ISTE Standards

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Spring 2021
7-12 Composite Science

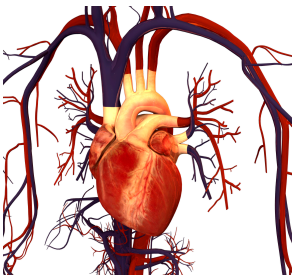
1. Learner

Artifact: Showcase Lessons Notes
Reflection: I believe it is essential for educators to be life-long learners, and this semester I had meaningful learning experiences in my weekly seminar course with my fellow apprentice teachers. We had an opportunity to present our showcase lessons from the semester and give feedback to each other. While watching my peer's presentations, I took notes on what I thought would be most valuable to my future practice. It was fulfilling to see my peers thriving, and utilize their lessons for inspiration for improvement. I reflected on my own practice in the context of the showcase lessons. I created 3 types of goals for myself. Things I WILL use in the next few weeks, things I will TRY to use in the next few weeks, and things I will WORK on integrating into my practice on a greater time scale.

2. Leader

Artifact: Supporting LGBTQ+ Students in the Classroom
Reflection: As a queer person, I have a special positionality to help inform other teachers on the struggles and needs of their queer students. My aim is to help teachers become more inclusive of gender-diverse and sexuality-diverse students in their classrooms. In this presentation, I aim to inform my fellow teachers in how to do just that. This presentation is an amalgamation of 2 presentations I have shared with my fellow teachers in the past 2 years. I present data and experiences from queer students to highlight the kind of supports LGBTQ+ students might need from their teachers. I include an activity for educators to explore their own internalized bias in order to spur teacher reflection as well as actionable steps educators can take right now. This presentation is also available to the online teaching community via my teaching website.

3. Citizen



Artifact: Heart to Heart: Educating the Public about Cardiovascular Disease
Reflection: It is important for students to have the chance to engage in content that is relevant outside of the classroom. This artifact is an overview of a project-based instruction unit that was created to help students learn about the cardiovascular system through inquiries about cardiac disease and blood pressure, and interacting with medical professionals. In this PBI unit, I create a space for students to become active contributors to their communities by creating a PSA about cardiovascular disease risks and other relevant information. Students synthesized these artifacts by critically analyzing online resources and citing proper sources to support their claims. By creating an authentic audience for students to share their PSAs with, students had the opportunity to educate their own communities using multimedia engagement.

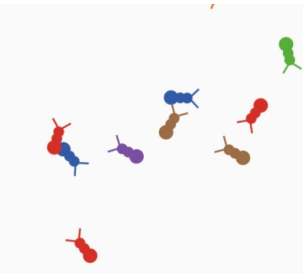
4. Collaborator

Artifact: Electrophoresis: DNA Fingerprint
Reflection: I created this lesson with a co-teacher in order to introduce gel electrophoresis and its practical uses. We collaborated with our mentor teacher to build an engaging lesson that fits into the curriculum. We used an online activity to introduce the concept of gel electrophoresis. In groups, students use their newly acquired knowledge to help a forensic analyst identify the correct perpetrator of a jewel heist. My students utilized claim-evidence-justification whiteboards to support their choice. I was able to discuss and ask questions about the results with students as they created their boards and during the gallery walk. After the activity, I provide space for students to say what they learned, what they liked/disliked, and what they are uncertain about. I can use that feedback to alter the lesson for future classes to create a better learning experience for students.

5. Designer

Artifact: Heredity Choice Board Activity
Reflection: This lesson utilizes a choice board format to allow for student choice and differentiation. I used google slides to link activity slides to the main choice board to make the activities accessible. Students choose to learn more about Punnett squares from either a Nearpod video or reading- both with associated questions for accountability. Then using the drawing function on Nearpod, I had my students create either a practice problem for their peers or a drawing that helps explain heredity vocabulary. Students had choices as to which activities they completed as well as the chance to complete additional activities for extra credit. My students responded well to this activity and created practice problems that I was able to use in upcoming classes.

6. Facilitator



Artifact: Natural Selection & Bug Hunt
Reflection: Students explore how Natural Selection affects populations through time by utilizing a NetLogo Simulation. Students act as birds of prey to catch simulated bugs based on their speeds. I facilitated class discussion on a nearpod collaboration board over what happened in the simulation. I asked probing questions that highlighted the underlying evolution and natural selection ideas as students defended their ideas. Virtual collaboration can be difficult, but collaboration boards help to make student thinking visible without requiring students to unmute. After learning more about the science content, I challenge students to discuss what might be missing from this simulation and how we could improve it. This lesson could be extended into a full PBI where students design a better simulation.

7. Analyst

Artifact: Mid-semester survey results
Reflection: I asked my students questions on a mid-semester survey to see what they think is helping them learn. I utilized google forms to obtain quick feedback from students. The attached artifact is my summary and reflection on the survey. I used student feedback to choose what teaching strategies and technologies I will continue to use in my class. My most valuable take-away from the survey was that most students found my Nearpod lessons and activities to be engaging and fun, but occasionally they get a bit tiring if they are too long. I utilize these results to brainstorm actionable steps to reduce class fatigue and maintain engagement.