

**I. Title of Project**

The title of my professional development was Lessons from the Ocean. Our school district has PD days build into our schedule and my principal was kind enough to give me control of 60 minutes of the day.

**II. Curriculum Topics, School Name, Number of Educators, Grade Levels**

- **Curriculum Topics:** Several of these topics were met through the resources that were distributed at the training – the standards were not specifically addressed/assessed, but the different resources shared can be used to meet these standards.
  - Science (NGSS)
    - Motion & Stability (Kinder)
    - From Molecules to Organisms: Structures and Processes (Kinder, 1<sup>st</sup>, 3<sup>rd</sup>, 4<sup>th</sup>)
    - Earth's Systems (Kinder, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>)
    - Earth and Human Activity (Kinder, 4<sup>th</sup>)
    - Heredity: Inheritance & Variation of Traits (1<sup>st</sup>, 3<sup>rd</sup>)
    - Matter and Its Interactions (2<sup>nd</sup>)
    - Biological Evolution: Unity and Diversity (2<sup>nd</sup>, 3<sup>rd</sup>)
    - Earth's Place in the Universe (2<sup>nd</sup>, 4<sup>th</sup>)
    - Engineering Design (Kinder, 1<sup>st</sup>, 2<sup>nd</sup>)
    - Ecosystems: Interactions, Energy, and Dynamics (3<sup>rd</sup>)
  - Social Studies Standards (CCSS/Wyoming State Standards)
    - **SS.K.6** - Students will describe their surroundings and create a simple map.
    - **SS.1.6** - Students will use map skills to illustrate familiar areas of the community.
    - **SS.2.5** - Students will apply their knowledge of geographic themes (Location, place, movement, region and human/environment interactions) and skills to compare into relationships among people, places, and environments.
    - **SS.3.3** - Students will apply their knowledge of the geographic themes (e.g., location place, movement, region, and human/environment interactions) and skills to prove an understanding of interrelationships among people, places, and environment.
  - Reading & Writing Standards (CCSS)
- **School Name:** Northpark Elementary
- **Grade Levels/Number of Educators:**
  - **Kindergarten:** 2 educators
  - **1<sup>st</sup> Grade:** 2 educators
  - **2<sup>nd</sup> Grade:** 3 educators
  - **3<sup>rd</sup> Grade:** 2 educators
  - **Specials Teachers:** 2 educators
  - **Support Staff:** 5 educators
  - **Virtual Teachers:** 2 educators
  - **Principal:** 1 educator
- **Educators in Attendance:**
  - Kindergarten Teacher - Amy Pierantoni – [pierantonia@sw1.k12.wy.us](mailto:pierantonia@sw1.k12.wy.us)
  - 2<sup>nd</sup> Grade Teacher - Sarah Wright – [wrights@sw1.k12.wy.us](mailto:wrights@sw1.k12.wy.us)
  - 1<sup>st</sup> Grade Teacher - Erin Worthington – [worthingtone@sw1.k12.wy.us](mailto:worthingtone@sw1.k12.wy.us)
  - SPED Teacher - Shanon DeBernardi – [debernardis@sw1.k12.wy.us](mailto:debernardis@sw1.k12.wy.us)

### III. Standards Assessed: (See Appendix 1)

#### IV. Summary of Project:

- The purpose of this professional development was to not only expose teachers to the essential principles and fundamental concepts connected to ocean literacy, but to convince all educators that even though we live in Wyoming, it is important for their students to have access to quality ocean lessons.
- My personal goal was to take the 38.5% of teachers that did not feel they could meet any of their standards with ocean lessons and change their minds. I specifically stated this goal to the teachers in my training simply because at the beginning of my Lessons from the Ocean class, I was one of those educators – I was a doubter.
  - At the end of my PD, I was able to get all teachers to believe they could meet some of their standards with ocean lessons.

