



NOAA and PBS LearningMedia

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WGBH and PBS LearningMedia
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[@rachelbconnolly](https://twitter.com/rachelbconnolly)



What I will share with you today...

- Welcome to PBS LearningMedia!
 - A basic overview and tour of key features of the site
- NOAA @ PBS LearningMedia
 - The Marine Science Collection and Marine Explorer Interactive
- Forum on Digital Media for STEM Learning: Climate Education
- Moving forward: towards a framework for partnership
- Any questions?

All resources presented here have been curated into a single location, and I will share the URL with you. This PPT deck is included.



pbslearningmedia.org

Interactive + Relevant

- 100,000+ engaging digital resources
- Monthly: 500K site users, 2M page views

Accessible + Personalized

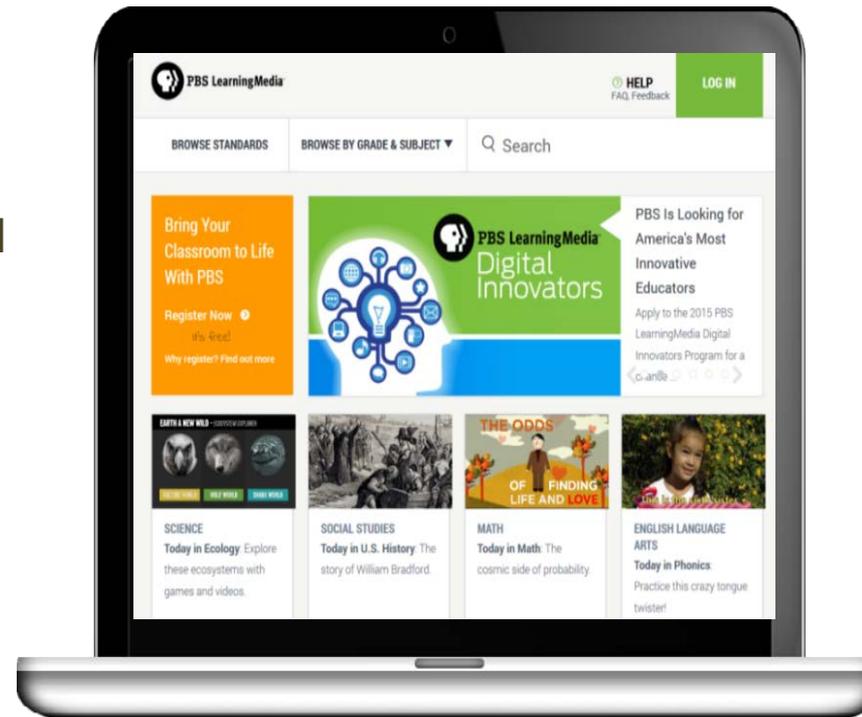
- Available anytime, anywhere supporting all learning styles

Local Community Based

- 155 stations in 55 states and territories are actively involved with PBS LearningMedia

Aligned

- National, Common Core and State Standards-aligned



Trusted Content



PBS LearningMedia™



PEEP
and the
Big Wide
World



peg + cat



Fetch!
with Ruff
Ruffman



science
FRIDAY



SciGirls



KQED

QUEST

BROWSE STANDARDS

BROWSE BY GRADE & SUBJECT ▼

Search

NEWEST CONTENT

MOST POPULAR



Summer of Reading: Get summer started on the right page with PBS LearningMedia's new Summer of Reading collection! These videos, activities, and interactive games help to build vocabulary and reading comprehension while bringing storybook characters to life. [See it here.](#)



STEM Resources

Explore the ecosystems of the world with Plum Landing! These immersive, resources blend together real-world and virtual activities.



Digital Media for STEM Learning

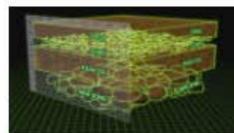
Free webinar for PD credit. July 9, 2:30 p.m. EST



WGBY Education Blog

Partner station WGBY posts a daily weekday [blog](#) covering critical topics ...

