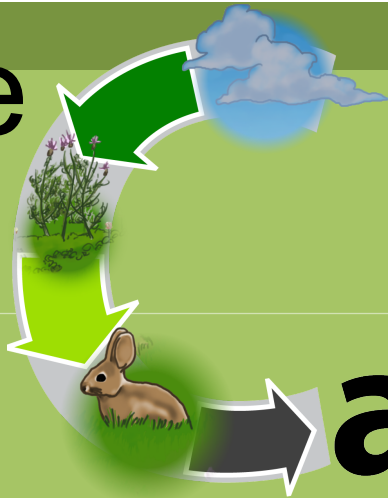


The



A newsletter for members
of the Carbon TIME
environmental literacy
project.

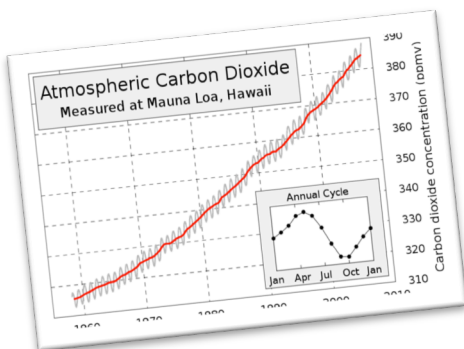
carbon TIMEs

December 2012



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Andy's Message

We're excited to be almost done with drafts of all six units. Look for the Ecosystems and Human Energy Systems to be up on the teaching materials website (with links from the Dashboard) soon! We're also looking forward to sharing them with Washington, Colorado, Maryland, California, and Pennsylvania teachers in our workshops this month.

The next step, which will start in January for *Systems and Scale*, will be to revise the units for the National Geographic website. We will be using your feedback on the units as the basis for our revisions, so please make sure to complete the unit feedback forms on the NREL website (with links from the Dashboard).

Upcoming Workshops

Distance Workshops

We're looking forward to talking with teachers from MD, CO, and CA, and PA on December 17th and December 20th.

Washington Workshop

Jenny will see you west coasters on December 10th for the Washington workshop! We will spend time going over the large-scale units.



The Skinny on Activity Sequences

What are inquiry and application, and why are they important?

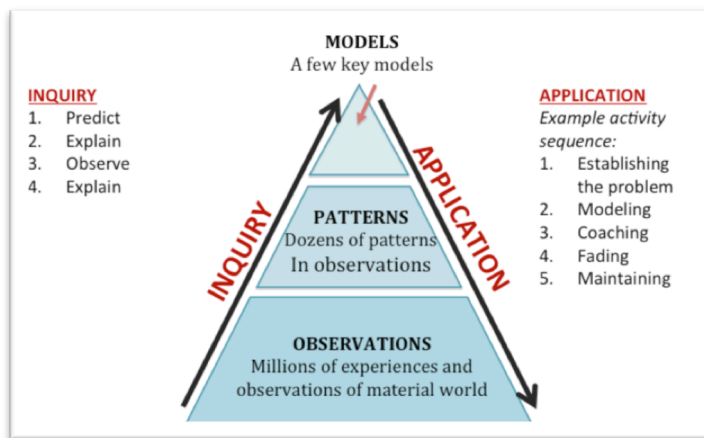
At the beginning of each Lesson in your teacher's guide, you will notice a section called "Role of this lesson in the Application and Inquiry Sequences. This is where we tell you if the activities in the lesson are a part of an *inquiry* or *application* sequence. What are these, and why do we keep talking about them? Basically, inquiry and application in the Carbon TIME units are two different ways of ordering activities. Each one has a different purpose.

Our *inquiry sequences* always follow the same structure: PEOE (predict, explain, observe, explain). It is the process of moving *up* the triangle you see on the right. If you are teaching an inquiry sequence, you want the students to make observations by collecting data, and use what they learn in this process to arrive at answers to the Three Questions (i.e., save the secrets for the end, and let the students discover them on the way!). Most inquiry sequences will also end with *unanswered questions* that students will need to answer during the application sequence.

Our *application sequences* follow a cognitive apprenticeship model: Establish the problem, model, coach, fade, maintain (EMCFM). It is the process of moving *down* the triangle you see on your right. If you are teaching an application sequence, you want the students to understand the principles first (modeling), and then have the opportunity to apply these principles in various ways with you there to guide them (coaching and fading). Finally, we want them to carry what

they learned into future units (maintaining).

We think it's helpful to know where you are in the sequences. If I am teaching the "Predict" activity from the PEOE sequence, I should withhold the answers to the Three Questions. If I am "modeling" in an application sequence, I want to be clear about the correct answers. If I am "fading" in an application sequence, I should be assessing if students are truly understanding the principles and are able to apply them to new problems---do I need to go back and model and coach some more?



Have feedback or suggestions about Carbon TIME?

