

CLIMB: Online Concept Mapping Tool

The Center for Ocean Sciences Education Excellence (COSEE) Ocean Systems has developed a free online suite of tools known as the "Concept Linked Integrated Media Builder" or "CLIMB" to help scientists, educators and students deconstruct and present science content using concept maps. Instructions to connect to this web-based resource are below.

To access and edit the concept maps presented in today's session, as well as create your own maps, login to CLIMB using the account below.

- Click on "Log In" on the top right of the homepage.
- Enter username: **neosec_summit_2012**
- Password: **2012**

Once you have logged in, click on "My Maps" to access the concept maps in the profile.

| STATUS | TITLE/INFO (click map title to view map detail page) | AUTHOR | MOD. DATE | ACTIONS |
|--------|--|---------------------------------|-----------|---------|
| | Example Map Map ID: 5818 | Curriculum Development Workshop | 7/14/2011 | |

To create a new map, click on the "Create New Map" button to the right.



To edit a concept map you have already created, click on the edit button to the right.

The system will bring you to the **Concept Map Builder** workspace where you can create or edit your map.

In the Concept Map Builder:

To save your changes, click "Save Map"

You can also add a title and description of the map (see the image to the right for an example).

To overwrite the current map, select "replace existing."

To create a new version of this map, select "save as new"

Tip: This software is web-based, so remember to save often!

SAVE CONCEPT MAP

TITLE: Ocean salinity map

Short Description for Menu Rollover:
Description of my salinity map. Created by Carla Compainon.

SAVE TYPE:
 Save As New Replace Existing

CANCEL SAVE MAP

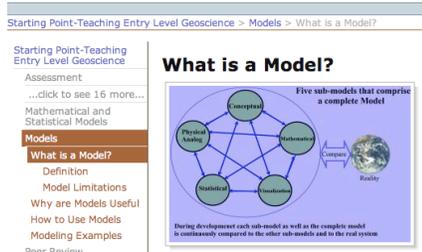
Basic Scientific Modeling Resources:

Website Resource: What is a Model?

<http://serc.carleton.edu/introgeo/models/WhatIsAModel.html>



Description: Website that helps educators explore the basics about different types of models, with emphasis on teaching in the geosciences. (*Science Education Resource Center (SERC): Starting Point: Teaching Entry Level Geosciences*)



Great quotes listed on this website:

- "Make your theory as simple as possible, but no simpler." - A. Einstein
- "For every complex question there is a simple and wrong solution." - A. Einstein
- "All models are wrong but some are useful." - George E.P. Box

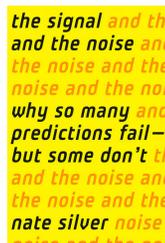
"A model can come in many shapes, sizes, and styles. It is important to emphasize that a model is not the real world but merely a human construct to help us better understand real world systems."

Book: Modeling the Environment

Author Andrew Ford gives a philosophical discussion of what models are and why they are useful. The first few paragraphs of Chapter 1 of Ford's book are worth a look. (Recommended by SERC "What is a Model?" authors above)

"A model is a substitute for a real system. Models are used when it is easier to work with a substitute than with the actual system. An architect's blueprint, an engineer's wind tunnel and an economist's graphs are all models. They represent some aspect of a real system -- a building, an aircraft or the nation's economy. They are useful when they help us learn something new about the systems they represent."

Ford, Andrew, 2009 (2nd edition): *Modeling the Environment*. Island Press, Wash D.C <http://public.wsu.edu/~forda/AA2nd.html>



Book: The Signal And The Noise: Why Most Predictions Fail—But Some Don't

NPR Book Summary: The founder of [the blog] *FiveThirtyEight.com*, Nate Silver, challenges myths about predictions in subjects ranging from the financial market and weather to sports and politics, profiling the world of prediction to explain how to distinguish true signals from hype.

This book includes chapters that talk about weather, climate, and other scientific predictions, as well as ones about politics, sports and other real-world situations.

Teaching Resources about Earth Science Models/Modeling:

http://serc.carleton.edu/introgeo/browse_examples.html?search_text=model&q1=sercvocabs_44%3A3

Introductory Lesson Plan: "Deriving Common Model Characteristics"

<http://serc.carleton.edu/NAGTWorkshops/complexsystems/activities/SBFs.html>

Summary: Great for students just starting to understand model basics. In this activity, students brainstorm ideas about what models are (and are not) and what elements are common to most models of biological systems. Further, students derive the criteria that the learning community (instructor and student) will use to evaluate models, both those created by us and those created by others.

COSEE-OS Webinars

Since 2010, COSEE-OS has invited scientists, graduate students and educators to give concept-map based talks about their science or area of study – many of which included models in the discussion of their research. The archives of these materials (including the full webinar videos, related resources, and concept maps) can be found on the COSEE-OS site.

<http://cosee.umaine.edu/programs/webinars/>