[See more from Massachusetts PBS](#)



SCIENCE

Today in Archeology: Discover how Inca architecture stood the test ...

Watch the video



SOCIAL STUDIES

Today in World History: Learn about the liberalization of Arabic ...

Watch the video



MATH

Today in Math: Explore the Fibonacci sequence in nature.

Watch the video



ENGLISH LANGUAGE ARTS

Today in Literature: Learn about Ernest Hemingway's public persona.

Explore the media gallery

- Free account (1.7 million currently)
- Browse by standards or grade & subject
- Localized
- Dashboard offers access to your favorites, folders, and teacher tools

Browse by grade & subject



 **DASHBOARD**
Favorites, Profile, Tools

 **HELP**
FAQ, Feedback

LOG OUT

WGBH

WGBY 57



BROWSE STANDARDS

BROWSE BY GRADE & SUBJECT ▲

 Search

Grades

- | | | |
|---|-----------------------------|------------------------------|
| <input checked="" type="checkbox"/> Pre-K | <input type="checkbox"/> K | <input type="checkbox"/> 1 |
| <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| <input type="checkbox"/> 5 | <input type="checkbox"/> 6 | <input type="checkbox"/> 7 |
| <input checked="" type="checkbox"/> 8 | <input type="checkbox"/> 9 | <input type="checkbox"/> 10 |
| <input type="checkbox"/> 11 | <input type="checkbox"/> 12 | <input type="checkbox"/> 13+ |

Subjects

- | | |
|--|---|
| <input type="checkbox"/> The Arts | <input type="checkbox"/> English Language Arts and Literacy |
| <input type="checkbox"/> Health and Physical Education | <input type="checkbox"/> Mathematics |
| <input type="checkbox"/> Preschool | <input type="checkbox"/> Professional Development |
| <input type="checkbox"/> Science | <input type="checkbox"/> Social Studies |
| <input type="checkbox"/> World Languages | |

SEARCH SELECTED GRADES AND SUBJECT

Grades

- PreK
- K
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13+

Subject

- English Language Arts and Literacy (376)
- Health and Physical Education (632)
- Mathematics (211)
- Preschool (326)
- Professional Development (523)
- Science (10,233)**
- Earth and Space Science (10,111)
- Engineering (10,107)
- Life Science (10,100)
- Physical Science (10,052)
- Social Studies (1,653)
- The Arts (299)
- World Languages (26)

Media Type

- Video (6,419)
- Webpage (1,463)
- Document (657)
- Interactive (607)
- Audio (515)
- Media Gallery (318)
- Lesson Plan (259)
- Image (209)
- Collection (122)
- Self-Paced Lesson (23)

10233 results

Sort by: Relevance

Subject: Science

Turn images off



DOCUMENT

RELATIVITY AND THE COSMOS

Albert Einstein's General Theory of Relativity, which develops from the idea that gravity is equivalent to acceleration, was the first major new theory of gravity since Isaac Newton's ...

GRADES 6-12

PROVIDED BY: NOVA



LESSON PLAN

SEEING THE WAY | A BRIEF HISTORY OF CATARACT SURGERY

In this lesson plan based on the documentary Through My Eyes: The Charlie Kelman Story ...

GRADES 9-12

PROVIDED BY: WNET



VIDEO

00:03:46

TERI AND JAIRUS: BIOME BUDDIES

This video segment from ZOOM compares and contrasts some of the more interesting climatic and ecological characteristics of the Death ...

GRADES K-8

PROVIDED BY: Zoom



VIDEO

00:04:54

NOVA: WHAT DARWIN NEVER KNEW | SWITCHING GENES ON AND OFF

In this video segment adapted from NOVA, evolutionary scientist Sean Carroll investigates why one species ...

GRADES 8-13+



VIDEO

00:08:53

THE WILD SUBURBAN KOALA

This enhanced video resource from Nature: Cracking the Koala Code explores the changing koala habitat. The negative effects of forest clearing in Australia are discussed, as well as the declining ...

