

COSEE Coastal Trends

Guidelines for module creation

Scientist-Educator Partnership Program

Guidelines for Module Creation

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Introduction

Welcome to the Scientist-Educator Partnership team. Through this program, we hope the six-week experience will help improve and expand integration of ocean research and education. During this time, the team will be conducting research and collaborating to develop educational “modules,” which will be based on the team’s research topic and will include web pages and classroom activities.

This guidebook will give the team general guidelines and instructions for developing and uploading content for web pages and classroom activities. The concept map that the team creates during the orientation program should serve as a guide in developing web page content, and the COSEE Coastal Trends online “module template” will help structure the content and make uploading content easy for everyone.

If you have any questions at any point, contact your Scientist-Educator Partnership Liaison or COSEE Coastal Trends staff.

What is a “Module”?

A module is a small website consisting of three pages that the Scientist-Educator Partnership team will create based on the research topic that the team will be working with over the summer. Two pages contain information and images to help users learn the basics about the research topic, what trends are associated with the topic, and how scientists conduct research on the topic. The third page consists of three lesson plans that the educator team member will create in collaboration with all other Scientist-Educator Partnership team members. Our goals in having teams create modules are: 1) to provide a structured project that will encourage communication among team members and 2) to generate a resource that disseminates the science associated with the research topic to a broad audience.

The Module Template

We have developed a user-friendly content management system, the *online template*, to allow team members to easily upload content to each module web page. The team will not be required to design the module layout or choose fonts, etc—these design elements are pre-programmed into the template. The template lays out the basic structure of the content by providing spaces for the team to paste text and upload images. The template indicates what content to paste into each space. Most of the specific instructions included in this guide can be found within the structure of the online template.

The template can be accessed online at:

<http://www1.coseecoastaltrends.net/mycoseeprivate/coseecontentmanager/>

To upload module content into the template, go to the drop-down menu and choose Module Template > “Your topic” > whatever page you want to edit. A new page will appear with bold headings, instructions in italics, and boxes into which you can enter text. The page also contains a section which gives you the option to upload images. If you run into any technical difficulties or

notice a problem with the structure or functionality of the template (this our first version of the template, so some unforeseen snags could surface) please contact Cassie (cgurbisz@umces.edu).

Creating web page content

Answering the investigation questions

In order to help users explore the theme, text will answer a set of investigation questions—what, why, and how? The questions in bold will be headings that appear on the web page. The team will formulate each heading to align with the research topic. For example a seagrass module would include topic headings like, “What is seagrass?” and “Why is seagrass important?”

Below and in the online template, we provide several suggestions for the type of information that might included under each heading. Every suggestion *does not* have to be addressed. **Remember there is a 100-word limit for each heading.** Writing concise text is challenging. Word crafting and editing will be required.

The “Learn” Page

The purpose of the *Learn* page is to capture the user’s interest. This page focuses on basic concepts associated with the research topic. The following will provide guidelines for answering investigation questions.

What is the [topic]? (100–word max)

Suggestion 1: Why does [topic] happen?

Suggestion 2: How does [topic] happen?

Suggestion 3: Where does [topic] occur?

Why is [the topic] important? (100–word max)

Suggestion 1: What other organisms does it affect? Why is it important in its environment?

Suggestion 2: What will knowing more about this topic help us achieve? Why should we know about this topic?

Why should you care? (100–word max)

Suggestion 1: How does [topic] impact the user?

Suggestion 2: How might [topic] influence the daily life of the user?

Suggestion 3: How might [topic] differ with global climate change?

The “Explore” Page

The purpose of this page is to give users a sense of how scientists learn about coastal ecosystems and processes and how these systems might be changing.

What is the trend? (100–word max)

Suggestion 1: How is [topic] changing?

Suggestion 2: Is it changing in the same way regionally, nationally and globally? If so, why?

What question or questions is the research trying to answer? (100–word max)

Suggestion 1: Why research [topic]?

Suggestion 2: What types of research projects are being conducted globally?

Suggestion 3: What types of research projects are being conducted regionally (by team)?

