

Lori Sherman
Inquiry Paper
April 27, 2004

Background Information

Teaching Context:

My inquiry project took place in a self-contained first grade classroom at Grays Woods Elementary School in the State College Area School District. The class consisted of 19 students, and the project focused on enhancing lessons for all 19 students for all subject areas. Three of the students were Jumpstart students, who left the room during reading stations for further reading instruction. The primary division was in the middle of a thematic unit that focused on Life Under the Sea. The lessons I planned took place during the last two weeks of the unit, in March of 2004. I used resources from the internet, State College curriculum, and standards.

What Led Me to The Wonderings:

Through teaching my first grade class I had many wonderings about how to get students involved and more engaged. I often listened to the students as they discussed various topics within the units we were

teaching and wondered how I could incorporate student interest into the lessons. I also wanted to make sure I would be able to integrate all subject areas while doing so. Once we began our unit “Life Under the Sea”, every student in my class had an immediate obsession with sharks. Almost every student in the class had references to sharks within other lessons in the unit. After looking further into the unit and the way we had planned to teach it, I realized there was nothing that touched upon the students’ interest in the unit.

I decided that I wanted to create a mini unit or a series of lessons that focused on the students’ interest. I hoped that it would create more student interest, while engaging the students as well. I questioned whether or not I could generate a series of lessons that integrate all subject areas while creating student engagement. I also questioned how the student interest would affect the student learning through connections the students would make. I wanted to give the students an opportunity to voice what they were interested in learning, and create lessons from these interests that would meet standards in all subject areas.

What Others Know About the Topic:

When researching the idea of integration of subjects most research led to ideas about the benefits and creating student connections.

According to a study done by Kathy Lake of the Northwest Regional

Educational Laboratory, an integrated curriculum is one that “combines several school subjects into one active project since that is how children encounter subjects in real world—combined in one activity.” (p 3) All sources had similar ideas about the benefits that integrated subjects have for students when they are making their connections.

Using student ideas to support and lead the theme within the classroom was another idea that was supported through most sources. Promoting student interest related directly to students engagement.

My Wonderings:

The wonderings I had were: Will incorporating student interest while writing lessons help to engage the students? How can I do so while integrating all subject areas? What will the effects of incorporating student interest have on their learning process and making connections?

Inquiry Plan

What I Did:

To begin carrying out the inquiry project in my classroom I began by having a small talk or interview with four students from my class. I chose students at varying instructional needs and students with different interests. My goal was to find out what these students already knew about sharks, how interested in sharks they were, and what they wanted

to learn about sharks. I wanted to take the information I learned from the students to create the lessons about their previous knowledge about sharks, misconceptions and interests. For example, one misconception was from one student was that “if sharks stop swimming, they’ll sink and die”. I made sure during morning letters and the science lessons about the shark liver that this subject was touched upon.

After the interviews, I created an outline of the lessons I wanted to teach and the standards I wanted to cover. I made sure to teach a lesson from each discipline. I planned lessons for math, language arts, science and social studies. I also mapped out what aspects of sharks I wanted to include in the lessons and morning letters. I used the information from the student interviews to produce the lessons.

Throughout the entire shark mini unit, students were put with partners to do shark research. They were the “hammerhead” or “great white” shark experts of room 17. Students were using multiple resources to research various types of sharks. This information that was researched covered many of the topics discussed during our interviews. The research was then used to create a pop-up page, to be displayed at the science fair, and then later put into a pop-up book of their research. This lesson met district standards for reading and writing. (Appendix)

For mathematics, I taught measurement and met the standards for measurement. (Appendix) I used what Pamela said during the interview about wanting to know how long sharks are. The students measured a total of 9 sharks during math stations, using measurement tools such as their hands, unifix cubes and their feet. This lesson was also used for estimation. Students were to make estimates for each shark that was measured; they were using what they knew about the lengths of other sharks to make the estimate.

The social studies lesson directly related to the unit we were studying and the students' goals to learn the names of the oceans. The students created puppets of their sharks, while creating the puppets they also had to continue their research on the shark to find out what ocean the shark lived in. I then created an oversized map of the oceans in the classroom that the students would use to "swim" their sharks to the ocean it belonged. Before the students could "swim" to the ocean, we labeled the oceans on the floor as a class.