GRADES 5-12



VIDEO

00:01:26

CURIOS GEORGE: SHADOW TRICKS

In this video from Curious George, children explore the relationship between light and shadows, and learn that observations can sometimes ...

GRADES K-5

Browsing Science

You can drill down four levels deep into our curriculum hierarchies

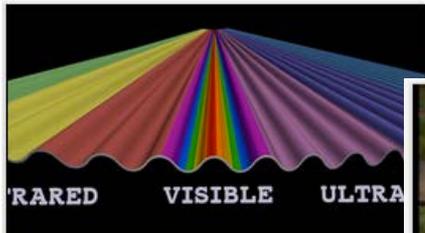
For example:

1. Science
2. Earth and Space Science
3. Earth in the Universe
4. Earth in the Solar System

NGSS aligned Curriculum Hierarchy launching in 2016!

- Science (10,233)
 - Earth and Space Science (10,111)
 - + Earth System, Structure, and Processes (10,039)
 - Earth in the Universe (10,038)
 - Changes in Earth and Sky (9,548)
 - Composition of the Universe (9,686)
 - Conditions Necessary for Planetary Life (9,694)
 - Cosmology and Gravity (9,830)
 - Earth in the Solar System (9,509)
 - Earth's Movement (9,598)
 - Origins and Evolution of the Universe (9,733)
 - Physical Composition of the Solar System (9,380)
 - Satellites and Space Research Technology (10,003)
 - Solar Energy (8,965)
 - The Solar System (9,878)
 - + Nature and History of Science (9,962)
 - + Water Cycle, Weather, and Climate (10,111)
 - + Engineering (10,107)
 - + Life Science (10,100)
 - + Physical Science (10,052)

Designed for Digital



RARED VISIBLE ULTRA

LESSON PLAN 00:03:2

NOVA SUN LAB LESSON PLAN

In this media-rich lesson plan from NOVA's Sun Lab, students use short videos to explore the following topics: the Sun's structure, solar flares, coronal mass ejections, Earth's ...

GRADES 6-12

PROVIDED BY:
NOVA



VIDEO 00:03:3

FROZEN FROGS

In this video adapted from NOVA scienceNOW, learn how the common wood frog survives the cold winter. Wood frogs are found in the northern United States and Canada and must ...

GRADES 6-12

PROVIDED BY:
NOVA scienceNow



NOVA 0 PTS. TOTAL SCORE

WHAT'S THIS STUFF?

INTERACTIVE

WHAT'S THIS STUFF?

In this interactive activity adapted from NOVA, learn about properties of materials such as tensile and compressive strength, toughness, hardness, ductility, malleability, flexibility, electrical and thermal conductivity, and resistance to ...

GRADES 6-12

PROVIDED BY:
NOVA



INTERACTIVE

NOVA ELEMENTS

Learn about chemical elements and molecular structure in this interactive activity from NOVA. Explore an interactive periodic table to learn more about each element, including its properties, uses, and other ...

GRADES 6-12

PROVIDED BY:
NOVA





★★★★★ Average of two ratings: 5 stars



Global Ocean Circulation



In this video from NOVA: "Earth From Space," learn about patterns of global ocean circulation, which distribute heat around the planet. Differences in the density of water masses drive large-scale ocean currents. Dense water forming over the continental shelf of Antarctica is exported to the adjacent deep ocean, creating streams of very cold water that spread northward along the sea floor into the global oceans. Visualizations show the constant motion and flow of ocean currents.

The ocean and the atmosphere are closely connected and are responsible for maintaining Earth's relatively stable climate, providing a hospitable environment for life.

