

The McGlothlin Award

Blue Ridge Public Television

A stylized illustration of a seascape. The sky is light blue with two white clouds. The water is a gradient of blue, with a white sailboat on the right and a white whale tail on the left. The seabed is brown and textured, with a small mountain peak in the center. The text "Fifth Grade Science and English" is centered in the sky area.

Fifth Grade Science and English

**Standards-Based
Lesson Plan**

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Objectives:

English SOL 5.6

- TSWBAT use glossary and other word reference materials to locate specific information to answer a particular question.
- TSWBAT use context to clarify meaning of unfamiliar words
- TSWBAT skim materials to develop a general overview of content and locate specific information

Science SOL 5.1

- TSWBAT collect, graph, and interpret data
- TSWBAT measure using a cm-mm ruler

Science SOL 5.6

- TSWBAT create and interpret a model of the ocean floor, and label and describe each of the major features
- TSWBAT compare and contrast marine plants and animals with terrestrial plants and animals
- TSWBAT analyze how the physical characteristics of the ocean affect where marine organisms can live
- TSWBAT differentiate between vertebrates and invertebrates
- TSWBAT identify physical adaptations of marine organisms

Materials For Set:

Teacher made PowerPoint To The Pacific With Peanut See *attachment A*

Materials for Centers:

Center 1: Play dough Press

1. Direction card
2. 2 tubs of Crayola dough
3. 2 clear tubs for ocean basins
4. toothpicks with ocean floor label
5. Song sheets with words to "Take a Swim in the Ocean" See *Attachment B*
6. Seven books with research questions for students to answer when they have completed this center. See *Attachment B*

Center 2: Labels of the Deep Blue Sea

1. Direction card
2. Blue shower curtain with ocean floor drawn on one side and 3 ocean zones drawn on the other. Velcro pieces must be strategically placed.
3. Plant and animal cards with Velcro on the back
4. Labels for the ocean floor with Velcro on the back
5. Clue cards that direct students to placement of Velcro cards
6. Seven books with research questions for students to answer when they have completed this center.

Center 3: Mapping the Ocean Floor

1. Direction card
2. Cups with plaster of Paris models of ocean floor pieces See *attachment C*
3. Lids to fit inside cups with graphing holes in top
4. Water colored with blue food coloring
5. SMART board work space
6. Ruler and pencil
7. Seven books with research questions for students to answer when they have completed this center.

Center 4: Scavenger Hunt of the Sea

1. Direction card
2. Fact cards *See attachment D*
3. Various animals and plants from ocean *See Attachment E*
4. Seven books with research questions for students to answer when they have completed this center.

Set: “A Trip to the Pacific” This is done as a whole class.

Students will use their imagination to explore the Pacific Ocean after prior knowledge has been accessed. Teacher should ask students to describe what the ocean feels like, tastes like, and whether it is different than the James River. Teacher discusses all gear needed to explore each zone. In the sunlight zone, students should notice that there are a lot of animals and plants, the light in this zone is bright, the pressure is more than in the air and the water is a good temperature. Students should discuss what they might see at the bottom of the ocean. Can they see it, touch it? After the sunlight zone, students must trade their snorkels for air tanks and go down further. In the twilight zone, discuss the decreased light, temperature, and amount of animals, as well as the increased pressure. Students should see ocean floor features that they can compare to valleys, deserts, and mountains found on land. Discuss how the features are formed. To explore the midnight zone, you must load into a submersible. Discuss bioluminescence, darkness, coldness and pressure. Students get back on land, take off the wetsuits, goggles, flippers and get ready to learn even more!

Explanation: Say “Now that we have explored the ocean and seen so many features and different types of animals, we are going to use class time today to explore even more. You will be divided into 4 different teams and be allowed to discover as much information as possible at each of the four centers. When your team finishes the center you are working on, be sure to get some work done on your *Radical Research*. *See Attachment F*”

Let’s look at some of the questions and figure out how we will find the answers.”

Show sample question where key word is in bold. Explain that the keyword can be found in the index. Ask students what information is given in the index. (page numbers) Ask them how an index is arranged. (alphabetical order) Tell them to go to that page and read it to find the information that answers the question. Make sure they know that information can be found in graphs, charts, tables, or even captions to pictures. They need to read the *entire* page.

Show a sample question for a book without an index. Explain that a table of contents can be helpful as well. Ask students where the table of contents can be found. (front of book) Ask them how a table of contents is arranged. (page number order) Explain that the table of contents will lead them to the correct page where they must read to find the answer.

Show a sample question requiring glossary use. Explain that any time a question is asking for a definition. The glossary in the back of the book can be used.

Continue with explanation of each center as follows.

Directions for Centers: Complete each center in small groups

Mapping the Ocean Floor

1. Fill each cup with colored water, and place the top on the cup prior to the lesson.
2. Review with students ocean floor features (abyssal plain, trench, seamount etc).
3. Explain that they will be given a cup which contains a feature found on the ocean floor. They will determine what it is by taking measurements of the depth and graphing the measurements. Explain that this is similar to how oceanographers obtain sonar depths, graph the data, and determine the shape of the ocean floor.
4. Review how to read a cm – mm ruler. All measurements will be given in cm.
5. Students will place the pointed end of the skewer in the cup through hole #1 . When they touch the bottom, have their partner make a mark on the stick with their pencil or hold it tightly with their fingernail. Remove the stick and measure the distance from the pointed end to their pencil mark in cm.
6. Record this measurement on the SMART Board in the data chart under Point 1.
7. Erase the pencil mark and repeat the procedure for the remaining 8 holes filling in all nine spots on the chart.
8. When all points have been measured, students should graph their data by plotting points on a graph. Connect the dots and color the space BENEATH the line. This should provide a cross sectional view of the shape of the ocean floor feature contained in the cup.
9. Ask students to identify the shape using the text box icon on the tool bar. Explain that it may be the spot where two different features meet. In that case, students should decide as a team the best description for what they found.
10. Students will save their completed document for our class time when we discuss all that we have learned.
11. After their document is saved, students will work quietly on Radical Research questions.

