

Lisa M. Truesdell
Grade 1
Discipline: Science
Content: Oceans
Type of Class: Heterogeneous

Unit Overview

In this first grade science unit about the ocean, students will learn how change affects change, why survival is dependent on humans or nature and why survival requires change. Questions like, “What changes affect changes in the ocean?” “Why is the survival of ocean life dependent on humans or nature?” and “What changes can we make to help our ocean survive?” will help students understand the essential questions, but as they relate to the ocean.

A wide variety of topics will be covered in this ocean unit. Students will learn about the characteristics of oceans, like saltiness, waves, and tides. They will learn about different parts of the ocean, like tide pools, coral reefs, kelp forests, the open and deep sea, and discover the kinds of ocean life found throughout these areas. In this unit students will ponder the topic of the purpose of the ocean. They will learn how important our ocean is as it provides food resources, recreation, and transportation. Issues related to the ocean, including different types of pollution, habitat destruction, and overfishing will be studied as well as the overall theme of survival and change. Some students may touch upon the philosophical/ethical views of wisdom as it relates to our interactions with the ocean.

A variety of thinking skills will be required for students to engage in during the unit. Students will use lower level skills such as comprehension, and move to higher levels of complexity as they tackle projects requiring critical thinking, creative thinking, and problem solving skills.

Students will be given opportunities to make different types of products that use the kinesthetic, written, visual, and verbal modalities. Some examples of products are “wordles”, collages, skits, songs, and magazine articles.

Technology will be connected throughout this unit as a means for content delivery and the creation of student products like slide shows and posters. Some students may use the internet for enrichment, like joining a group of scientists to explore the ocean and solve problems.

Management Techniques

During the first three days of the unit, students will be engaged in whole group instruction to get an overview of the content. An early sorting activity and preassessment given on the fourth day will help determine future groupings for differentiated learning activities and instruction.

Tiered questions are an important instructional strategy in this first grade ocean unit and will begin during Week 2. The questions will be written on task cards and presented in a differentiated learning center. Students will work independently on pre-assigned tasks based on their needs while the teacher works with small groups and others are completing follow-up work. When the teacher is not instructing a group, she will check with individuals and give help where needed. Students will consult the class chart to find their name and the number of colored cards to complete. When students complete a task, they cover that numbered square with a sticker. This will help the teacher do a quick scan to see how students are progressing throughout the activities.

For the students who finish early, they will choose an anchor activity that is ocean related. Another option is for students to engage in an enrichment activity that is subject to teacher approval.

For the students who do not finish on time, they will have the option of using recess/break time to finish or to take it home as homework.

For the student who tends not to accomplish anything during the learning center work time, the teacher can conference with the student to try to establish what is problematic. For example, maybe the student is getting distracted easily and needs help with time management. Together, the teacher and student can discuss any special modifications or accommodations, like breaking the tasks into smaller chunks, and create a specific contract outlining clear actions and expectations. For the student who is just wasting time for no apparent reason, the teacher will emphasize classroom expectations and the consequences of not finishing work at school. That student may need to take work home as homework.

Maine Learning Results:

K-2 Science

E1. Biodiversity

Students describe similarities and differences in the observable behaviors, features, and needs of plants and animals.

- a. Describe similarities and differences in the way plants and animals look and the things that they do.
- b. Describe some features of plants and animals that help them live in different environments.
- c. Describe how organisms change during their lifetime.

E2. Ecosystems

Students understand how plants and animals depend on each other and the environment in which they live.

- a. Explain that animals use plants and other animals for food, shelter, and nesting.
- b. Compare different animals and plants that live in different environments of the world.

Common Core:

Reading Standards for Informational Text K-5

Grade 1: Key Ideas and Details

2. Identify the main topic and retell key details of a text.

Grade 1: Craft and Structure

5. Know and use various text features (headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.

Speaking and Listening Standards K-5

Grade 1: Presentation of Knowledge and Ideas

5. Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.

NAEP Technology Literacy:

Uses a wide range of technological tools and systems including computers and the internet.