Science was also taught through stations, and incorporated technology as well. The first science station was an experiment where the students made predictions about bottles, to understand why sharks float. The second station was a shark dissection, where students were able to see the inside of a dogfish shark and talk about the digestive

system, and oil bladder of the shark. At the third station, students used the Smart Board to label the parts of a shark. All three stations were related to one another and helped answer questions students had about the Dogfish shark; which they formulated through the interview and their own research.

I used morning letters through the entire unit to focus on specific aspects of sharks that students were interested in, and to introduce new information about sharks. The morning letters all contained information about the lessons I taught and skills that we were working on in language arts. (Appendix)

How I Collected Data:

During all the lessons I collected data through note taking, before, during and after lessons. I collected data through student interviews and talks as well. Through some lessons I had the Para Professional in my classroom taking notes about the students with both their engagement and comments the students made during the lessons. Video tapes of all the lessons also proved to be a significant source of data for the project.

How I Analyzed the Data:

As I analyzed the data I looked for ways the students were engaged. I listened for things the students said, and the types of comments that were being made about the projects, lessons, and information being

presented to them. I took notes about the lessons, how the students responded to ideas about the sharks, and how engaged the students were. I looked for students on task, and at the excitement the students expressed during lessons. I made sure to take note to students that are usually off task and not engaged during lessons to see how these students were with participation and staying on task.

While analyzing my data I also made notes about the connections students made during the lessons. I looked for students connecting information from math lessons to science lessons, and from science lessons to language arts lessons. I also looked for connections within the information from the unit we were in. I looked for students to connect the new information being presented to prior lessons and previous knowledge.

What I Learned:

Claim:

Using student interest when formulating lessons not only holds the interest of students but also engages the students.

Evidence:

During all of the lessons, students were actively participating and involved. At all points during the lessons most of the class was engaged.

For example, during the math lessons with measurement of the sharks, students were excited about measuring sharks. These students wanted to write predictions of the lengths of the sharks before being instructed to do so. Pamela called out, “When can we write our guesses?”

The students were all actively involved with the measurement process as well. When measuring with hands, feet, and unifix cubes the students in the groups all volunteered to be the “measurer”. The students would all also walk along side of the shark length that was being measured counting along. As the students came to the end of the measured shark length, they would show excitement about having predictions that were close to the actual measurement. After measuring the Tiger Shark, Amanda said with enthusiasm “I was right!” when referring to her prediction.

This lesson took a math standard and measurement lesson and related it to the students’ interest of sharks. (Appendix) Students expressed interest during the interview about the lengths of various sharks, so I planned the lesson around this interest. When teaching the lesson and seeing the students’ expressions and involvement, it was clear that the lesson engaged the students. According to John A. Van De Walle, creating lessons that hold the interest of the students’ helps to make areas of mathematics less abstract to students (2004 p. 94).

Also, when students were beginning their research and becoming “shark experts”, the students showed excitement and jumped at the opportunity to begin their research. Throughout both sessions of this lesson students were engaged, had books open, were working together and acted excited about the information they were reading about the sharks. Students were eager to share their information with each other as well. For example, when Carly read how long a Whale Shark is, she went to the next table to share with the students there, “Do you know how long a Whale Shark gets?”

During this lesson, students made direct comments about their excitement with the project. The second day of the project, while I directed the students and went over the expectations again, Carmine said “I couldn’t wait to work on this again!”. This student, who easily falls off task, stayed on task during this project, and was working intently throughout the research, writing, and creating or his pop-up page.

Claim:

Integrating subjects creates connections across subjects and with previously learned information.

Evidence:

The connections the students were making during the lessons were most evident during the research portion of the project. Students were connecting the information they were learning to other shark lessons, to previous lessons or information, and to other information from the unit.

When students were researching the oceans that their sharks live in, they referred to information that was presented during the unit about oceans. The students also used the maps and globes in the classroom to see where the sharks were located. It was interesting to see students use information from map skills lessons earlier in the year, and explain to one another which ocean their shark lived in, and where the equator was. This information also connected with the social studies lessons. The students were able to label and locate the oceans their sharks lived in when sharing the information with the class.

While students were working on their shark research, there were conversations such as Michelle and Matt's. She asked "What's your favorite sea animal?". He responded with, "The sea anemone, let's add one to our page". The students were making connections between unit information, personal interests and the material being presented for the sharks. The project was making sense to these students. They were able

to see the connection between the unit and the culminating activity involving sharks.