Play Dough Press:

1. Each team will divide themselves into two small groups. Each group will work together to mold the continental shelf, continental slope, continental rise, seamount, abyssal plain, deep sea trench, and mid-ocean ridge out of play dough and into the clear tub provided.
2. Toothpicks with labels attached will be used to label each of their molded parts.
3. Teams will switch tubs and check each others' work.
4. When both tubs have been completed and checked, students will work on answering Radical Research questions found at their center.

Scavenger Hunt of the Sea:

1. Students will work as a team to spread out the clue cards to match the animals on the table and science cart.
2. After all of the cards are matched up with an animal or plant, students will read each clue card and find the answers to their twelve questions on the Marine Scavenger Hunt. *See Attachment G*
3. When they have read each card and answered each question, students will work quietly to answer the Radical Research question found at their center.

Labels of the Deep Blue Sea:

1. Students will evenly divide the clue cards among team members.
2. Sunlight, Twilight and Midnight zone cards shall be placed in the correct zone.
3. Person A will read aloud their first clue card.
4. Person B will find that animal or plant and place it in the correct zone.
5. Person C and D will check to make sure Person B put it in the correct zone.
6. Person B will now read, and person C will find that animal and place it correctly. Person D and A check it.
7. Reading the card, placing the card and checking the placement will continue in a rotation until all animals have been placed.
8. Students will use the digital picture of a team member standing beside their completed work.
9. Students will take off the magnets and reclip them to flip curtain to the other side.
10. Students will take turns labeling each ocean feature.
11. When all the Velcro spots are covered, they will take the second digital picture.
12. When they have read each card and answered each question, students will work quietly to answer the Radical Research question found at their center.

After explanation of all centers is complete, students are broken into small groups and given a set amount of time to work together at each center.

Evaluation of Centers: This is done as a whole class.

Students will come back to their seats and participate in a discussion about all that was learned.

Mapping the Ocean Floor:

1. Open the saved documents from each team.
2. Look at each colored shape and discuss why the team named it what they did.
3. Does it look like a slide? Does it look like a mountain? Does it look like it is at the bottom of the slope? Can you see a crack in the floor?
4. Discussion should be used to review all seven ocean floor features. What would it have to look like for this team to call it a continental shelf?
5. Sing "The Ocean Floor" to review all seven features.

Playdough Press:

1. Allow teams to discuss this center. Did the other group say that yours was correct? Did yours look the same as the other one? How can you both be right if they don't look the same? What are the only three parts that have to be in a particular order? (continental shelf, continental slope, continental rise)

Labels of the Deep Blue Sea:

1. Take memory card out of camera.
2. Copy the digital pictures into a slide show.
3. Students should look at each picture and try to find a card that is in the wrong place. Allow students to show thumbs up if it is all correct and thumbs down if something is wrong.
4. Discuss wrong answers.
5. Sing "Sunlight, Twilight, Midnight Zone" for a short review of pressure, light and temperature changes in the oceans.
6. Save PowerPoint for future use. The pictures can be used during a morning news show for SOL review, a science review during the last six weeks, or as a class warm-up in a future lesson on oceans.

Scavenger Hunt of the Sea:

1. Students will be given the remote control assigned to them for the CPS (Classroom Performance System) See Attachment F
2. Read each question aloud, and allow each student to click in their answer.
3. Click “end”, and show the amount of students that answered correctly.
4. Use this opportunity to discuss the questions and the process for choosing the correct answers. Remind students of Slashing the Trash, etc.

Closure:

1. Students that have been selected before class to dress as a shark, dolphin, crab and lobster, should move to the front of the class. Teacher says, “Look! Some of the animals from our scavenger hunt have come to life! They want us to tell us what we have learned about them.”
2. Allow students to share facts about each of the four animals. Ask them to classify them. Discuss their similarities and differences. Teacher says, “You know what I see? I see some of the parts of a marine food web!”
3. The dolphin, crab, and lobster scurry out of the room while the shark stands confused and alone. He says, “Why is everyone always so scared of me?” Allow a student to answer the question. Teacher says, “This shark thinks he is at the top of the food web, but you just wait until tomorrow when he finds out who is really at the top of the food web! Fisherman appears in the back of the classroom. Teacher ends lesson with a question that can open the next lesson. “Why should the sharks be worried?” “What other predators should the shark be on the lookout for?”

Optional activities or extensions:

- Students should be asked to summarize the information gathered from their Radical Research. Information should be illustrated and then put together in a book to be shared with second graders who will study ocean habitats. A class book could be displayed at a center in each of the second grade classrooms. Class books could be sent home on a rotating basis so that students can share what they learned with their parents or siblings.
- Students can visit our class website and click on numerous ocean links. There are links to the songs we sang in class, websites we visited, and activities we completed in the lab.