

# ROCKY SHORE MARINE SCIENCE CURRICULUM

## Unit Schedule

	DAY ONE	DAY TWO	DAY THREE	DAY FOUR	DAY FIVE
<b>WEEK ONE</b>	1. Toss the Blue Planet	2. Build Your Own Watershed	3. Introduction to the Rocky Shore	4. Rocky Shore Waves	4. Rocky Shore Waves
<b>WEEK TWO</b>	5. The Ocean's Tides	6. Taking the Rocky Shore's Temperature	7. Create-a-Critter, Part One	7. Create-a-Critter, Part One	8. The Splash Zone
<b>WEEK THREE</b>	8 The Splash Zone	9. Hungry Birds	10. The Upper Intertidal Zone	10. The Upper Intertidal Zone	11. Tide Pool Painting
<b>WEEK FOUR</b>	11. Tide Pool Painting	12. The Middle Intertidal Zone	12. The Middle Intertidal Zone	13. Hide and Seek	13. Hide and Seek
<b>WEEK FIVE</b>	14. The Lower Intertidal Zone	14. The Lower Intertidal Zone	15. Survive the Shore	16. The Subtidal Zone	16. The Subtidal Zone
<b>WEEK SIX</b>	17. The Four Traits of Fish	18. The Wandering Plankton	19. Create-a-Critter, Part Two	19. Create-a-Critter, Part Two	20. Rocky Shore Algae
<b>WEEK SEVEN</b>	21. Rocky Shore Scoot	22. Marine Conservation	22. Marine Conservation	23. Rocky Shore Ecosystem Assessment	24. Explore the Shore (optional)



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LESSON	TOPIC	DURATION	NEXT GENERATION SCIENCE STANDARDS	OCEAN LITERACY PRINCIPLES	FOCUS QUESTION	CROSS-CURRICULAR CONNECTIONS*
1. Toss the Blue Planet	Ocean Size and Importance	1 Session	2-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	OLP 1, OLP 2	How much of the Earth's crust is covered by the ocean?	Math, Social Studies, Physical Education, Writing
2. Build Your Own Watershed	Watersheds and Watershed Conservation	1 Session	2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area.	OLP 1, OLP 2	What is a watershed?	Social Studies, Conservation, Engineering, Physical Education
3. Introduction to the Rocky Shore	Rocky Shore Identification	1 Session	2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.	OLP 5	What is a rocky shore?	Reading, Technology
4. Rocky Shore Waves	Waves and Change	2 Sessions	2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area.	OLP 1, OLP 2	What impact do waves have on rocky shore communities?	Engineering
5. The Ocean's Tides	Tides and Change	1 Session	3-PS2-2. Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.	OLP 1, OLP 2	What are the tides?	Physical Education, Math, Technology
6. Taking the Rocky Shore's Temperature	Land and Water Temperature Changes	1 Session	3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	OLP 1, OLP 3	Why is the temperature of the land and water different at the rocky shore?	Math
7. Create-a-Critter, Part One	Adaptations and Change	2 Sessions	4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	OLP 5	What is an adaptation?	Engineering, Writing
8. The Splash Zone	Zonation and Adaptation	2 Sessions	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	OLP 5	What is the splash zone?	Art, Reading, Writing

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9. Hungry Birds	Shorebirds, Adaptations	1 Session	4-LS1-1. Construct an argument with evidence that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	OLP 5	Why do shorebirds have beaks that are shaped differently?	Physical Education
10. The Upper Intertidal Zone	Zonation, Adaptations	2 Sessions	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	OLP 5	What is the upper intertidal zone?	Reading, Art
11. Tide Pool Painting	Tide Pool, Adaptations	2 Sessions	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	OLP 2, OLP 5	What is a tide pool?	Math, Art
12. The Middle Intertidal Zone	Zonation, Adaptations	2 Sessions	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	OLP 5	What is the middle intertidal zone?	Reading, Art
13. Hide and Seek	Camouflage, Adaptations	2 Sessions	3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.	OLP 5	What types of camouflage do ocean animals have that help them survive?	Writing, Art
14. The Lower Intertidal Zone	Zonation, Adaptations	2 Sessions	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	OLP 5	What is the lower intertidal zone?	Writing, Art
15. Survive the Shore	Rocky Shore Crabs, Adaptations	1 Session	1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.	OLP 5	How do a crab's adaptations help it survive?	Physical Education, Music
16. The Subtidal Zone	Zonation, Adaptations	2 Sessions	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	OLP 5	What is the subtidal zone?	Writing, Art