During the science lessons, students also made connections between the subjects. When referring to the real Dogfish Shark, students were comparing it to the different lengths of sharks from the measurement lessons. Doug said, “Miss Sherman! That shark is not as big as the sharks we measured!”

According to Shoemaker, who wrote *Integrative Education: A Curriculum for the Twenty-First Century*, “education that is organized in such a way that it cuts across subject-matter lines, bringing together various aspects of the curriculum into meaningful association to focus upon broad areas of study. It views learning and teaching in a holistic way and reflects the real world, which is interactive” (1989 p.5).

Claim:

Working with strategically matched partners and groups helps students learn from one another.

Evidence:

During all of the shark lessons students were working collaboratively with others. The students were there to support each others’ ideas, and to help one another. While observing the students

during the research portion of the unit, it was evident that they were working as teams. They were reading information back and forth to each other and taking turns writing and drawing.

The students were matched with partners prior to the lessons. I tried to match students with others in the class who I thought would work together the best. I also tried to make sure weaker readers were placed with stronger readers. For example, I paired Victor, who is one of the weaker readers and an ESL student with Kathy, who is one of the strongest readers in the classroom. This worked well for them because they were both interested in the subject matter, so there was not a point when one student was doing all the work and the other was not.

Another benefit of the collaborative learning and motivation is that it gives the students more confidence while working. When referring to her favorite subject in school, Andrea said science is her favorite subject, because she had her friends by her side. When asked to explain that some more, she referred to the shark dissection, and how she got to have her classmates next to her while she saw the shark.

Claim:

Hands-on learning experiences help students apply what they are learning.

Evidence:

Each lesson that was planned for the shark unit involved students working with objects, ideas or research in a hands on approach. Students were working with the ideas on their own, using multiple resources. The ideas and information presented was not just read from a text book.

A direct example from the unit would be the puppets the students created. The students were all given a plain white lunch bag attached to a paper plate to create a shark puppet that resembled their shark. The students all created their own shark puppets, using the ideas they learned from the research portion of the project. Many of the students were able to create the puppet without referring to any sources other than their own research paper. Some did refer back to the multiple books in the classroom for ideas.

While students were creating the sharks, they were sharing ideas and reasons why they were adding features to their sharks. Carmine said, "I added the pipe cleaners for the teeth because that is what the teeth on a Basking Shark looks like". Amy added a horn to the top of her shark to show how the head of a Goblin Shark looks. Adam added more teeth to his Great White Shark.

The way the students applied what they knew through their hands on lessons did not only show the benefits of the hands on experience, but

also showed how the integrated curriculum helped the students make connections. The students took the material from the research applied it to their puppets and social studies lesson.

Implications for Future Practices

What I learned from this inquiry will be used in my future teaching practices. When I saw how beneficial it was to include the students' interests and wonderings into the lesson planning process, I realized it is something that I will continue. Also, creating a mini thematic unit and integrating the subject areas is also something I plan to continue.

I plan to use student interviews, and talks to gain insight from the students when creating the lessons. The student responses and reactions to the lessons and the opportunity to have a say in their lessons were all positive. During the post interview with some students, Pamela said "Wait, you used my ideas to write lessons? Are teachers allowed to do that?" I believe that teachers are allowed to do that, and teachers should do that. I plan on using students' interest and ideas in my classroom as often as I can.

I also plan on integrating subjects through a central theme as often as I can. Whether it be choosing a theme from a literature unit I am teaching, or a theme from a science or social studies unit, I plan to try to

connect all the subjects through a theme. It creates a connection for the students, and encourages students to make connections. Creating a starting point for students to make connections will lead to them making their own connections through the lessons and projects.

According to a definition of integrative curriculum by Dressel, who wrote *The Meaning and Significance of Integration*, an integrated curriculum provides learners with “a unified view of commonly held knowledge” and also motivates and develops learners’ “power to perceive new relationships and thus to create new models, systems, and structures.” (1958, pp 3-25).

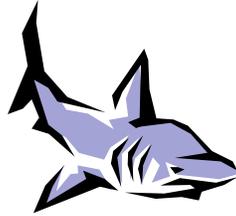
New Wonderings

After completing the project I came up with some new wonderings about how to make the process of integrating subjects and using student interest more effective. I began to wonder how to find time in the school day to have the student interviews. I considered using morning meetings to collect student input, or with an older class, a box for students to submit ideas. Another wondering I now have is how effective this process would be with different grade levels? At first I thought first graders were too young to give input on their lessons, but that was proven false when I saw how successful it was. I now wonder what the effects of this type of lesson planning would be at a fourth or fifth grade level.