Topics & Subtopics:	Themes/Generalizations
Characteristics of the Ocean	
Saltiness	Change causes change.
Waves	
Tides	Change takes place over time.
Temperature	Change may be predicted.
Parts of the Ocean	
Tide Pools	Survival depends on humans or nature.
Open Ocean	
Deep Sea	Survival requires change.
Coral Reef	
Kelp Forest	Survival requires endurance.
Kinds of Ocean Life	
Mammals	

<p>Fish Plankton Seaweed</p> <p>Purposes of the Ocean Food Resources Recreation Transportation Food Chain</p> <p>Issues Related to the Ocean Pollution Overfishing Habitat Destruction</p> <p>Themes Related to the Ocean Survival Change</p>	<p>Philosophical/Ethical/ Moral:</p> <p>Wisdom</p> <p>Skills:</p> <p>Reading Skills Reading informational texts</p> <p>Presentation Skills Presentation of knowledge and ideas</p> <p>Computer skills</p>
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<p>Essential Questions:</p> <ul style="list-style-type: none"> • How does change affect change? • Why is survival dependent on humans or nature? • Why does survival require change? 	<p>Essential Unit Questions:</p> <ul style="list-style-type: none"> • What is an ocean? • Why is the ocean important? • What changes affect change in the ocean? • Why is the survival of ocean life dependent on humans or nature? • What changes can we make to help our ocean survive?
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Possible student interests	Possible place in unit to connect to interests	Activities tied to interests and content
<p>Animals Building/Constructing Computer Time Games Discovery Dramatic Play Artistic Expression Poems/Riddles Songs</p>	<p>Beginning: Hook: Game Task card: Animal report Task card: Food Chain Task card: survival of whales Middle: Original Game End: In the Hot Seat role-play game</p>	<p>Inflatable globe toss Use of computer to tell about animal. Food chain skit Jingle about saving whales Mural Original Game</p>

Grouping

Activity/When/Work Alone Tiered questions	Activity/When/Work in Pairs Original Game
Activity/When/Work in Small Groups Sorting activity Animal Survival Strategies	Activity/When/Whole Class Instruction You Tube video In the Hot Seat
Activity/When/Choice Grouping Arrangement Show-And-Tell Mural Alphabet Book	

*Instructional Activities

Name It	Who Does It	Teacher Assigns Controlled Choice Student Choice	When	Grouping	Type of Differentiation	Student Reflection	Assessment
Sorting Activity	All	Teacher Assigns	Beginning	Small Groups	Ability	Discuss	Observation
Show & Tell Board	All	Student choice	Midway	Individual or Partners	Content & Interest	Self Assess	Rubric *Two levels
Tiered Questions	All	Controlled choice	Midway-End	Individual	Ability	Discuss	Performance Assess
Mural	All	Student Choice	Midway	Small Groups	Interest	Discuss	Rubric

Original Game	All	Teacher Assigns	Midway	Small Groups or Partners	Ability	Self Assess	Peer Assess
Animal Survival Features	All	Teacher Assigns	Midway -End	Small Groups	Ability	Self Assess	Exit Slip
In the Hot Seat	All	Teacher Assigns	End	Whole Group	Ability	Discuss	Observation
Alphabet Book	All	Student Choice	End	Individual or Partners	Interest	Self Assess	Rubric

Assessment

Preassessment Assessment Tools: Verbal, Visual, Kinesthetic, Written

Type	Modality	When	For Whom
Frayer Diagram	Visual	Beginning	All
Journal Entry	Written	Beginning/ Midway	All

Formative Assessment Tools: Verbal, Visual, Kinesthetic, Written

Type	Modality	When	For Whom	Target Mastery
Rubric	Visual	Midway	All	2 out of 3
Exit Slip	Visual	Midway	All	3 out of 4 boxes

Observation Checklist	Various	Middle/ Throughout	All	8 out of 10
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Summative Assessment Tools: Verbal, Visual, Kinesthetic, Written

Type	Modality	When	For Whom	Target Mastery
Tiered questions	Various	Midway/End	All	85%
Rubric	Visual	End	All	100%

Classify Thinking Skills

Remember	Understand	Apply	Analyze	Evaluate	Create
List	Describe	Illustrate	Categorize	Predict	Create
Tell	Show	Dramatize	Compare & Contrast	Judge	Develop
Label	Explain		What would happen if...		
	Locate		Would you rather...		
	Outline				

