Title:Oceans

Suggested Time: 5 days (45 minutes a day)

Common Core ELA Standards: RI.5.1, RI.5.2, RI.5.3, RI.5.4, RI.5.5, RI.5.7, RI.5.8, RI.5.10; RF.5.4; W.5.2, W.5.8, W.5.9; SL.5.1; L.5.1, L.5.2, L5.4, L.5.6.

Teacher Instructions

*Refer to the Introduction for further details.*

**Before Teaching**

1. Read the Big Ideas and Key Understandings and the Synopsis. Please do **not** read this to the students. This is a description for teachers, about the big ideas and key understanding that students should take away **after** completing this task.

Big Ideas and Key Understandings

The Earth is different from any other planet in the Solar System because it is mostly “liquid” water. Most of that is oceans. The oceans have patterns of movement that this piece explains clearly and beautifully.

Synopsis

In this text, the author – Seymour Simon, explains the ocean phenomena of tides, tsunamis, and waves.

More specifically, Simon goes on to explain how oceans work: the relationship between the phases of the moon and tides, and the dangers of deadly tidal waves called tsunamis. Simon explains clearly how and why waves form on a beach. The photographs, charts and illustrations help readers understand the concepts.

2. Prep for teaching this piece by reading the entire selection and reviewing these questions and tasks. This is a great piece to demonstrate the power of text structures and illustrations to support learning from reading

**During Teaching**

1. Teacher reads the main selection text aloud with students following along.
2. Students read the text independently, in section chunks or in its entirety – teachers should judge based on their class needs.

Note to teachers: this text is rich, and teachers should plan to reinforce students’ use of text structures by creating appropriate “chunks” of text for the students to focus on after the initial reading. For this same reason, we recommend the teacher read aloud first with the students following along to build fluency and make sure everyone has access to the general flow of the text.

1. Students and teacher re-read the text while stopping to respond to and discuss the questions and returning to the text. A variety of methods can be used to structure the reading and discussion (i.e.: whole class discussion, think-pair-share, independent written response, group work, etc.). The mantra can be thought of as “re-read, think, discuss, write” in various combinations.

Text Dependent Questions

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| **Text Dependent Questions** | **Answers** |
| What makes the earth different from any of the other planets in our solar system? What is “liquid water”? | The earth is made up of much more water (70% of the surface) and is the only planet to have that water in liquid form. Liquid water is water that is not solid (ice) or gas (steam), but runny =liquid. We usually just call it plain old water when it’s in that form. |
| Why are there two high tides and two low tides per day? Use the chart and the text to explain this in your own words | Since tides are formed by the gravitational pull of the moon and the sun, there are two large forces acting on the oceans. The moon has lots more influence because it so much closer than the sun, but both are factors. The moon causes the tides, and where the sun is compared to the moon influences how strong the tides are. Since the moon rotates the earth roughly once a day (24 hours and 50 minutes), it influences each part of the ocean on earth twice a day: once when it is near, and once when it is opposite. |
| What is a “Neap” tide and what causes it? Connect your answer to your explanation in #2. | A Neap Tide is the smallest tide. It is caused when the sun is at right angles to the moon, so they pull on the water in opposite directions. The result is that the tide is smaller. The connection is that the sun and moon are both what cause tides. |
| What other factors make a tide bigger or smaller besides the sun and moon? | The shape of the coastline and the inlets like bays and gulfs also influence the size of the tides. |
| Why does the tide in the Gulf of Mexico only rise and fall by a few inches a day? | The Gulf of Mexico covers a wide area; therefore the tide is able to spread out. |
| How is a Tsunami generated? As part of your answer, explain why calling a Tsunami a “tidal wave” is not accurate. | A tsunami is formed when there is an earthquake or volcanic eruption underwater. It causes shock waves to form, even in the middle of the ocean. When it hits a shoreline, there can be enormous waves. Since they are not caused by the moon and sun, they are not really tides at all. |
| Describe what a “Fetch” is in your own words. | This word is defined when it is introduced on page 305. Student answers should vary as they paraphrase. They should not copy the exact phrase from the article. |
| What is the connection between a wave and a swell? What factors determine how big and strong waves or swells are? | A swell is a group of waves that form together because they are all heading in the same direction. The factors that influence the strength of a wave are how hard and long the wind blows and the length of the fetch. |
| Explain what is moving within a wave if it is NOT the water. | The wave is a wave of energy. The water doesn’t actually move along with the waves of energy. It swirls and stays in place. (If students have trouble figuring this odd and important idea out, draw them to the vivid example of a stick bobbing more or less in place that Simon offers). |
| Why do people say “the wave begins to feel the bottom”? Why is that in quotations in the text? What effect does “feeling the bottom” have on the action of the waves? | When the waves near shore, the bottom becomes more shallow. This slows the wave down, which is what this expression refers to. This is what sets in motion the crashing of waves upon the shore. The crest is moving faster than the trough, and the waves coming in behind the front ones haven’t been slowed down by the bottom yet. |
| Go through the whole article and make a list of the ways Simon has structured the text to make it easier to figure out all these ideas and facts about how the ocean works. | Answers will vary, but this will help students notice the charts and photographs, captions and section headers that clarify complicated ideas and chunk the ideas into different sections so they can be more easily absorbed. It is essential that students learn to take account of the support these structures provide, and to know that they are fairly consistent and reliable. |