One more wondering I now have is what types of integration of curriculum would work best. After researching integrated curriculums, I found there are many variations and forms of integration. As a teacher I could develop lessons that involve “developing cross-curriculum sub objectives within a given curriculum guide” or “developing assessment activities that are cross-curricular”. (Palmer, 1991, p.59) I wonder about the different forms work, and what would work best in different classroom settings.

References

- Dressel, P.L. "The Meaning and Significance of Integration". In *The Integration of Educational Experiences*, 57th Yearbook of the National Society for the Study of Education, edited by Nelson B. Henry. Chicago: University of Chicago Press, 1958, 3-25.
- Lake, Kathy. "Integrated Curriculum". School Improvement Research Series. April, 15, 2004.
<http://www.nwrel.org/scpd/sirs/8/c016.html>
- Palmer, "Planning Wheels Turn Curriculum Around." *Educational Leadership* 49/2 (1991): 59.
- Shoemaker, Betty Jean Eklund. "Integrative Education. A Curriculum for the Twenty-First Century." "OSSC Bulletin" 33, 2(October 1989). Eugene, Oregon: Oregon School Study Council.
- Van De Walle, John. (2004). Elementary and middle school mathematics: teaching developmentally 5th edition. Boston: Pearson.



Lesson Plan

Name: Lori Sherman

Date: March 22-24

Subject: Shark—Research Pop Up Book
Writing Informational Pieces

Expected Learner Outcomes— Students will use skills needed to perform research and write about various types of sharks.

Objectives from SCASD LAC

Developing 1st Grade- Reading

- Uses Informational material to share with an audience

Primary Speaking and Listening

- Participate in small and large group discussions and presentations
 - Present oral readings
 - Deliver short reports

Developing 1st Grade- Writing

- Writes informational pieces with teacher guidance

Student Materials- Shark books and research materials (library books and information sheets on www.enchantedlearning.com), shark information outline paper, paper to create book with.

Teacher Materials- Shark information, sample pop up page (final product)

Opening Motivator (connections to prior knowledge)

- Ask students what they already know about sharks, and types of sharks.
- Use the hammerhead and great white shark as two examples of types of sharks.
- Explain that there are many other types of sharks as well, show the students in the books and the poster the types of sharks
- Explain to the students that they will be working with assigned partners to research a type of shark. They will use their research to create a class pop-up book.
- Show sample of final product and how it will look.

Lesson Sequence / Procedures

- While students are on the carpet, they will be assigned their partner and will pick a type of shark out of the hat to research.
- Go over research page, and what the students are to look for about their sharks (for example: length, diet, habitat).
- Review vocabulary that might be used through resources, such as diet, habitat, and distribution.
- Students will go back to their desks and begin the research with their partners
- They will look up the assigned information about the sharks, along with one or two facts they find interesting about the shark.
- When they have the outline filled out, they will rewrite a final copy of the paper and create a picture for the shark.
- The pages will be put together to make a classroom book.

Adaptations for special learners

- Some students will need help reading through the information about the sharks
- Students will be paired with assigned partners to meet the needs of specific students. Weaker readers will be matched up with a stronger reader.

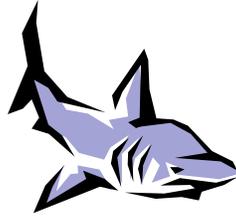
Closure / Wrap-up (keep in mind where you are headed next)

- Students will present the information on the pages to the class, to teach each other in a jigsaw style
- Book will be displayed at science/literature fair

Assessment of Student Learning

- Students should be able to present information about various types of sharks.
- Students should be writing an informational piece using sound spelling, and sentences
- Students writing should present correct letter formation and punctuation

Lesson Analysis / Reflection (either verbal or written)



Lesson Plan

Name: Lori Sherman
Subject: Shark—Measurement

Expected Learner Outcomes— Students will be able to measure the lengths of the shark using various forms of measurement. Students will also compare shark lengths with one another and other objects.

NCTM Standard- Estimate and measure using non-standard units in everyday problem-solving situations.