NOVA



Info

Grades
6-12

Accessibility
Caption

Permitted Use
Stream,
Download and
Share

218 Favorites
16769 Views

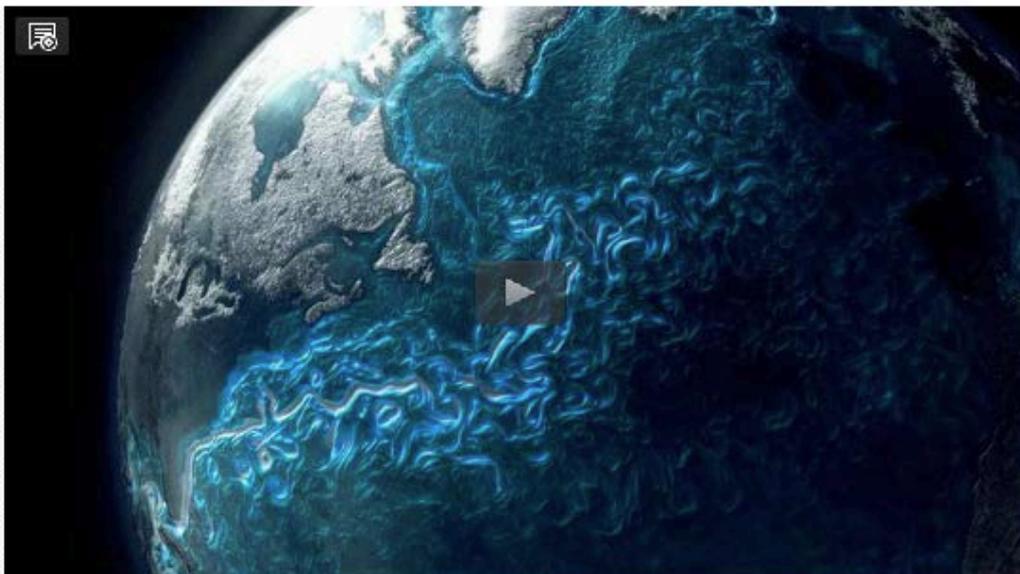
Credits

Funded By



This video is available in both English and Spanish audio, along with corresponding closed captions.

Visit the program page [here](#).



Download

Also Available in English | [Spanish](#)

[+ Support Materials](#)

You might also like

[+ Educational Standards](#)



Earth's Cryosphere: Antarctica

Share or Favorite



★★★★★ Average of two ratings: 5 stars

Global Ocean Circulation

In this video from NOVA: "Earth From Space," learn about patterns of global ocean circulation, which distribute heat around the planet. Differences in the density of water masses drive large-scale ocean currents. Dense water forming over the continental shelf of Antarctica is exported to the adjacent deep ocean, creating streams of very cold water that spread northward along the sea floor into the global oceans. Visualizations show the constant motion and flow of ocean currents.

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Download

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- Support Materials

+ Background Essay

+ Discussion Questions

+ Teaching Tips

| Spanish

tarctica

Favorites and Folders

My Favorites

All Favorites (198)

Folders

Chemistry: EDC Impact Study (32)

Comet Lovejoy Educational Resources (9)

Digital Innovators 2015: STEM (17)

DIY Science: Earth and Space Hangout (9)

Elementary Math (9)

Exploring Comets and the Rosetta Mission (30)

MA Science Ambassador's (9)

Microsoft: the living collection (9)

NASA's Orion Mission Flight Test Educational Resources (20)

NOAA and NOVA Winter Weather Hangout (19)

Pi Day 2015 (3/14/15) (12)

Pluto and the Solar System in 2015: A hangout for science educators (6)

sharemylesson (6)

Waves (8)

WPI Touch Tomorrow teacher PD (12)

sharemylesson 

Sort by Select one...

All of the resources mentioned (and a few more!) in the July 9, 2015 sharemylesson webinar, Digital Media for STEM Learning, presented by Rachel Connolly, Director of STEM Education at WGBH/PBS LearningMedia. Follow @rachelbconnolly for more STEM education goodness.

Select All

 Add to Folder

 Remove Resource

 Add a Link



Energy Transfer in a Roller Coaster

Created: 09/28/2011

Grades: 5-8

From: WGBH

Notes

In this blended lesson supporting literacy skills, students watch videos and use an interactive activity to learn how energy moves roller coaster cars along a track.