Classify Product Forms

Written	Oral	Visual	Kinesthetic
Journal	Speech	Wordle Web	Puppet
Magazine article	Report using Blabberize.com	Flip book Diagram	Mobile
Picture Dictionary	Interview	Collage Slide Show	Skit
Help Wanted Ad	Audio Recording	Poster Headline If, Then Graphic Organizer T-Chart Illustration w/labels Brochure Timeline Comic Strip	Rap song/Jingle Model TV News Announcement

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Tiered Questions

Characteristics of the Ocean

1. **List** words to describe the ocean. (wordle using <http://www.wordle.net/>)
 2. **Categorize** the characteristics of the ocean. (web)
 3. **Tell** how characteristics of the ocean **change over time**. (journal)
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1. **Show** what the ocean is like where you live. (illustration w/labels)
 2. **Compare and contrast** the ocean where you live to the ocean in a different part of the world. (flip book)
 3. In what ways is **change** in ocean characteristics **predictable**? (If, Then Graphic Organizer)

Parts of the Ocean

1. **Describe** a tide pool using key words and definitions. (picture dictionary)
2. **What would happen if** there were no tides? (journal)
3. Why is **change over time** important in a tide pool? (magazine article)

Kinds of Ocean Life

1. **Label** the parts of a fish. (diagram)
 2. **Show** how the body of a fish is designed for **survival** in the ocean. (puppet & written description)
 3. **Create** an original fish whose **survival requires change**. (model & written description)
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1. **Describe** an ocean mammal. (oral presentation using blabberize.com)
 2. **Explain** how the **survival** of whales depends on humans. (rap song or jingle)
 3. **Should** the **survival** of whales **depend on humans**? (interview)

Purposes of the Ocean

1. **Illustrate** a food chain using ocean animals. (mobile)
 2. **Dramatize** the **changes** that take place in a food chain. (skit)
 3. **Predict** how **change** in one part of a food chain **causes change**. (graphic organizer)
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1. **Show** three ways people use the ocean. (collage)
 2. **Would you rather be** a fisherman, marine biologist, or a sailor? (Help Wanted Ad)
 3. What **change may be predicted** in the way people use the ocean in the future? (slide show using www.neok12.com)

1. **Describe** ocean transportation. (brochure)
2. **Outline** how has ocean transportation **changed over time**. (simple timeline)
3. **Develop** a new way to use the ocean for transportation that is **wise**. (headline & speech)

Issues Related to the Ocean

1. **Locate** examples of ocean pollution. (audio recording)
 2. **Outline** the **changes** we can make to reduce ocean pollution. (poster using <http://poster.4teachers.org/>)
 3. **Explain** how **change over time** could help or hinder the problem of ocean pollution. (T-chart)
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1. **Tell** what kinds of food resources are found in the ocean. (menu)
 2. **What would happen if** no one ate seafood? (comic strip)
 3. **Predict** how **change** in ocean food resources would **cause change**. (TV news announcement)

List of Websites

For Products of Tiered Questions

<http://www.wordle.net/>

Students list words related to the ocean and create a visual word cloud.

<http://blabberize.com/>

Deliver ocean mammal report through the mouth of the animal by selecting the correct mammal photo and recording their own voice giving the information. Could be made more challenging by requiring students to use the first person (point of view) in their presentation. "I am a sea horse..."

<http://poster.4teachers.org/index.php>

Design a poster outlining different changes people can make to help reduce ocean pollution.

<http://www.neok12.com/Oceans.htm>

Students can create their own video presentation/slide show.

For Content Delivery/Instructional Strategies

<http://sea.sheddaquarium.org/sea/squish/flash.html>

Interactive website for understanding how fish and other sea creatures use special features or adapt to help them survive.

<http://sea.sheddaquarium.org/sea/buildafish/flash.html>

Students apply their understanding of body features to build a fish that will survive in the coral reef.

For Enrichment Activities/Advanced Content

<http://www.jason.org/public/Whatis/CurrORPGames.aspx>

Interactive game called “The Operation: Resilient Planet Game” leads students on a real-life science expedition with practicing researchers and explorers. Students use tools to collect data and prepare to persuade decision makers.

<http://www.amnh.org/ology/?channel=marinebiology>

American Museum of Natural History website devoted to fascinating facts, games, quizzes, experiments, and interviews with marine biologists.