#### V. Pre-Survey Question List

- What grade level do you teach?
- Honestly, do you have any standards that are challenging for you to meet with your students? (Either due to time restrictions or lack of resources.)
- Have your students had any lessons that focus on the ocean?
- Do you currently have access to ocean related lessons?
- Do you think you can meet some of the standards you teach with ocean lessons?
- How comfortable are you with using resources; other than Mystery Science, when it comes to teaching science/STEM?
- How comfortable do you feel when it comes to integrating science into other lessons?
- What subjects do you feel are the most challenging to integrate?
- If you were provided with resources where you could find lessons that were truly integrated, would you use this resource to pull lessons to use in your classroom with your students? Why or why not?

#### VI. Description of Professional Development Training

- At the beginning of this presentation, I explained to the teachers in the PD why I was sharing information with them and where the information came from. I also provided the teachers with a little background information regarding how I found myself in this program.
- The first item we discussed consisted of why ocean lessons are important. We talked about how living in Wyoming, students don't have access to the ocean, but that there are different bodies of water near us that teachers can use to implement the ocean lessons. I also explained what ocean literacy consists of and shared the ocean literacy document with the teachers – this document gave teachers all seven principles and the fundamental concepts that go with the principles. <https://www.marine-ed.org/ocean-literacy/overview>
- After giving the teachers a little background information, I briefly went over the survey results touching on what percentage of students that have already had exposure to ocean lessons – this was only 7.7%. We reviewed the percentage of teachers that have access to ocean related lessons - 42.9 % responded no, 35.7% responded yes; through the curriculum provided by our district, and 21.4% responded yes; through other resources the teachers have discovered on their own.
- The final question I shared with the teachers was the question – do you think you can meet some of the standards you teach with ocean lessons – this was where 5 teachers (35.7%) responded no; they do not think they could meet some of their standards with ocean lessons.

- This was also where I told the teachers that, at the beginning of my ocean lessons I also did not think I could use ocean lessons in my classroom. I shared my personal goal of changing their minds.
- The last element of the survey we discussed before moving on in the training was whether or not teachers would actually use the resources I was going to share. Overall, their response was yes, as long as the resources were connected to our standards and followed the curriculum maps that our district uses.
- Building on the teacher's focus of the standards, I shared the one subject area that the majority of teachers struggles to teach due to lack of resources or time restrictions – science/social studies.
  - I shared social studies standards from kindergarten all the way up to third grade. After sharing all of the standards, I selected one common standard that started in kindergarten and built upon itself all the way up to third grade. The standard focused mainly on using a map and applying their knowledge of geographic themes.
  - This was when I shared the website Oearch. I began by opening the website and briefly explained to the teachers the purpose of this website. I demonstrated the different layers of the map, all of the animal groups this website offers, and recent pings. I then selected a specific animal and showed the teachers the data that is shared when the students select an animal.
  - The teacher's main questions consisted of what other subject areas can they use this resource to teach and if there were any lessons already created for them to use. This was where I opened up the educational section of the website located under the programs tab at the top. I had already pulled up some lessons for second grade teachers/students, but the one I focused on the most was an introduction to measurement because that was the standard we were focusing on in math at the time. Overall, the teachers were very impressed with this section of the website. I provided them with a little time to explore this website to look and see if there were any lessons they would like to use with the students in their classrooms.
- I then moved into other resources teachers can use in the classroom with their students. I shared a book called ***Teaching Science Through Trade Books***; from this book I shared different lessons I selected that the teachers could use to integrate science/ social studies with reading. I also had a couple of the trade books on hand for the teachers to see and even use if they were interested.
- Next, I shared interactive books from Kevin Kurtz website – I connected this website to a field trip that the second-grade students at my school will be taking next month. I also have several books written by Kevin Kurtz that I explained to the teachers are available to them if they are interested in incorporating into any of their lessons.
- I showed teachers two sets of Ocean Literacy Resources that are standards based I have and briefly walked through the different activities, videos, and lessons the teachers can find in these documents.
- The last component from the PD consisted of digital resources from Endeavor, NASA STEM Activities for K-4 Students, and Educational Resources from JPL.
- I concluded the PD by having the teachers complete a Post Professional Development Survey.

