

AMSER Spotlight: DLESE

AMSER frequently teams up with other digital collections so we can bring the excellent materials from these collections to AMSER users. In each issue of our quarterly, we highlight a collection we have integrated into AMSER. This issue we are highlighting the DLESE collection. DLESE, or the Digital Library for Earth System Education, is a "distributed community effort involving educators, students, and scientists working together to improve the quality, quantity, and efficiency of teaching and learning about the Earth system at all levels."



DLESE supports earth system science education in a number of ways including: providing access to high-quality collections of education resources; providing access to Earth data sets and imagery; generating support services to help educators and learners effectively create, use, and share educational resources; and developing communication networks to facilitate interactions and collaborations across all dimensions of Earth system education. Resources within the DLESE collection include materials for both educators and learners and consist of lesson plans, images, data sets, assessment activities, curriculum, online courses, and more. DLESE is operated by the National Center for Atmospheric Research (NCAR) Computational and Information Systems Laboratory and the NCAR Library. DLESE is an excellent collection of Earth Science resources

and AMSER has partnered with them to integrate their high quality materials into AMSER's own library. Some examples of these outstanding materials include:

Windows to the Universe: Teacher Resources

http://www.windows2universe.org/teacher_resources/main/teacher_resources.html

This section of the Windows to the Universe website provides information and resources for teachers including activities about astronomy, earth and physical science, and NASA. Users will find climate change web seminars, literacy frameworks for Earth Science Education, classroom activities, educational links, and much more. Links at the top of the page allow users to choose materials for beginning, intermediate, or advanced students.



Windows to the Universe is a user-friendly learning system pertaining to the Earth and Space sciences. The objective of this project is to develop an innovative and engaging web site that spans the Earth and Space sciences and includes a rich array of documents, including images, movies, animations, and data sets that explore

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the Earth and Space sciences and the historical and cultural ties between science, exploration and the human experience. Many of the resources here are also available in Spanish.

Virtual Chemistry Laboratory

<http://iry.chem.cmu.edu/vlab/vlab.php>

This networked laboratory simulation provides an environment for students to select from hundreds of standard chemical reagents and combine them in any way they see fit. Instructors may use this in a variety of settings including student homework, group projects, computer lab activities and pre- and post-lab exercises to support varied approaches to chemical education. Activities are stored in an online homework repository which currently includes: acids and bases, chemical equilibrium, molarity, thermochemistry and much more.

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In-depth Physics Lessons

http://www.meted.ucar.edu/hao/aurora/sb_index.htm

This collection of four condensed physics lessons is offered as a companion to MetEd's Physics of the Aurora: Earth Systems learning module, and was developed especially for use by university physics educators. The lesson topics are Charged Particle Motions, Magnetic Force, the Frozen-field Theorem, and Static Atmospheres. Each lesson includes interactive formula derivations, exercises, and open-ended questions. A fast free registration is required to access the materials.

Waves and Wave Motion

http://www.visionlearning.com/library/module_viewer.php?mid=102

This module comes from Visionlearning, an educational resource funded by the National Science Foundation. This particular module introduces the history of wave theories, basic descriptions of waves and wave motion, and the concepts of wave speed and frequency. The module, available in Spanish, also includes illustrations, embedded definitions of key terms, additional links, and questions & quizzes.

You can find DLESE at:

<http://www.dlese.org>

Do you know of a great collection of resources that you'd like to see integrated into AMSER? Do you have a learning object that helps students truly understand a specific concept? If so, e-mail us at resources@amser.org, or follow the link at the bottom of the AMSER home page to submit a resource suggestion.

AMSER Features: Aerodynamics

Within the AMSER Collection, AMSER staff and users have created a series of Featured Folders. These folders aim to illustrate a given topic by combining multiple resources about a related topic into a single folder. The individual resources in each folder were selected from within AMSER to demonstrate various aspects of each Featured Folder's topic. For more details on how to use and find AMSER's Featured Folders, see the Summer 2008 issue of the AMSER Quarterly, which can be found at <http://amser.org/AQSummer08.pdf>.