The “Teach” Page

In collaboration with the team, the teacher will take the lead in the development of a total of three classroom activity lesson plans. While the teacher has the best understanding of what types of activities are feasible in the classroom, all team members should help to develop ideas for activities and to ensure scientific accuracy. The activities should actively engage students and help reinforce the concepts introduced on the web pages.

Activity Guidelines

- The first activity should capture the interest of the user and serve as an introduction to the topic, while the other two should be more in-depth, allowing students to further explore and apply information.
- At least one activity should be inquiry-based—see <http://www.nsf.gov/pubs/2000/nsf99148/htmstart.htm>--and at least one activity should allow students to work with real data—either data that they collect or data from the internet or your team’s research.
- All three activities should involve active student participation. We encourage hands-on lab and/or field activities in which students “do science,” but also keep in mind common constraints that teachers might experience.

Format

- *Overview:* Provide a brief 1-4 sentence overview of what this activity entails (what will students do in the activity? what concepts does the activity demonstrate? etc).
- *Instruction time:* Estimate how long this activity will take to complete.
- *Objectives:* Outline the objectives for this activity. Be sure to address audience (students), behavior (what students are expected to know or do), condition (circumstances under which learning will occur—what students will be expected to already know to accomplish the learning), and if applicable, degree (specific set of criteria to be met, i.e. total mastery, respond correctly 80% of the time, etc).
- *Materials:* List materials required for this activity.
- *Procedure:* Clearly write the steps required to complete the activity. The audience is the teacher; include any instructions a teacher needs to know in order to successfully facilitate this activity.
- *Lesson Resources:* Upload any documents required to complete the activity, such as student instructions, worksheets, data cards, fact sheets, etc. Please convert any word/excel etc files to

pdf format before uploading. List any websites that will help teachers better understand a concept or facilitate the activity.

- *National Science Education Standards*: List the National Science Education Standards that this activity addresses.

General Rules of Thumb

Writing text

Creating clear and informative text will engage users and help convey the key components of the topic. Here are some helpful guidelines for writing text:

- Keep in mind that the content should be geared toward 7th-8th graders.
- Text for each heading has a 100 word limit, but less is fine.
- Define any terms with which the audience may not be familiar.
- Visuals should support the text that appears on the page.

Remember that the content that is uploaded will be published on the internet to be used by teachers and students. Therefore clear and precise writing is essential. Please be sure to use proper grammar and to thoroughly proofread the work!

Selecting photos

Photos not only make a web page more visually appealing, they also provide information and engage users. Be sure to select photos that illustrate a key component of your topic. When selecting photos, it is important to use the following criteria:

- Can I write a caption for the photo that relates to the text on the web page?
- Does the photo have a good enough resolution?
- Is the photo in a file format I can use?
- Do I have permission and a credit for the photo?

Can I write a caption for the photo that relates to text on the web page?

Often when people view a web page, they will only look at the visuals and read the captions. They may not read the body text. For this reason, photo captions should convey part of your message.

Does the photo have a good enough resolution?

Photos are made up of tiny dots or pixels. A photo's resolution is determined by number of pixels per inch (dpi) it contains. Resolution is important because if there are too few pixels per inch, the photo will look blurry. For the web, photos need to have a resolution of 72 dpi or higher.

If you have photo editing software on your computer, such as Adobe Photoshop[®] you can easily check the dots per inch (dpi) of a photo. (For Adobe Photoshop[®] instructions go to www.tiny.cc/moxkf)

If you don't have photo editing software, here are a few tips that will help you get the right resolution:

- Do not use photos that have been pasted into Word or PowerPoint—These applications automatically compress photos. They may look good in the document, but once they leave the document their resolution is degraded. If you are getting photos from other people, ask them to send the original photo.
- Do not enlarge photos—If you are using photos from one of the online libraries listed in the resource section, make note of its size. The on screen size is as large as the photo can be used without getting blurry. If you copy or download this image and then try to make it bigger on your web page, the resolution will be degraded.

These steps will not ensure that a photo has a 72 dpi, but it is a good start to getting quality photos. The team liaison and COSEE Coastal Trends staff will work with you to edit photos if you need assistance.