## VII. Outline of Hand on Activities

- When teachers were participating in the hands-on activities, they were allowed to work on the Oearch website. Teachers were able to explore the different educational resources that are available on the website.

#### VIII. **What NASA/Endeavor data did you include?**

- From the Endeavor website, I shared the PK-5 Educational Resources with the teachers. I also shared an Annotated Ocean Literacy Resources that I created during my time in my Lessons from the Ocean class.
- From the NASA website, I shared educational resources from NASA for Students in Kindergarten to 4<sup>th</sup> Grade as well as NASA STEM Engagement Home.
- I also shared some resources from JPL – I demonstrated the one lesson from JPL that showed teachers the Science of Earth’s Rising Seas – this lesson had 2 videos that teachers could share with students. I attempted to show the teachers these two videos, but the internet was not cooperating with me at this time.

#### IX. **Follow-Up Activities**

- The last thing I asked the teachers to do during the PD was complete a survey. One of the survey questions was – After the training, are there any resources you would like more information if so – which ones? Several teachers indicated wanting further training on the essential principles and fundamental concepts of ocean literacy, the website oearch.org, as well as some of the lessons included in the book ***Teaching Science Through Trade Books***. I have checked in with the different grade levels to see what extra support they want/need from me to help them implement some of the resources shared during the PD.

#### X. **Post-Survey Question List**

- What grade level do you teach?
- After the training, do you think you can meet some of your standards you teach with ocean lessons?
- How comfortable would you be with using some of the resources shared today to integrate science/social studies into some of the other subjects throughout your day?
- After the training, are there any resources you would like more information on? If so – which ones?
- Do you prefer digital resources or paper copies?
- Do you think your students would enjoy some of the lessons/resources shared today?
- Honestly, how useful was today’s PD for you? Did you walk away with something useful in regards to content for your grade level?
- Is there anything else you would like to add?

#### XI. **Outcomes. Final Data Collection and Analysis**

- **Survey Results/Staff Comments on the Continent Included in the Project**
  - When asked the question, “After the training, do you think you can meet some of the standards you teach with ocean lessons?” 83.3% said yes, 16.7% said yes, but not this year.
  - When asked the question, “After the training, are there any resources you would like more information on? If so – which ones?” Staff members requested more time/trainings on the shark (Oearch) website. Another teacher specifically asked to use the ***Teaching Science Through Trade Books***.
- **Survey results/Comments on the Pedagogy in the Project**
  - When asked the question, “Do you think your students would enjoy some of the lessons/resources shared today?” 100% of the teachers indicated that they thought their students would enjoy at least one of the resources shared during the PD.

- When asked the question, “Honestly, how useful was today’s PD for you? Did you walk away with something useful in regards to content for your grade level?” Teachers responded by saying...
  1. “Very! I love teaching about the ocean probably more than anything. Kinder had a huge ocean unit at one point so I have so many resources. I always integrate into my writing throughout the year, so I love that you just gave me another reason to teach about it even more!” From a first-grade teacher.
  2. “You are amazing and most definitely a teacher leader. I’m proud to call you a friend and a colleague! This was an amazing and interesting PD and I wish all PD’s were as interesting and as valuable as this one.” From a second-grade teacher.
  3. “I definitely can see using some of the trade books in third grade.” AND “It was great! I can include this in some reading lessons.” From two third-grade teachers.
  4. “I absolutely walked away with something useful. If you were to ask me 2 hours ago if I could teach any of my standards using the ocean, I would have laughedddddddd. But you persuaded me! I definitely could use the ocean to teach some standards.” From one of the specials teachers.
- **What is your professional development successful? Why or why not?**
  - Overall, I believe that my professional development was successful. I was able to get these Wyoming teachers to understand that an ocean-based lesson does not need to necessarily take place in ocean waters and that all water can be connected to the ocean. I was also able to convince the teachers that they could meet several of their standards – ones they are currently working on and others that are more challenging for the teachers to meet – with ocean-based lessons.
  - I provided the teachers in my building with several different kinds of resources they could take back to their classrooms and implement with their students. One of the third-grade teachers even used some of the trade books with her kids the following week. I was very pleased that she was so eager to implement some of the lessons from the ocean that I had shared.
- **How did this project relate to the readings? Cite two examples.**
  - The first reading I connected with the most was Jenkins (2010): Special Education PD. This article discussed presenting information in small snippets that teachers were able to quickly gain information from. When I was hosting my professional development, I tried to present the information in small, easy to digest chunks. This article also focused on meeting the needs of all students in a classroom. When sharing my information and resources, I included teachers from all areas in the building – if I would have only included classroom teachers, then I would be depriving some very capable students the experience to work on different ocean activities.
  - The second reading I connected with the most was Lustick’s paper: Most Effective PD Experiences. After reading this article and discussing things with classmates – we came to the conclusion that the best PD a teacher can participate in is one where there are hands on activities. I incorporated this into my project by allowing the teachers time to work with the Oearch website. Teachers were able to explore and draw connections from the lessons provided to what they were currently doing in their classrooms.