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17. The Four Traits of Fish	Fish, Traits	1 Session	3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.	OLP 5	What is a fish?	Math
18. The Wandering Plankton	Plankton, Marine Food Web	1 Session	5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.	OLP 3, OLP 4, OLP 5, OLP 6	Why is plankton important?	Art
19. Create-a-Critter, Part Two	The Engineering Design Process, Adaptations	2 Sessions	4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	OLP 5	What is the engineering design process?	Engineering
20. Rocky Shore Algae	Algae, Plants	1 Session	3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.	OLP 5, OLP 6	What is the difference between algae and plants?	Physical Education
21. Rocky Shore Scoot	Rocky Shore Ecosystem	1 Session	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	OLP 1, OLP 2, OLP 3, OLP 4, OLP 5, OLP 6	What rocky shore facts do I know?	Physical Education
22. Marine Conservation	Marine Conservation, Recycling	2 Sessions	5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	OLP 1, OLP 4, OLP 6, OLP 7	What is marine conservation?	Conservation, Physical Education
23. Rocky Shore Ecosystem Assessment	Rocky Shore Ecosystem	1 Session	N/A	OLP 1, OLP 2, OLP 3, OLP 4, OLP 5, OLP 6	What have I learned about the rocky shore ecosystem?	N/A
24. Explore the Shore	Planning a Visit to the Rocky Shore	1 Session	5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	OLP 1, OLP 5, OLP 6, OLP 7	How can I be prepared to visit the rocky shore?	Technology, Music, Writing

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## Unit Components

COMPONENT	LOCATION	DESCRIPTION
Field Guide Research Project	Lesson 8	Students participate in a research project by creating a classroom field guide during reading or writing sessions. Use the <b>Student Field Guide</b> sheets (pages 68–69) for students to record or type their research. When finished, bind and laminate and bring along on a rocky shore field trip (if possible).
Rocky Shore Reading Challenge	Lesson 10	Students participate in a classroom “Rocky Shore Reading Challenge!” Each student is given a Rocky Shore Challenge Reading List (page 85) to fill out as they read either at home or at school (or both) and a My Rocky Shore Creatures template (page 86). Once students read 100 chapters (or 100 books) they have completed the Rocky Shore Reading Challenge!
Math Activities	Lesson 11	Students participate in “Tide Pool Math” activities created by the Bureau of Ocean Energy Management.
Reading Partners	Lesson 12	Students participate in a daily leveled reading activity called “Ocean Partners.” Teachers create partner book packets using mailing envelopes and developmentally appropriate books on ocean topics. The book packet should contain two books and any materials your students may need for book activities. Have student partners take turns reading the book aloud for fluency development.
Writing Project	Lesson 16	Students research an ocean animal and write a story about the animal. Use Suzanne Tate’s stories, along with Nancy Donovan’s story <i>Oscar the Herring Gull</i> as examples. Consider using the template provided (pages 145–151) to help students format their story.
Homework/ Assessment Project	Lesson 23	Students participate in an activity that enables them to demonstrate the knowledge they have gained from the rocky shore ecosystem unit in an alternative way to a paper and pencil assessment.

### Sidebar Key



#### Teacher Tips

Advice on how to potentially improve various aspects of a lesson.



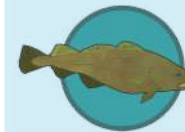
#### Extension Suggestions

Additional lessons or activities that complement a particular topic.



#### Books

Valuable literary options that connect to the lesson’s topic.



#### Websites

Online tools, particularly brief videos, which connect to the lesson’s topic.



#### Scientist Notebook

Possible science notebook entries to reinforce lesson content knowledge.