If you have any feedback or suggestions about how the Carbon TIME project could be improved or something you need help with, please feel free to get in touch any members of the research group. You can email Andy (andya@msu.edu), Jenny (dauerjen@msu.edu), Staci (sharpst5@msu.edu), or Jennifer (dohert59@msu.edu) anytime with questions. We're happy to help and we love hearing from you!

Reminders



1. Please fill out your feedback forms individually, not as a group. We want to know how your individual class responded to the curriculum.
2. We recommend using Firefox, Chrome, or Safari when you work with dashboard. *Avoid using Internet Explorer.* Sometimes IE has difficulty saving and checking boxes.
3. Fill out feedback forms as you go. It is most helpful to us if you complete the forms right after you teach each lesson. This way you remember more about how the students responded to the curriculum. This is valuable information to us!
4. Remember: Atoms endure! Carbon Cycles! Energy Flows!



Dear Staci...

Dear Staci: I am not teaching the photosynthesis unit, but I want to get my students up to speed with photosynthesis. What is the best way to do this?

Dear Teacher: Although we typically recommend teaching the units in their entirety, try Lesson 2 from the Plants unit. This lesson includes an inquiry (PEOE) activity with aquatic plants in the light and some other activities that should help get you started.



Dear Staci: Should I indicate on my student tests which ones are my focus students?

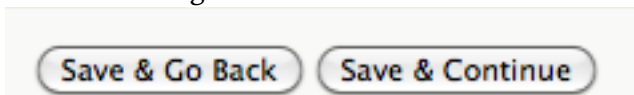
Dear Teacher: Yes please! This would be a big help to the research team. If you are using paper tests, write FOCUS STUDENT really big at the top of the paper after s/he has finished.

Dear Staci: Can I buy the gift cards and get reimbursed?

Dear Teacher: Yep! Just save the receipts and mail them to me.

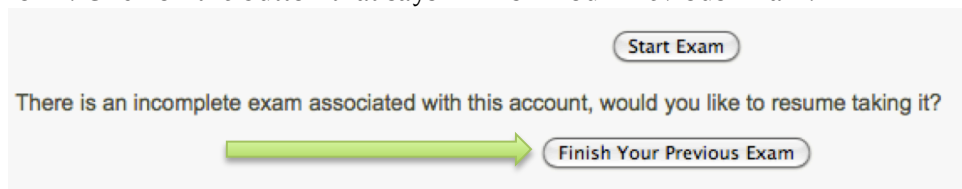
Dear Staci: On the online feedback forms, what is the difference between the “Save & Go Back” and “Save & Continue?” buttons?

Dear Teacher: When you get to the end of each page of the feedback form, you should see something that looks like this:



If you click either button, your work will be saved. The difference is that if you hit “Save & Go Back,” your work will be saved, and the next screen you see will be the previous page you were editing. If you hit “Save & Continue,” your work will be saved, and the next screen you see will be the next page in the feedback form. After you hit either of these buttons, you can always edit your work. When you get to the *last* page of the feedback form, you will have the option to “submit.” After you hit the “submit” button, your work will be “submitted” and you cannot go back and edit your feedback anymore.

Remember: If you return to continue working on a saved feedback form, make sure to continue working on the form you started, don’t start a new form. Click on the button that says “Finish Your Previous Exam.”



Spotlight on the research assistant



Please join us in welcoming a recent addition to the Carbon TIME team, Liz Tompkins. Liz is originally from Holt, Michigan, and is now a senior at MSU studying elementary education. When you submit your feedback on the units, Liz puts your comments into a database. She also helps with coding student responses and says: “coding has actually helped solidify many science concepts and allowed me to see how students learn about science. It’s made me interested in potentially teaching biology some day.”

In her spare time, Liz likes to travel, snowboard, and horseback ride. She spent the last summer in Sydney, Australia teaching English to speakers of other languages. Welcome, Liz! Thanks for the many things you do for Carbon TIME!

Carbon TIME important links:

Testing Website (and dashboard):

<http://ibis-live.nrel.colostate.edu/MSP/home.php>

Teaching Materials Website:

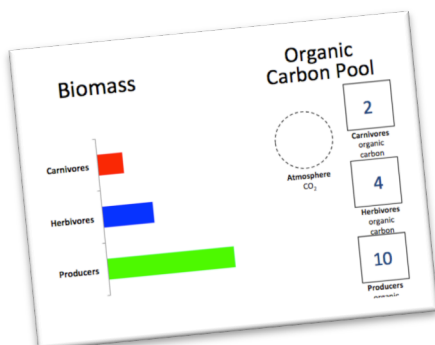
<http://edr1.educ.msu.edu/environmentallit/publicsite/html/CarbonTIME.html>

Ordering Materials:

<https://www.surveymonkey.com/s/CarbonTIMEgiftcards>

Facebook: Carbon TIME group

Twitter: @CarbonTIME



Carbon Comics



Here at Carbon TIME, we can't help but wonder if these witches know how the microwave's electricity is generated...