Vocabulary

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|  | **KEY WORDS ESSENTIAL TO UNDERSTANDING**  **BIG IDEAS OF TEXT** | **WORDS WORTH KNOWING**  Words to be part of systematic vocabulary instruction, not essential for understanding the big ideas of the text |
| **TEACHER PROVIDES DEFINITION**  not enough contextual clues provided in the text | Solar system, planet continent , island,  Pacific Ocean, Atlantic Ocean,  “liquid water”, gravity (gravitational pull) , wave, tides/tidal, right angles, Neap Tide  gulf, bay  Tidal Wave  swell, particles, crest, trough  tons  breaker, surf  coastline, spires, platforms, dunes | Surface  Rotates/rotation, bulge  Sloshing  Community, generated, noticeable, approaches, ‘resulted in,’ property  Energy  Severe  ‘topples over’  Eventually |
| **STUDENTS FIGURE OUT THE MEANING**  sufficient context clues are provided in the text | Tsunami  Fetch  Surf  Wavelength  Oceangoing  Breaker | Shallow  Incoming  Reshaping |

Culminating Task

* In “Oceans”, the author divided the text into three topics related to the oceans – Tides, Tsunamis, and Waves. Each topic has a main idea and details. Look in the text to find the main idea and the details which support the main topic.

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| Topic | Main Idea | Details |
| *Tides* |  |  |
| *Tsunamis* |  |  |
| *Waves* |  |  |

Then, chose one of the three that you think you have the clearest sense of and write an explanatory paragraph where you show a third grader how that part of the ocean system works. Make sure you write simply and clearly, and that you are accurate in your details. If you chose, you can include your own picture or chart to help a younger student understand how the ocean activity you selected to explain really works.

Additional Tasks

* Create a glossary (a mini dictionary that specializes in the words from just this one article) of terms from all the words in this article that are ocean-connected words. Put the definitions in your own words. You can choose to organize your glossary in page order or in alphabetical order. Offer it to your teacher as a support for the next group of students who will read *Oceans* in the future.

Note to Teacher

* This article is chock-full of great vocabulary words. Please try to make every effort to expose your students to these words so they can claim them as their own for the rest of their lives. So many of them are science content words, this piece would be a logical one to build an extension science unit from. If you chose to do the Glossary extension outlined just above, it would be great scaffolding to offer the students the Vocabulary Quadrant prepared for you above.
* The other strength of this piece, coming as early in the year as it does, is it is a great piece to reinforce or teach elements of text structure from. We tried to weave questions in that would draw students’ attention to features of the text designed to support them in building understanding, but much of this will come from your discussion. Text structure is something you should hold your students accountable for noticing and using every time they are working with informational text.