

## Introduction to Ocean Science Experiments

Welcome to the Ocean Science Experiments worksheet! This activity is designed for 14-year-old students to explore the complexities of coastal river delta ecosystems.

Over the next 10 pages, you will engage in various activities and questions that will help you understand the ocean literacy dimensions and their application to real-world scenarios.

## Ocean Literacy Dimensions

Answer the following questions:

1. What are the seven essential principles of ocean literacy?

2. How does the ocean's temperature affect global climate patterns?

3. What is the role of the ocean in regulating the Earth's climate?

## Coastal River Delta Ecosystems

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*Answer the following questions:*

1. Describe the unique characteristics of coastal river delta ecosystems.

2. What types of plants and animals can be found in coastal river delta ecosystems?

3. How do human activities impact coastal river delta ecosystems?

## Hands-on Activities

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*Complete the following activities:*

1. Design a model of a coastal river delta using clay or paper mache. Label the different components of the ecosystem.
2. Conduct a water quality test on a local river or stream. Record your findings and discuss the results.
3. Identify and classify plants and animals found in coastal river delta ecosystems. Create a list of your findings.

## Erosion and Deposition

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*Answer the following questions:*

1. Simulate the processes of erosion and deposition using a stream table or sandbox. Record your observations.

2. How do tides and currents affect coastal ecosystems? Provide examples.

3. Create a diagram of the water cycle. Explain the movement of water through the ecosystem.

## Human Impact

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*Complete the following activities:*

1. Simulate the effects of pollution on coastal ecosystems using a model or simulation. Discuss the results.
2. Model the impact of overfishing on coastal ecosystems using a game or simulation. Record your findings.
3. Discuss the impact of climate change on coastal ecosystems and human societies.

## Conservation and Sustainability

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*Complete the following activities:*

1. Design a watershed management plan to reduce pollution and protect coastal ecosystems.
2. Research and present on sustainable fishing practices and their impact on coastal ecosystems.
3. Research and present on coastal conservation efforts and their impact on human societies.

## Case Study

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*Complete the following activities:*

1. Research and present on a case study of a coastal river delta ecosystem and the human activities that impact it.
2. Analyze the data and information from the case study. Draw conclusions and make informed decisions.
3. Evaluate the impact of human activities on coastal ecosystems and propose solutions.

## Reflective Journaling

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*Maintain a reflective journal throughout the module. Record your thoughts and observations.*

1. Reflect on your learning. What did you learn about coastal river delta ecosystems?

2. How can you apply what you learned to real-world scenarios?

3. What questions do you still have about coastal river delta ecosystems?

## Group Presentation

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*Work in groups to research and present on a topic related to coastal river delta ecosystems.*

1. Communicate effectively through written and oral presentations.
2. Demonstrate critical thinking and problem-solving skills.
3. Evaluate your own learning. What did you learn? What would you like to learn more about?

## Assessment

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*Complete a comprehensive assessment project that demonstrates your understanding of the ocean literacy dimensions and coastal river delta ecosystems.*

1. Apply knowledge and skills to solve problems and complete tasks.
2. Evaluate your own learning. What did you learn? What would you like to learn more about?
3. Reflect on your learning journey and identify areas for further improvement.

## Additional Resources

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*Use the following resources to further your learning:*

- National Oceanic and Atmospheric Administration (NOAA) - <https://www.noaa.gov/>
- Ocean Conservancy - <https://oceanconservancy.org/>
- World Wildlife Fund (WWF) - <https://www.worldwildlife.org/>

## Glossary

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*Define the following terms:*

- Coastal river delta ecosystem
- Ocean literacy dimensions
- Erosion and deposition
- Watershed management
- Sustainable fishing practices



## References

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*List the sources used in your research:*

- Books
- Articles
- Websites