MA Science Ambassador's 

Digital Innovators 2015: STEM 

sharemylesson 



PEEP Science Curriculum

<http://peepandthebigwideworld.com/en/educators/>

Notes

The PEEP Ramps curriculum invites preschoolers to actively investigate forces and motion.



MA Science Ambassador's 

WPI Touch Tomorrow teacher PD 

sharemylesson 

Favorites and Folders

My Favorites

All Favorites (198)

Folders

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sharemylesson 

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Select All



Energy Transfer in a Roller Coaster
Created: 09/28/2011
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SELF-PACED LESSON

MA Science Ambassador's  Digital Innovators 2015: STEM 

sharemylesson 



PEEP Science Curriculum
<http://peepandthebigwideworld.com/en/educators/>

LINK

MA Science Ambassador's  WPI Touch Tomorrow teacher PD 

sharemylesson 

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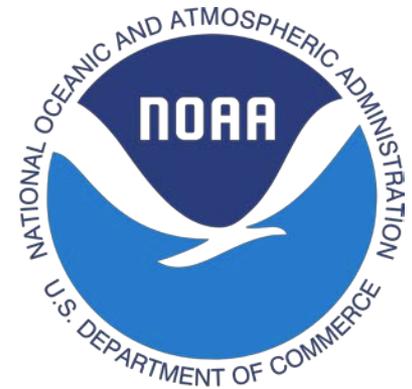
The PEEP Ramps curriculum invites preschoolers to actively investigate forces and motion.

Add external links (red arrow pointing to 'Add a Link' button)

Write notes (red arrow pointing to 'Notes' section)

NOAA@PBSLM

- Content Contributor Agreement Established!
- Marine Science Collection Launched
- Forum on Digital Media for Climate Education on Nov 9
- Next steps towards a framework for partnership— a baseline needs assessment.



MARINE SCIENCE COLLECTION

Browse by topic

Marine Explorer

Habitats

Exploration and Research

Human Impact

Marine Life

• Under the Microscope

• Macrobiology

— Marine Science

Take a deep dive into marine science with this new collection page, bringing together content from new documentary series, trustworthy research organizations nationwide, and classic PBS favorites.



