcement. What color is the alert? And what volcano is the alert for? At 9:15, I guide the eruption center to decide whether their data shows that there is an eruption, or if there is going to be an eruption. This is a big part in how successful they will be as a class when hour 6 rolls around. The students revisit their data, and determine that it is just an alert, and not quite an eruption yet.]

b. Explain how your instruction supported students to use science concepts, consider the quality of evidence and/or data (e.g., missing data, inconsistent results), and/or apply scientific practices while they are organizing and analyzing evidence and/or data during a scientific inquiry.

[In video 1, my instruction relates products the students are familiar with to the content of the learning segment. Students are encouraged to use science concepts by relating instruction to their prior knowledge in the areas of basic chemistry (3:40), physical and Earth science (2:39). Students used the information gathered from the instruction in the laboratory exercise where they used the new information to observe the viscosity of two common products, and relate those observations to the real-world phenomena of volcanic activity.

Video 2 shows students using an inquiry based simulation to apply scientific practices by analyzing and interpreting data to draw conclusions. The activity required students to use map skills (2:55), thoroughly read and follow directions, and work collaboratively to be successful. Each team was responsible for their own sets of data, but all the teams had to be successful in order for the end result to be successful. This class did a really great job analyzing, interpreting, and communicating data in order to keep the fictional residents of Thunder Island safe. I provided guidance to groups when it was needed (1:00, 2:10, 2:20, 3:05, 5:45, 6:18, 8:15, 9:15), but for the most part students were able to decipher what needed to be done on their own.]

5. Analyzing Teaching

Refer to examples from the video clips in your responses to the prompts.

a. What changes would you make to your instruction—for the whole class and/or for students who need greater support or challenge—to better support student learning of the central focus (e.g., missed opportunities)?

Consider the variety of learners in your class who may require different strategies/support (such as students with IEPs or 504 plans, English language learners, struggling readers, underperforming students or those with gaps in academic knowledge, and/or gifted students).

[In video 1, I noticed that I seemed to favor calling on students that were seated toward the front of the room. The student I call on at .53, is the same student I choose to answer the question in 2:39, and I also ask him to be my volunteer. I know that keeping this student involved keeps him motivated in the class work, as he is on an IEP, but giving other students opportunities would be better for the whole class. I think there were missed opportunities for higher order thinking when I explain what happens when the magma has a high or low viscosity and how gas escapes (4:09), or doesn't escape. That could have been an opportunity to have the students think about what would happen with the build up of gases in different viscosity magmas and come to a conclusion on their own. This would have been better for the support of the central focus. With just me explaining it, I think many students missed the mark when it came to answering a question that was related to that very topic in the lab exercise.

In video 2, I noticed that I gave guidance to some groups more than others. The eruption center group had the most difficult, and most important job so I spent a lot of time guiding them in their

task. I noticed that I could have checked in on the other groups more frequently, as there were times that I heard my name come from a group when I watched the video, but I didn't hear it in the moment and moved on to help with another group. I did my best to make the groups heterogeneous, so that students who are higher achievers would naturally take on the more difficult tasks, and students who need more help would naturally get that support from the team setting. I didn't notice any problems with the groups that I arranged in this class. The eruption center, many times, was confused on what they were supposed to write or announce (3:37, 5:45, 9:15), I think I could have clarified instruction on their end so they didn't have that much confusion. Although the nature of this simulation is stress and confusion. I noticed that some students didn't seem to have much say in what was being communication in some of the groups, so perhaps I could have assigned each person a specific job, rather than letting the teams determine the jobs of each member.]

b. Why do you think these changes would improve student learning? Support your explanation with evidence of student learning **AND** principles from theory and/or research.

[I think giving the students more opportunities to think on a more critical level improves their understanding of the central focus. It gives them opportunities to really think about a concept, and relate it to personal experiences or any prior knowledge they may have. According to the Center for Advancement of Learning and Assessment (www.cala.fsu.edu), higher order thinking skills include critical, logical, reflective, metacognitive, and creative thinking. They are activated when individuals encounter unfamiliar problems, uncertainties, questions or dilemmas. Successful applications of the skills result in explanations, decisions, performances, and products that are valid within the context of available knowledge and experience and that promote continued growth in these and other intellectual skills. I think I had opportunities in video one to promote more critical thinking, but I missed them. Making changes in the attention I give to certain students will improve the overall classroom community. A caring classroom community, and having a mutual respect with the students supports a more successful learning experience for the students. Some students may have felt left out, or felt I don't have a mutual respect for them when they were not called upon to answer a question, or help me with the task at the end of the video clip.

Assigning students tasks to do would ensure they were active participants in the activity. If a student feels they do not have anything to contribute to the group, they will not participate. Giving more structure to the activity, and giving specific jobs to be done makes sure everybody feels included.]