Tips & Tricks from OEI
Natural Hazards

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<th>Standards</th>
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| 6.MS-PS4-3, 6.MS-ETS1-1; 7.MS-ESS3-2; 7.MS-ETS1-2, 7.MS-ETS3-1(MA), 7.MS-ETS3-2(MA) | - Using Mathematics and Computational Thinking  
- Engaging in Argument from Evidence  
- Obtaining, Evaluating, and Communicating Information  
- Analyzing and Interpreting Data | - Cause and Effect  
- Systems and Systems Models  
- Stability and Change |

DESE guidance
(You'll need to download the file from the list at the bottom of the page.)

The OpenSciEd approach to these standards will look...

More Like This
Students gather, analyze, and evaluate data from maps, graphs, physical models, videos, and simulations to identify where tsunamis occur, how they form, and what communities are at most risk.
Students engage in engineering design processes to examine existing structural, technological, and communication & education-based systems solutions to mitigate tsunami effects. Students will then apply what they learned to another natural hazard.

Less Like This
Students reading from textbooks about different types of natural hazards and what damage they can potentially cause.
Students taking quizzes to identify different natural hazards, parts of communication systems, etc.
Students completing tasks that focus on what different natural hazards are, rather than why they happen, their impact on people and how to minimize that impact.

In the Teacher Edition for each lesson, you will find:
- On the first page, information about the lessons that come before and after this one
- Immediately following, the Lesson Level Performance Expectations (LLPEs) show what students will do in this lesson; these can be used as daily objectives.
- Detailed materials list and notes on materials prep for this lesson
- Learning Plan Snapshot for an overview of each part of the lesson including timing and materials needed
- Where We Are Going and Where We Are NOT Going: This is really important for defining the goals of this lesson in the context of the unit. Refer to this often while planning for discussions!
- Suggested prompts and predicted student answers embedded into each lesson plan
- A list of Key Ideas for most discussions

Meeting Students’ Needs
- OpenSciEd centers the needs of Emerging Multilingual Learners. For more info, go to page 47 of the OSE Teacher Handbook.
- OpenSciEd incorporates the principles of Universal Design for Learning.

Accessing Materials
- Preview the unit materials - view only access to OSE materials for each lesson. You can make a copy of these and save them in your own drive so that you can modify the files as you wish.
- Download materials - resources are available in several different formats
- OEI Natural Hazards Teacher Shared Resources Folder - a place for teachers to upload and share teacher-created materials
Storyline Highlights/Summary

Pages 24-25 of the Unit Overview Materials describes 2 lesson sets centered around one anchoring phenomenon:

- Lesson set 1 (Lesson 1-4) centers on tsunamis, what causes tsunamis, and which communities are at risk.
- Lesson set 2 (Lesson 5-10) focuses on engineering design solutions to mitigate the effects of tsunamis and other natural hazards.

The storyline for this unit has more detail about the flow of the lessons. This lesson breakdown might be helpful for getting an overview of the lessons and for looking ahead at materials preparation.

This unit includes a lot of data analysis. If your students are less familiar or less comfortable with graphs and tables, build in some extra time for these investigations.

Critical Discussions

It can be tempting to focus on the consensus discussions toward the end of each lesson set. These ARE important, and so are the building understanding discussions that come before them. If the concepts you are trying to bring students to consensus on are not well understood, consensus discussions can actually be counterproductive. So, don’t rush through those conversations in lessons 2, 3, 5, 8, and 10!

Spotlight on the Teacher's Guide

The Unit Overview Materials document has a lot of good info!

- What should my students know from earlier grades or units? (Starts on p. 28) This section includes DCIs, SEFs, and CCCs.
- What modifications will I need to make if this unit is taught out of sequence? (Starts on p. 29.) Massachusetts moved this unit from 6th to 7th grade, so some of the necessary ideas may need to be re-activated from prior years’ learning. You may also find that students have a deeper understanding of some concepts than is predicted in the teacher’s guide.
- Assessment Opportunities: The Assessment System Overview starts on p. 36. Lesson By Lesson Assessment Opportunities starts on p. 38.

Materials Concerns

- There are very few specific materials needed for this unit. The majority of materials include the typical notebooks, sticky notes, etc. as well as student computers. There are various online simulations and data sets in this unit.
- Access to a color printer would be helpful, but not necessary, for specific lesson references, such as Lessons 1, 4, and 7.
- This document has all of the videos your students will watch throughout the unit, as well as some Teacher Preparation videos on using the online simulations.

Sidebars in the Teacher Edition

Many lessons have sidebars in the step-by-step learning plan section of the teacher’s edition. It is worth skimming that section before you teach the lesson. You'll find several types of sidebars:

- Supporting Students in... [specific science and engineering practice or cross-cutting concept]: These sidebars will often point out where students may have missing background knowledge, with suggestions for how to address those, as well as highlight connections you should help students make across lessons.
- Attending to Equity: These sidebars usually have ideas for how to help ensure the content of the lesson is accessible to all students, and may include universal design for learning tips for teaching the lesson with students who have IEPs and emerging multilingual learners.

All participants who attend PD with OEI will be signed up for the OEI-NaturalHazards Google Group - contact your specialist for more info!

Join OpenSciEd's Natural Hazards Facebook Group to participate in a national dialogue about implementing this unit!