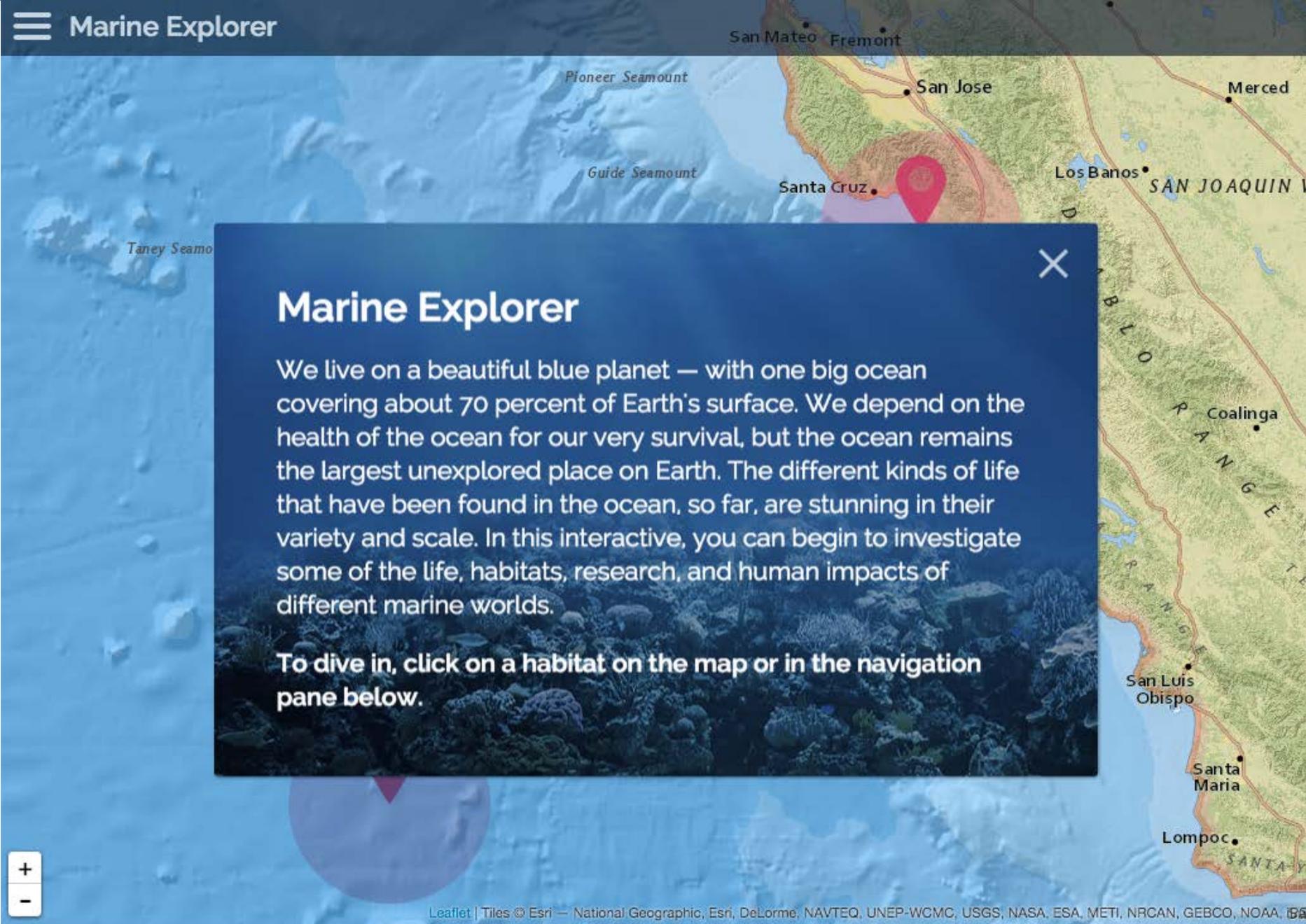
Marine Explorer

Dive into this interactive video player and explore three ecosystems off the coast of Monterey Bay, California. Take a trip to the rocky coastline, the deep sea, and the open Pacific ocean and explore videos to broaden your understanding of marine biomes. Investigate the animals, habitats, research, and human impacts of different marine worlds.

GRADES: 6-12



Modeling Marine Food Webs and Human Impacts on Marine Ecosystems | Lesson Plan



Marine Explorer

We live on a beautiful blue planet — with one big ocean covering about 70 percent of Earth's surface. We depend on the health of the ocean for our very survival, but the ocean remains the largest unexplored place on Earth. The different kinds of life that have been found in the ocean, so far, are stunning in their variety and scale. In this interactive, you can begin to investigate some of the life, habitats, research, and human impacts of different marine worlds.

