Explore Science MCU's!

Grade 4 Weathering and Erosion and

Grade 7 Invasive Species: A Study of Ecosystem Dynamics

Science MCUs have been added to the website, and more are coming soon! Take a look at two MCUs that are available now; these two exciting and important units will help students better understand the impact that environmental and human factors have upon the natural world.

Weathering and Erosion (ESS 4)

Fourth graders are deeply curious about the world around them, and this unit helps answer big questions about how the earth was formed and how it continues to change. By investigating and understanding the forceful processes that cause rocks, soil, and sediment to be broken into smaller pieces, young geologists will learn that the earth is constantly changing. Wind, precipitation, frost wedging, abrasion, and water waves will be among the topics studied. This unit includes a series of investigations that evaluate how the earth’s material is moved from one place and deposited elsewhere, demonstrating that the earth is still in flux.

Mountains, valleys, glaciers, and entire landforms are more transitive than they appear to fourth grade eyes. By studying the effects of weathering and erosion, students can make informed conclusions, and present findings about which processes have caused alterations in landforms across the world. This multi-modal approach is reflective of how revised standards are being implemented in many science MCUs.

Invasive Species: A Study of Ecosystem Dynamics (LS 7)

Our environment is full of blooming, creeping, crawling, and swimming species that are non-native. In this unit, seventh graders explore ecosystem dynamics through the urgent issue of invasive species. The effects of non-native species on resource availability, changes in ecosystems, and their impact on native populations will be closely evaluated using research, models, data analysis, and a written report.

The “walking fish” (northern snakehead) and the zebra mussel are examples of the impact invasive species are having in the United States. Reading and research conducted on these and a number of additional high profile invasive species will orient students to the critical situation. Each student will collect data and look at the

Unfamiliar with Model Curriculum Units?

As part of a Race to the Top Grant, the Massachusetts Department of Elementary and Secondary Education (ESE) has developed over 100 Model Curriculum Units (MCUs.) Using the Understanding by Design model developed by Grant Wiggins and Jay McTighe, these MCUs were created by teams of teachers from across the Commonwealth with the assistance of the ESE.

There are many MCUs, spanning grade bands and curriculum areas! Get them on the Model Curriculum section of the ESE website.

Is Your School or District Using the MCUs?

Did you know that teaching one of ESE's MCUs is a great way to address your Professional Practice or Team Professional Practice goal?

DID YOU MISS THE MCU PRESENTATION WITH THE DESE'S KAREN WHITE AT NCSS? You can learn more about HSS MCUs by watching this webinar, hosted by Karen.

Email: modelcurr@doe.mass.edu Web: http://www.doe.mass.edu/candi/model/ November 2014
impact of a species on its adopted environment.

Digital media is available to assist with evaluating changes in invasive species' population sizes and impacts on ecosystem dynamics. Students are encouraged to act as ecologists when they hypothesize control or eradication measures for specific species.

Through scientific inquiry and independent research, each student will explore how a specific invasive species became invasive and the role humans and technology played in its biological invasion. As part of their projects, multiple solutions for controlling an invasive species will be evaluated, and findings will be presented in class.

What Are the Science MCU Topics?

Did you know that there are currently twelve Science MCU's available on-line, with more coming soon? Here is a list:

**SCIENCE MCU's CURRENTLY POSTED**

| PreK LS | My Five Senses (Content Literacy Science) |
| PreK PS | Sound and Music |
| K LS | Life Cycles (Content Literacy Science) |
| K PS | Sunlight Warms Earth’s Surface |
| 1 LS | Informational Text, Research, and Inquiry Circles: Animals and Habitats |
| 2 LS | Animals Depend on their Habitats (Content Literacy Science) |
| 3 LS | Effect of Changes in an Environment on the Survival of Organisms |
| 3 ESS | Extreme Weather (Content Literacy Science) |
| 4 ESS | Weathering and Erosion |
| 5 Intgr | Plants Make Their Own Food |
| 7 LS | Invasive Species: A Study of an Ecosystem's Dynamics |

**SCIENCE MCU'S COMING (VERY!) SOON:**

2 ESS Effects of Wind and Water Movement on Earth’s Landscape

2 PS Investigating Material Properties

7 T/E Capture the Heat Design Challenge

HS IP Energy Transfer and Conservation of Energy

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Implementing State Science Standards: Jacob Foster Speaks at the Forum on Digital Media for STEM Learning

In this brief (7 minute) presentation at the Forum on Digital Media for STEM Learning held at WGBH in September, Jacob Foster, Science Content Lead for the Model Curriculum Unit project, addresses the ways in which digital media can contribute to STEM learning on a system-wide level. In addition to speaking about how digital media might facilitate introducing elements of the state standards that are difficult or new, he also discusses ways digital media can support the classroom rollout and implementation of any new state standards.

Foster oversees development of all science MCU's and he's uniquely qualified to discuss the importance of using digital media to assist students in accessing resources, building networks, locating and creating illustrations, and helping visualize scientific phenomena.

Jacob Foster is Assistant Director, STEM at the Massachusetts Department of Education. He oversees development of all science MCU's. He was a secondary science teacher as well as a science teacher educator prior to becoming a state education administrator.