

Our Coast, Our Future



Mass Audubon



Massachusetts Office of
Coastal Zone Management

Lesson 4: Research Facilitator Guide

Grade Level: Grades 5-8

Timing: *Our Coast, Our Future* Lesson 4: Research contains two classes each intended to be facilitated in 45 minutes or combined into a longer block.

Tips: In this guide each class description contains:

- **How to prepare** to facilitate lessons including tips on what materials to gather and what student supports should be prepared.
- **Essential questions** that focus the purpose of the class investigation.
- **Vocabulary and terms** divided into “tier two” words (academic words that are frequently used in many disciplines and may have different meanings depending on context) and “tier three” words (discipline specific academic words that are infrequently used outside of a specific context, in this case within the science and policy of climate change). Definitions for tier three words are provided in the *Student Glossary of Terms*.
- **Class procedure** that outlines student activities and provides guiding questions and discussion facilitations tips.
- **Assessment** tools to gauge student engagement, understanding, and skill acquisition. These are generally reflection questions to be answered by students at the end of each class.

Lesson 3 – Research

In this lesson students will work primarily in small groups to research the questions and areas identified in Lesson 3.

- Select detailed strategies to address one aspect of a local climate change problem.
- Summarize these strategies for other students.

Priority Activities:	Both classes in lesson 4 are structured to provide time for students to research the challenge they chose with the links we’ve provided. The depth of research can be modified by the teacher to best suit the class.
Secondary Activities:	See above.

Class 1

Teacher Materials & Preparations: Before this lesson prepare new worksheet for each Student Guide, students will be using *Our Coast, Our Future Student Research Notes-Template* activity sheet (or another note taking format as per the Teacher facilitator’s discretion) to organize their ideas as they research their scenario. Students should begin their research using the suggested “Where to start” links included in each challenge StoryMap but students and teacher facilitators are encouraged to also find new links and resources.

The teacher facilitator may also want to assign additional research responsibilities for homework after students do research during class time if students need additional time to investigate topics or additional topics come up during this research session.

<div><h3>Where to start</h3><ul style="list-style-type: none">First, review why wetlands are important and how they connect to this issue.Look into policies about where people can build houses and other buildings. This case study focuses on building on a flood plain in Chatham.Think about who can afford to cover the costs when property is damaged, either in repairs or in covering temporary needs like housing and transportation.Consider how old structures are no longer offering protection and how much it costs to update them. This video tells the story of a crumbling seawall in Hull. This case study talks about using federal money to protect homes in Quincy and Scituate.Think about whether insurance is an option. This case study talks about how collaboration can reduce the cost of insurance.Here's an example of a few strategies, including a proposed scenario called "managed retreat."This news segment describes planning and reactions to flooding in a coastal town.Review some impacts to affordable housing.Look into emergency communications plans. What can be made accessible to all across both technological and language barriers?Look at how Boston plans to protect the city. What techniques can be used in other communities?</div>	<div><div><div>Name _____ Class _____ Date _____</div><div><h3>Our Coast, Our Future Student Research Notes</h3><div>(by topic)</div><p>This page for taking notes on your research uses a two-column format. Put the topic you're working on the left, and notes about that topic from each of your sources on the right.</p><table><thead><tr><th>TOPIC</th><th>NOTES</th></tr></thead><tbody><tr><td></td><td>Source: _____</td></tr><tr><td></td><td>Source: _____</td></tr><tr><td></td><td>Source: _____</td></tr></tbody></table></div></div></div>	TOPIC	NOTES		Source: _____		Source: _____		Source: _____	<div><div><h3>Protecting Property and Infrastructure</h3><h4>Value of Nature and Nature Based Solutions</h4><ul style="list-style-type: none">First, review why wetlands are important and how they connect to this issue.Look at how protecting our green space also protects animals and plants. Use the Mass Audubon Value of Nature fact sheet to understand how important our flora and fauna are.Discover how public watersheds in New York can serve multiple benefits, including providing protection from extreme storm impacts.<h4>Connecting People to Resources</h4><ul style="list-style-type: none">Take an example similar to the National Flood Insurance program. How do you think these changes could help some residents? What others?Think about whether insurance is an option. This case study talks about how collaboration can reduce the cost of insurance.</div></div>
TOPIC	NOTES									
	Source: _____									
	Source: _____									
	Source: _____									
<div><p><i>Resource Lists are found at the end of each scenario's StoryMap and gathered into StoryMap Research Links</i></p></div>	<div><p><i>Our Coast, Our Future Student Research Notes-Template</i></p></div>	<div><p><i>Story Map Research Links</i></p></div>								

Essential Vocabulary:

- Tier 2: research
- Tier 3: scenario

Essential Question: What are the key problems in our chosen challenge? How might those problems be solved?