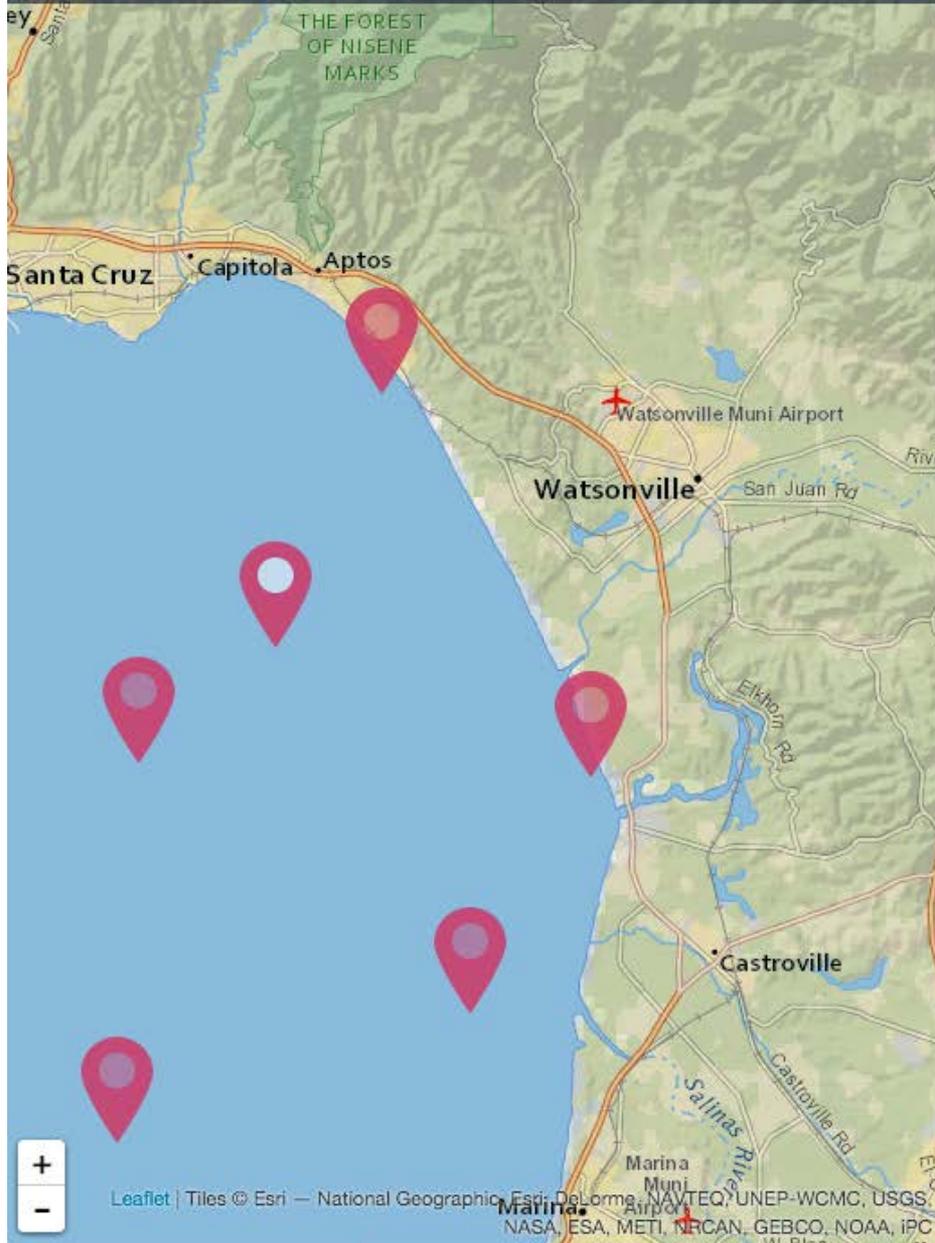
To dive in, click on a habitat on the map or in the navigation pane below.



Coastal

Open Ocean

Deep Sea



Saving Sea Turtles



How do you stop turtles from getting caught in fishing nets? The solution is to design a fishing net that allows sea turtles that have been caught accidentally to escape. These turtle excluder devices, or TEDs, consist of a grid of bars in the net that direct turtles toward an opening in the net. TEDs were developed in the 1980s and 1990s and are now required by federal regulations for fishing. Each year, new and improved designs are tested, reducing turtle deaths due to shrimp nets by almost 100 percent. That's really good news for sea turtles!



Suite of NGSS lesson plans that address topics of Ecosystems and Earth and Human Impact storylines:

- Elementary
- Middle
- High School

Diversity and Adaptations in Marine Habitats

Overview

In this lesson, students will investigate adaptations of animals that live in two different ocean habitats. Using the videos, imagery, and creature profiles provided, students will observe and describe some of the external structures that support the survival of these marine animals in their ocean habitat.