In this issue of the AMSER Quarterly, we highlight our Featured Folder on Aerodynamics, one of over 50 Featured Folders within the AMSER collection. This Featured Folder provides links to resources that help illustrate many of the principles behind aerodynamics, its applications, and incorporate some fun into learning as well. Resources within this folder include:

Principles of Aeronautics

<http://wings.avkids.com/Book/Sports/>

In addition to flying, Aerodynamics also has applications in sports. This website, from The National Business Aviation Association, explains these sports applications. Aeronautics principles are applied to many different sports on this site, including: tennis, swimming, car racing, sailing, baseball, discus, and golf, among others. Images and diagrams are also provided to facilitate a greater understanding of the topic.

Science of Cycling: Aerodynamics

<http://www.exploratorium.edu/cycling/aerodynamics1.html>

This website, from the Exploratorium, reviews the aerodynamics of cycling. Wind resistance is often one of the biggest challenges that professional

and amateur cyclists face. This site lets users "Calculate the Aerodynamic Drag and Propulsive Power of a Bicyclist", by calculating resistance using different inclines, velocity, weight or wind velocity. At the bottom of the page, you can find useful information and tips on reducing resistance.

Aerodynamics: The Mathematical Implications

<http://www.cis.yale.edu/ynhti/curriculum/guides/1988/6/88.06.07.x.html>

This unit from the Yale-New Haven Teachers Institute is "an attempt to develop a unit in mathematics that will provide topics for students interested in the aviation trades." The unit covers all areas of mathematics from geometry sectors to basic addition of fraction and decimal numbers. These general math concepts are introduced using aerodynamics and aviation language and students will begin "to understand the applicability of some of the mathematics concepts they have learned." This curriculum unit also includes sample lesson plans and references.

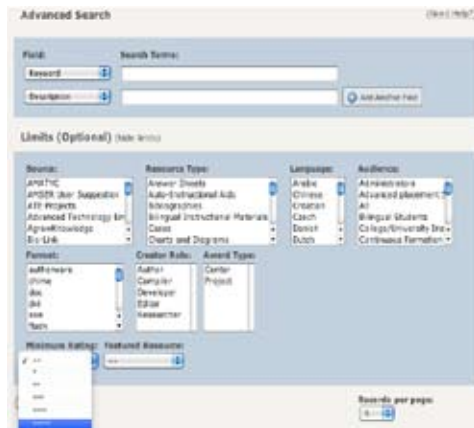
To view all the resources from this folder or to see all the AMSER Featured Folders visit <http://amser.org/index.php?P=AMSER--FeaturedFolders>.

Don't forget to become a fan of the Applied Math and Science Education Repository (AMSER) on Facebook at <http://www.facebook.com/AMSER> - or follow us and our tweets on Twitter @AmserDotOrg. We'll keep you connected with updates on AMSER resources, AMSER events, and all things new in AMSER.

AMSER User's Corner

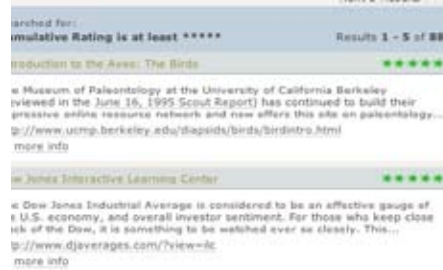
In previous issues of the AMSER Quarterly, we have asked STEM educators to share some of their favorite resources from within the AMSER collection. In this issue, we instead highlight individual resources that our users have rated highly using AMSER's rating system.