Class Procedure:

- Student Welcome (5 minutes):** Let students know that today they will begin researching their challenge and climate strategies and solutions. Consider asking students if there are any questions or concerns, they have about doing research. What does “doing research” for a project look like or what do they think of when they hear the word “research”?
- Activity (25 minutes):** Let students know that they will be using the majority of the class time to review resources and record their research in notes.
 - Teacher facilitators may provide *Our Coast, Our Future Student Research Notes-Template* or have students use an alternative note taking method they have familiarity with or typically use in class.
 - Teacher will provide reminders about research approaches they have practices from earlier lessons such as listening to a wide range of voices from the community, choosing credible sources, and asking deep questions.
 - Student groups will use a curated source list to investigate the problem they are working on, and potential solutions to it.
 - Students will describe how both problem and solutions as related to policy, practice, or both.
 - Students may organize their notes based on topic or by resource.
 - Students should work in small groups or pairs to review specific resources. If possible, more than one pair/group should be assigned to research the same topic/resource and then to come together to discuss their research.
- Discussion (10 minutes):** Teacher facilitator will ask smaller pairs, individuals or groups researching the same topic or resources to meet together and share their research.
 - Students should share and have time to ask questions of their group members and look for discrepancies or gaps in the research they have done.
- Wrap-up (5 minutes):** Let students know that in the next class they will be sharing their topic or resource-based research out so that the class can see the entirety of the topics and resources that have been reviewed.

- If students need to research additional topics or resources, assign that research for homework.
- Remind students to complete their class assessment, either at the end of class or as homework.

Assessment of knowledge, understanding and skills:

- **Question Prompt:** “Describe the most interesting new information that you discovered during your research. Describe an area of your research that you are still unsure about or have further questions”.

Class 2

Teacher Materials & Preparations: Before this lesson prepare each Student Guide, students will be using Our Coast, Our Future Research Share-out from Other Groups-Template to organize the research done in smaller groups in the previous class. Facilitators should review the progress of student research during this class. As groups share out research it may become apparent that additional topics or resources need to be researched further. Keep this in mind before moving onto the next lesson in which stakeholders and perspectives will be examined.

<p>Name _____ Class _____ Date _____</p> <p>Our Coast, Our Future Research Share-out from Other Groups</p> <p>This page uses a two-column format. Put the group you're hearing from and their topic on the left, and notes about what you hear from that group on the right.</p> <table border="1"> <thead> <tr> <th>GROUP AND TOPIC</th> <th>NOTES</th> </tr> </thead> <tbody> <tr> <td>Group: _____</td> <td rowspan="3"></td> </tr> <tr> <td>Topic: _____</td> </tr> <tr> <td>_____</td> </tr> </tbody> </table>	GROUP AND TOPIC	NOTES	Group: _____		Topic: _____	_____		
GROUP AND TOPIC	NOTES							
Group: _____								
Topic: _____								

<p><i>Our Coast, Our Future Research Share-out from Other Groups-Template</i></p>								

Essential Vocabulary:

- Tier 2: research, topic
- Tier 3: scenario, stakeholder

Essential Question: What are the key problems in our chosen challenge? How might those problems be solved?

Class Procedure:

- **Student Welcome (5 minutes):** Consider asking students, “What else do we need to know about our climate challenge”?
- **Activity (30 minutes):** Let students know that student individuals, pairs or groups who were researching specific resources or topics will be sharing out the research done in the last class.
 - Student subgroups will each share out the result of their research and record the findings of each group on the next section of their *Our Coast, Our Future Research Share-out from Other Groups-Template* notes.
 - The teacher facilitator should divide up the class into new smaller groups so that these subgroups each have one or two student representatives responsible for researching specific resources or topics.
 - This student or students will then present their research to the small group.
 - Each student will record information from all groups on their notes.
 - Ask students to not focus solely on writing down information but to ask questions about the topic and resource research.

- The teacher facilitator should move around the student space to answer questions and keep students on track.
- **Discussion (10 minutes):** Teacher facilitator will review all the research shared out by the class.
 - Ask students to share out the highlights of their research topics and any questions or misunderstandings that may remain.
 - Let students know that in the next lesson they will be looking at this research from the perspectives of different stakeholders in the community.
- **Wrap-up (5 minutes):** Let students know that in the next lesson they will be looking at this research from the perspectives of different stakeholders in the community.
 - Remind students to complete their class assessment, either at the end of class or as homework.

Assessment of knowledge, understanding and skills:

- **Question prompt:** “Describe the most interesting new information that you learned about from your fellow students while sharing research”.