Modeling Marine Food Webs and Human Impacts

Overview

In this two-part lesson, students will develop food webs and investigate human impacts on marine ecosystems. In Part I, students will explore the ecological role of organisms in an ocean habitat and use information provided on Food Web Cards to develop food chains. In Part II, students will model the interconnected feeding relationships in the open ocean ecosystem by developing food webs and then use their food webs to explore the impact that different scenarios have on the ecosystem.

Designing Solutions: The Marine Debris Problem

Overview

In this lesson, students will use the design process to evaluate, develop, and refine solutions to the major global challenge of the marine debris threatening our ocean and marine life. They will use media and resources (that are provided) to analyze the issue and specify the criteria and constraints of their solutions. Finally, teams will present their solutions and, through a peer-review process, receive evaluation and feedback from other students. The outcome of this class design process will be student-designed solutions that address the human impact of marine debris on the environment and biodiversity.

2015 FORUM ON
DIGITAL
MEDIA FOR

STEM

LEARNING

Climate Education

Monday • November 9th

8:00AM- 5:00PM • #WGBHStemEd



Register at stemdigitalmedia.wordpress.com

Join the conversation #WGBHstemEd



In-person & streamed event



3 strands:

Anchoring Keynote for Foundational Theory

3 short “TED-style” case studies that focus on practice

Live streamed and online interaction via #

Value-added “Unconference” session supports for networking and collaborating

Audiences & Takeaways

(maps to editorial strategy)

STEM educators, principals, & administrators

Why and how should I incorporate digital media into curriculum and instruction?

PBS Stations & STEM media producers

What are best-practices for designing and producing digital media for STEM Learning?

STEM education researchers and policy makers

What are we learning about the impact and potential for digital media for STEM Learning?

Dr. John Holdren

White House, OSTP

Dr. John P. Holdren is Assistant to the President for Science and Technology, Director of the White House Office of Science and Technology Policy, and Co-Chair of the President's Council of Advisors on Science and Technology (PCAST). Prior to joining the Obama administration Dr. Holdren was Teresa and John Heinz Professor of Environmental Policy and Director of the Program on Science, Technology, and Public Policy at Harvard University's Kennedy School of Government, as well as professor in Harvard's Department of Earth and Planetary Sciences and Director of the independent, nonprofit Woods Hole Research Center.

Dr. Holdren holds advanced degrees in aerospace engineering and theoretical plasma physics from MIT and Stanford. He is a member of the National Academy of Sciences, the National Academy of Engineering, and the American Academy of Arts and Sciences, as well as a foreign member of the Royal Society of London and former president of the American Association for the Advancement of Science. His awards include a MacArthur Foundation Prize Fellowship, the John Heinz Prize in Public Policy, the Tyler Prize for Environmental Achievement, and the Volvo Environment Prize.



Office of Science and Technology Policy

Standards and Storylines

Climate Education and the NGSS

- Dr. Brian Reiser, Northwestern

Elementary climate narratives

- Jenny Cutraro, Plum Landing/WGBH

What is a “green school”?

- Academy for Engineering and Green Technologies

Teaching climate: digital tools for instruction

- Frank Niepold, NOAA Climate Education Coordinator



Emerging Platforms and Products

The data infrastructure for climate education

- Ryan Wyatt, California Academy of Science

Climate Interactive: simulation-driven, authentic experiences

- Juliette Rooney-Varga, UMass Lowell
- Angélica Allende Brisk, Cambridge Rindge & Latin School

Climate change games as tools for education and engagement

- Jason Wu, Columbia University Teachers College

My NASA Data: data-integration in curricula

- Dr. Lin Chambers, NASA Langley



Modes of Engagement

Alliance for Climate Education (ACE)

- Matt Lappe and Melinda Lilly

Young Voices for the Planet

- Lynne Cherry

PBS News Hour Student Journalism Project

- Thaisi Da Silva



Questions?



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[@rachelbconnolly](https://twitter.com/rachelbconnolly)