Is the photo in a file format I can use?

For web design, it is best to use PNGs, JPEG, or GIF file format. If you have an image you would like to use that does not fit these formats, contact the COSEE Coastal Trends staff. They will work with you to convert the file if possible.

Do I have permission and a credit for the photo?

Every photograph is an original work, and therefore is copyrighted. That is why you must give credit to the photographer of any photo you use. If you are using photos your team took, this is easy. However, if you are using photos from online libraries such as Wiki Media or government sources such as the National Oceanic and Atmospheric Administration you will need to credit a person or an organization for the photo. Here are some guidelines for photo credits:

- Every source has a different policy regarding permissions and credits. In some cases, you must inform the photographer you are using their photo to seek their permission and give them credit. In other cases, you are not required to inform the photographer, but you still must credit them.
- Any photo taken by a state or federal employee while in the line of duty is in the public domain. Public domain means that they are available to use by members of the public. You do not need to get permission to use the photo. However, they still need to have a credit. If the photographer's name cannot be found, it is acceptable to use the organization's name.
- Photos under Creative Common copyrights can be used as long as the photographer is credited.

Sketching diagrams

During the orientation, your team spent time playing Conceptionary and sketching conceptual diagrams. Remember that conceptual diagrams provide synthesis, visualization, and context. They can help users understand your topic and connect the themes presented on the webpage. When making a conceptual diagram, it is best to start with pencil and paper. Sketch your ideas and use color and size to convey information. Seek feedback from others, even people not on your team, and revise your sketch accordingly. A good conceptual diagram requires many drafts. When you have a final draft, create a legend for your conceptual diagram. Every symbol in the diagram needs to be explained in a legend or caption.

If you have the resources, you can transform your pencil sketch into a vector graphic. (Vector graphics are graphics that are based on equations not pixels; therefore, they never lose resolution.) Graphics software such as Adobe Illustrator[®] or Inkscape and the IAN symbol library are required. After you save your conceptual diagram in the PNG file format, you can upload it to the online template just like a photo.

To download Adobe Illustrator Free Trial:	www.adobe.com/downloads/
To download Inkscape for free:	www.inkscape.org/
To download IAN symbol library:	www.ian.umces.edu/symbols/
For guidelines and tutorials:	www.ian.umces.edu/conceptualdiagrams/
For feedback use the forum:	www.ian.umces.edu/discforum/

If you do not have access to graphics software or are unfamiliar with these programs, we can create graphics for you. If you would like to include a diagram on one/more of your module pages, please clearly sketch out in color exactly how your diagram should look, including all appropriate labels and legends. Take a picture or scan your sketch and upload it to the Module Template as a place-holder for your graphic. We will use your sketch as a guide to create your graphic diagram, which we will then upload to your module.

Resources

Photo library links

The following are useful links to online photo libraries. Remember to carefully read the copyright rules of each library. Credit must be given whenever a photo is used.

IAN Image Library:	www.ian.umces.edu/imagelibrary/
Wiki Media Commons:	www.commons.wikimedia.org/wiki/Main_Page
NOAA Photo Library:	www.photolib.noaa.gov/otherphotos.html
Tree of Life Web Project:	www.tolweb.org/tree/
NBII Images for the Environment:	www.life.nbii.gov/dml/home.do
Micro*scope:	http://starcentral.mbl.edu/microscope/portal.php?%20pagetitle=assetfactsheet&imageid=88&themeid=0
Census of Marine Life:	http://www.coml.org/

Symbol library link

The Integration and Application Network has over 2,000 science and ecology symbols that can be used to create maps, graphs, or conceptual diagrams.

To see how symbols are used:	www.ian.umces.edu/symbols/#_Resources
To access the free library download:	www.ian.umces.edu/symbols/

Conceptual diagram link

Symbols are used to build conceptual diagrams, or thought drawings, that communicate complex messages visually.

For guidelines and tutorials:	www.ian.umces.edu/conceptualdiagrams/
For feedback use the forum:	www.ian.umces.edu/discforum/