2023-2024 SEPA Case Study Template

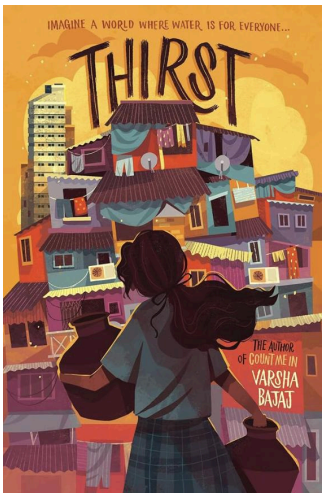
Your Name: Sarah Dunbar
Your School: Mount Desert Elementary School
Grade Level(s): 7/8
Course(s) Taught: Physical Science
Number of Students Involved (Total): 40
Date: March 25, 2024
Name of your scientist partner and their institution, and any other partners:
Jane Disney

Teacher Profile: Sarah Dunbar is a middle school science teacher at Mount Desert Elementary. Sarah received a bachelor's degree in Elementary Education and a Masters degree in curriculum and instruction with a focus on science education from University of Massachusetts. She is in her 15th year of teaching. Sarah looks for learning opportunities that inspire and motivate her students to have an impact. The All About Arsenic project provides a learning platform for students to inform and educate their community about the health effects of arsenic in drinking water.

Abstract:
The 7th and 8th grade at Mount Desert Elementary School participated in an arsenic investigation. The 7th and 8th grade started the unit off with doing research on the All About Arsenic project. In small groups they researched some of the following topics.

What is arsenic?
What are the health impacts of Arsenic exposure?
What do you do if you have high levels of arsenic?
Why do we have high levels of arsenic in Maine and New Hampshire?
What is the history of arsenic?
How does arsenic get in well water?
What is lead? What are the implications of having lead in drinking water?

I provided some resources and the groups developed posters or slideshows to share their research.



After completing the initial research I wanted to tie the work we were doing in our class with work they are doing in their other classes. The 7th and 8th graders were studying India this winter. In science class we read the book *Thirst* by Varsha Bajaj. This book takes place in Mumbai, India. The story follows a twelve year old girl named Minni who lives in the poorest part of the city. We learn of her family's struggles to have access to clean drinking water, and the responsibilities that young Minni must take on to help her family through difficult times. The objective of reading this book was to help the students make connections to their social studies unit and also make connections to the issues with water quality in Maine and New Hampshire.

After reading this book the classes were given the opportunity to choose how they would reflect on the reading and also make connections. Many choose to make posters, others wrote newspaper articles and some made video skits of key parts of the story.

The next step of this project was to analyze our class data and determine how we plan to share our results with the public. This year we have decided to use Capcut and make videos sharing our results and detailing our class project.

Details

	No	Yes	If yes, how many?
Collaborate with any other teachers in your school? ● If so, who and what do they teach?	X		_____
Conduct any experiments? ● If so, what kinds of questions did students ask?	X		_____

Go on any field trips? ● If so, where and why?	X		_____
Have any guests visited your classroom? ● If so, who and why? What did the guest do?		X	Zya visited our class to teach the students about using capcut to make videos for science communication.
Have a Community Meeting? ● If so, where was it, what did the students do, how many people attended, etc…?	X		We plan on sharing our videos when they are completed.
Have other Outreach Events? ● If so, where were they, what did the students do, how many people attended, etc…?	X		_____
Use your stipend to purchase anything for your classroom? ● If so, what, and how did you use it? ○ I purchased materials for the test kits, poster boards, markers and also books for our class books.		X	$500

Describe the student, or group of students, whose work most exemplified the All About Arsenic+ project this school year. What were they excited about? How did that facilitate their learning?

The students were very excited to use videos to share their findings. The 8th grade class participated in the project last year, so this was something new and different for them.

Reflect on your students' primary learning outcomes/gains with reference to data literacy, science communication, and using data visualizations in communication. What are they getting out of their involvement in this project?

What I found the most powerful about this project is that students need to learn how to communicate to different audiences. Also through this project my students have learned how to communicate through different mediums. In general they are very strong with written communication, the video communication was a new thing. As middle schoolers I feel like they are used to making "silly" videos, it was a little different to find ways to communicate their findings while making a serious and meaningful video.

How did you use Tuva, for the arsenic data?? Did you use the software for teaching, was it a tool students used to create data visualizations? What about other Tuva data activities? Did you use them in your teaching? Did students build skills using those activities?

Grade 7 is new to using Tuva so I did introduce Tuva with a fun dataset set. They enjoy the Disney vs Pixar dataset. It is a small dataset and a nice way to introduce them to the features of Tuva. We used Tuva to review the data from Mount Desert Elementary School. We also briefly explored the larger data set.

What challenges did your students have with Tuva, the website, the datasheet, Anecdata, anything related to the project process.

We did not have any challenges with Tuva, the website, anecdata or the datasheets.

How did you enhance *your own* Data Visualization and Science Communication skills?

I learned a lot about Capcut and using video as a tool for science communication. This was new to me, and I really enjoyed learning along with the students.

Which aspects of this project will you repeat next year?

I will definitely give the option of video recordings for science communication next year.

Which aspects of this project will you change next year?

Next year I will be doing life science and I will likely go back to doing a bioassay with the class.

List and describe the resources that helped your students the most this year.

It was helpful to have Zya Sosa come in and share the video making process with the students. It was a great kickstart to making their videos.

What are anticipated needs for the 2024-2025 school year?
I do not have any anticipated needs for next year.

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