Once a user has created a login to the AMSER site they gain access to many additional features. One of these features is the ability to rate the resources that they found particularly useful. This system of ratings benefits future users of the resource as they can see what has already been useful to others and they can also search by



ratings within the Advanced Search system in AMSER. There are two ways to rate a resource in AMSER: they may be rated directly from any list of resources by clicking on the star rating you wish to give the resource, or users can search for a particular resource and display the full record (by clicking on "More Info") and scrolling to the bottom to the ratings section. The more resource ratings AMSER provide, the more valuable AMSER becomes for the community as a whole. If you would like to see all of the resources rated highly in AMSER, just go to the "Advanced Search" (found at the top right of any page) and click "Show

Limits". From here, find the drop down menu labeled "Minimum Rating" and click on how many stars you prefer. Users can further limit this search by entering in specific keywords. If you find resources that you enjoyed or found exceptionally useful, we encourage you to rate them yourself so other AMSER users can benefit from your feedback.



Here you will find a small sample of some of the resources that AMSER users have given a five-star rating:

Amazing Cells

<http://teach.genetics.utah.edu/content/begin/cells/>

The University of Utah's Teach.Genetics website is a companion to their Learn.Genetics website, and both are part of the Genetic Science Learning Center. Visitors will find that Amazing Cells is one of at least a dozen lessons available on genetics for K-12 and higher education teachers, as well as public educators. The Amazing Cells lessons on Teach.Genetics are "print-and-go" lessons that are a supplement to the Amazing Cells online lessons found in Learn.Genetics. There are multiple exercises under the



broader topics of "Cells Are Complex & Dynamic" and "Cells Communicate". Some of those activities include "Build-A-Membrane", where students create a 3-D cell membrane embedded with proteins. The "Dealing Signals" activity makes use of a deck of ordinary playing cards to introduce students to cellular interactions. The "Scientist Talk Videos" are talks originally recorded at the Amazing Cells Master Workshop, and cover such topics as "An Introduction to Cell Signaling" and "Cell Signaling: Research and Applications".

Get Body Smart: Respiratory System Tutorials and Quizzes

<http://www.getbodysmart.com/ap/respiratorysystem/menu/menu.html>

Don't know your trachea from your bronchioles? Never fear, as this informative and delightful interactive website from Get Body Smart contains interactive learning exercises designed to help users learn about the respiratory system. The site features eight tutorials that feature both explanatory text passages and well-



labeled illustrations. These tutorials cover the major respiratory zones and divisions, the larynx, the pharynx, the nose, and four other parts of the respiratory system. After looking through these tutorials, visitors may wish to take the visual quizzes, which come in multiple choice and short

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User's Corner

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answer formats. For those hoping to learn more about other body systems, they will want to take a look at the additional links offered here.

The Natural History Museum in London: Butterflies and Moths of the World

<http://www.nhm.ac.uk/research-curation/research/projects/butmoth/>

This Butterflies and Moths of the World website was created by Brian Pitkin and Paul Jenkins of the Natural History Museum in London (NHM). The site was designed "to compile a comprehensive interactive catalogue of all the published genus-group names of Lepidoptera from Linnaeus, 1758, up to the present, and to provide full-colour images of representatives of most included families." This online catalog contains over 30,000 entries and over 400 full-color images. Additionally, a bibliography is included that provides over 6,000 references. Visitors can conduct searches for a specific genus, type-species, bibliographical reference, or image.



Would you like to be featured in a future AMSER Quarterly? We'd love to hear from you and learn about your favorite AMSER resources and how you've been using them in an educational setting. Please e-mail us at amser@amser.org for details.

Calendar of AMSER Events

Where in the world is AMSER?

We'll be at various conferences and meetings this year and we'd love to talk to you about what you're doing with digital resources and how we can make AMSER more useful to you and your students. Here's where we'll be and when:

| July | August | October |
|---|---|--|
| HI-TEC Conference July 26-29, 2010 Orlando, Florida Visit us at our booth (#201) in the Exhibit Hall. | Annual Conference on Distance Teaching and Learning August 4-6, 2010 Madison, Wisconsin Visit us at our booth (#505) in the Exhibit Hall. | ATE Conference October 27-29, 2010 Washington D.C. STEMtech Oct 31-Nov 3, 2010 Orlando, Florida |

For more AMSER events and links go to <http://www.amser.org/events>

Contact Information

Have a question? Want to share information about how you're using AMSER or other digital materials in your classroom? Please contact us!

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