Student Materials- Yarn cut into the lengths of different sharks, hands, feet, cubes

Teacher Materials- Shark information

Opening Motivator (connections to prior knowledge)

- Refer to the students' research in the pop up books
- Ask them the length of some of their sharks, and refer to the ruler with their sharks
- Ask the students how many of their hands long they think it is?

Lesson Sequence / Procedures

- During math stations each group will be assigned 2/3 sharks to measure and a unit of measurement, groups will be spread amongst the room. Students will rotate through stations; measuring all sharks and using all units of measurement.
- Students will unravel the yarn and measure how many of their feet, hands, and unifix cubes long it is
- Students will trade yarn with another group to measure another shark
- Students will record their measurements on a record paper
- Students will compare the lengths of the two sharks they measured
- Questions to be asked during the lesson would include:
 - Do you think that shark is longer than you?

- o Longer or the same length as the table? Classroom?

Adaptations for special learners

- Group one students can use the ruler to measure inches as well as their hands, feet and cubes
- Group three may need assistance with measuring, and reading the data collection sheet

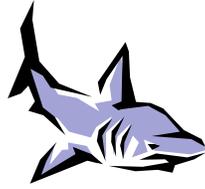
Closure / Wrap-up (keep in mind where you are headed next)

- Students will share the information they learned about the lengths of the sharks
- Which shark is longest? Shortest? How it compares to their hands and feet.

Assessment of Student Learning

- Students should be able to show they can measure the sharks using various units of measurement
- Students should be able to compare which shark is the longest/shortest
- Students will be assessed through their participation and the data collection

Lesson Analysis / Reflection (either verbal or written)



Lesson Plan

Name: Lori Sherman
Subject: Science- Sharks (stations)

Date: Week of March 29

Expected Learner Outcomes—
Student Materials-

Teacher Materials-
Smart board, projector, shark (pre-prepared ordered from Carolina.com), bottles with water, oil, air and tub of water

Opening Motivator (connections to prior knowledge)

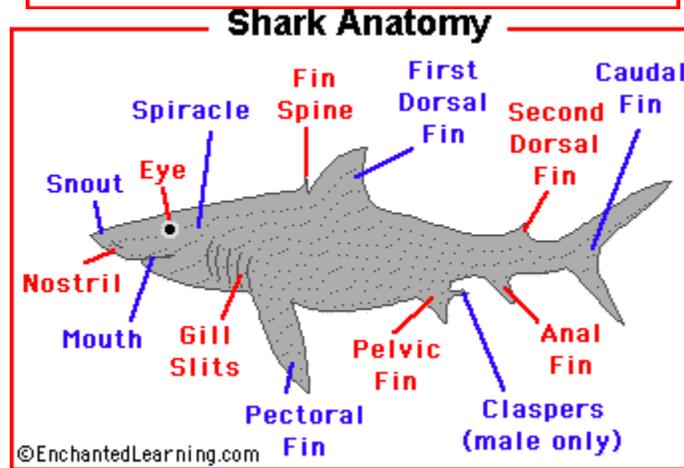
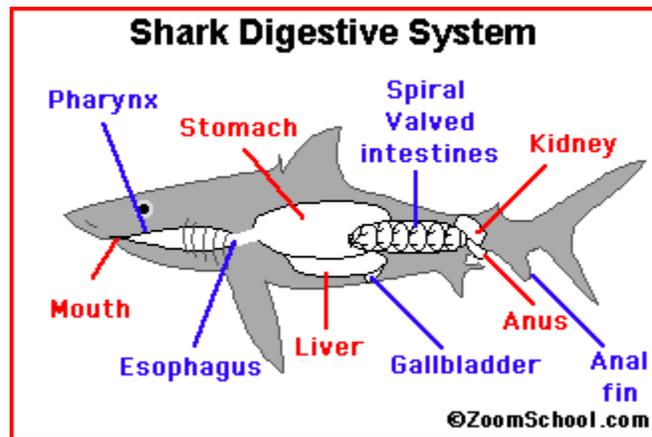
- I will ask the students what they know about the shark and the parts of the shark?
- What does the shark eat?
- How does the shark float? How do fish float?

Lesson Sequence / Procedures

Station One (Dogfish shark)

<http://viking.lkstevens.wednet.edu/biology/dissection/2001/52001/group6/DISSECTION.HTML>

- Students will see the real shark, and point out the various parts on the outside of the shark (gills, fins, teeth). Talk about the cartilage, it is lighter than bones.
- Students will then get to see the inside of the shark.
- What does the shark eat? Where is the liver?