- **Will the teachers do these activities again?**
  - I honestly hope that the teachers will continue to use the resources and lessons that I shared with them. That being said, I know there are a few individuals that won't use these resources if I do not provide them with further information/trainings. I need to find a time to meet with the teachers in my building to see who needs further support so I can continue to build their confidence and their interest in the subject matter.
- **Reflection**
  - Before beginning the Professional Development session that I offered to the teachers at my school, I was a nervous wreck. I hate public speaking and I have never seen myself as a teacher leader; however, when I read the article Five Ways to be a Good Teacher Leader – despite the fact that I still don't feel like a teacher leader, I can honestly say that I do several of the things presented in this article, which helped me clam down just a little. As long as I was able to focus solely on the information I was presenting, I was confident and passionate about sharing this information with my colleagues. All of the teachers that attended my session seemed to be excited about the information I was sharing, I had several individuals that openly expressed their appreciation for the opportunity to explore the websites and resources I shared.
  - Given the opportunity to redo my professional development, I would have shared all of the different science standards that the ocean lessons can be used to meet – instead of just focusing on the one social studies lesson that started in kindergarten and build up to third grade. The other thing I would have done differently would have been to schedule times with the different grade levels during the professional development to ensure the teachers were still thinking about the information presented.
  - If I could have added a little more to my presentation, I would have shared some of the articles/lessons that were shared with me while I was taking the lessons from the ocean class. A couple of those articles consisted of:
    1. The Artistic Oceanographer Program by: Sheean T. Haley and Sonya T. Dyrhman
    2. Catching the Wrong Species by: Meghan E. Marrero and Keira Lam
    3. New Species Found by Deborah Reinemann and Jolie Thomas

I believe that these articles would have provided the teachers with other resources and examples of teachers using fun activities to engage their students and actively engage them in learning.

## **XII. Appendix 1**

- **Standards Assessed During the PD:**
  - **SS.K.6** - Students will describe their surroundings and create a simple map.
  - **SS.1.6** - Students will use map skills to illustrate familiar areas of the community.
  - **SS.2.5** - Students will apply their knowledge of geographic themes (Location, place, movement, region and human/environment interactions) and skills to compare into relationships among people, places, and environments.
  - **SS.3.3** - Students will apply their knowledge of the geographic themes (e.g., location place, movement, region, and human/environment interactions) and skills to prove an understanding of interrelationships among people, places, and environment.
- **Digital Resources:**

- o <https://www.marine-ed.org/ocean-literacy/overview>
- o <https://www.ocearch.org/tracker/>
- o <http://www.kevkurtz.com/>
- o <https://sites.google.com/view/endeavorstemathome/home>
- o <https://www.nasa.gov/stem/forstudents/k-4/index.html>
- o <https://www.jpl.nasa.gov/edu/>