Station 2:

- Using the smart board and the images above (from enchantedlearning.com) we will go over the parts of the shark.
- Students will click on the word and drag it to the correct part of the shark.
- Focus on the gills, dorsal fins, eyes, pectoral fin and mouth
- Students will need to learn how to use the smart board (it must be set up prior to the lesson).

Station 3:

- Students will make a prediction about each bottle, which will float or sink?
- Will the one with air sink or float?
- Will the one with water sink or float?
- Will the one with oil sink or float?
- In that order place one bottle at a time into the tub of water.
- Ask the students what the notice about the bottles? Compare the bottle filled with oil to the liver of a shark.

Explain that a shark does not have bones, instead it has a tough, flexible skeleton made of cartilage. Have your child push them on the ends of their noses to feel some cartilage.

Most other fish have a skeleton made of bones and are called "bony fish." Bony fish have swim bladders that fill up with air. This prevents them from sinking. Your child will see that his air-filled bottle floats, like fish with swim bladders. (Remind him that his bottle is not "empty," but is filled with air.)

Sharks do not have swim bladders. Instead, they have large livers filled with lots of oil. Because oil is lighter than water, the oil in their livers helps them float. (The water-filled bottle is used as a comparison, so he can see that all of his bottles do not float.)

<http://feta.fen.com/article/0,1120,22-10192-0-2,00.html>

Adaptations for special learners

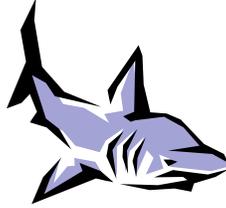
Closure / Wrap-up (keep in mind where you are headed next)

- Review what was learned about the anatomy of the shark and the liver.
- Ask the students what stood out most about the shark and what makes it different than other fish.
- Refer to the pygmy shark, if it is so small, why is it a shark not a fish? What features or characteristics does it have?

Assessment of Student Learning

Through observation and participation of closing activities I will be able to see what the students have learned about the anatomy of the shark. I will also be able to see how the students interact with the technology of the smart board and how they make predictions and test it with the oil/water experiment.

Lesson Analysis / Reflection (either verbal or written)



Lesson Plan

Name: Lori Sherman
Subject: Social Studies- Sharks

Date: Week of March 29

Expected Learner Outcomes— Students will be able to use shark puppets to locate the different oceans the sharks live in on the map.

Academic Standards for Geography

7.1.3.A- *Identify geographic tools and their uses.*

- *Maps and basic map elements*
- *Globes*
- *Photographs*

7.1.3.B- *Identify and locate places and regions.*

Physical features

-Continents and oceans.

Student Materials- Small paper plates, lunch bags (white), shark information (enchanted learning), and books about sharks, oceans map from Sea Snooper journal

Teacher Materials- Shark information, map of oceans (teacher preparation, with chalk draw map on blacktop in playground)

Opening Motivator (connections to prior knowledge)

- Review lessons from week before, and shark research. Discuss where their sharks from the research lived.
- Pull down the map and show students where the Hammerhead shark lives.
- Ask students which ocean their sharks lived in. Refer to the equator and warm and cold-ocean climates.

Lesson Sequence / Procedures

- Students will return to their seats each with two small paper plates to make the mouth of their shark, and a paper lunch bag to create the body of the shark.

- They will each create a puppet of the shark they researched, making sure to include any distinctive details about their shark.
- When students finish creating their sharks they will use their research materials and the map in the classroom to make sure they know which ocean and where their sharks live.
- Students will write on the inside or back of their shark which ocean their shark lives in.
- When all students complete their puppets we will go outside as a group. Students one at a time will share which shark they created then “swim” with their puppets to the ocean (drawn on the blacktop) that their shark lives in.

Adaptations for special learners

- Weaker readers will be placed with stronger readers so that each student can read through the information, research sources.

Closure / Wrap-up (keep in mind where you are headed next)

- Review the lesson, and where the oceans are.
- Have students name all the oceans (working for the oceans badge for sea snoopers)

Assessment of Student Learning

- Through observing the students locate on the maps which ocean their sharks live in, I will be able to see that they can locate their ocean and know the names of the oceans.

Lesson Analysis / Reflection (either verbal or written)

