



Engaging with Socio- Scientific Issues Through the Media

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Session Overview

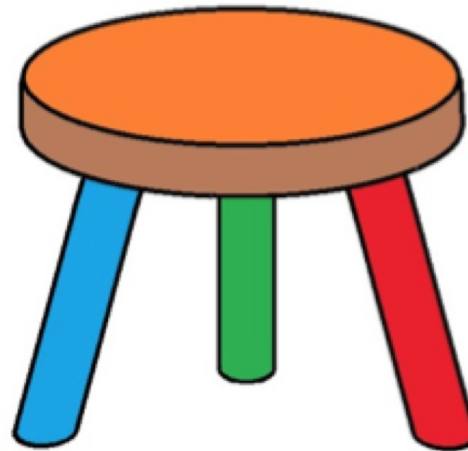
- *Carbon TIME* Introduction
- The Why: Environmental Science Literacy
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 - Before Reading
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Carbon TIME

“three legs of the stool”

Carbon: Transformations in Matter and Energy (Carbon TIME) is an NSF-funded research project focused on supporting students to become environmentally literate citizens.

**Curriculum &
Assessments**



**Teacher
Support
Networks**

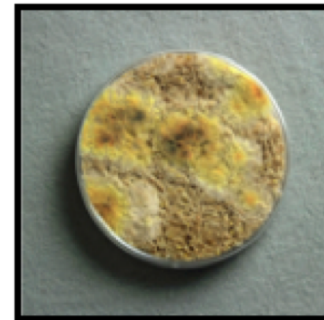
**Professional
Development**



Carbon TIME: Curriculum and Assessments

6 NGSS-Aligned Units of Instruction for middle or high school students

- 4 Macroscopic Scale Units
- 2 Large-Scale Units
 - Ecosystems and Human Energy Systems



Where to find the units?

<http://carbontime.bsccs.org/units>

The Why: Environmental Science Literacy

- We define Environmental Science Literacy as the capacity...
 - ***to participate in evidence-based discussions*** about social and environmental issues.
 - ***to make decisions that are informed by science.***
 - ***for engagement and sense-making with uncurated phenomena and uncurated media/texts*** that people encounter in their lives.
- Environmental Science Literacy requires:
 - ***3D science learning***
 - ***Preparation for future learning*** (Bransford & Schwartz, 2001) because...
 - Students cannot learn all science they will need while in school
 - Knowledge in science continues to grow and change

Selecting Texts from the Media

- Use freely available media resources
- Look for articles with broad connections between school science content and the world/community/individual
- Find multiple articles on the same socio-scientific issues
- Determine if you need to modify the articles for your students based on their level
 - Reducing length
 - Adding in definitions of specialized vocabulary
 - Adding pictures to illustrate ideas
- Finding multiple articles on the same socio-scientific issues
- Consider using articles with a range of scientific validity and reliability

Sample Lesson: Before Reading

Have a discussion with students using the questions such as:

- Why are we reading these articles?
- Read the first and last paragraph of the article-what does the author want you to walk away from the article knowing?

Sample Lesson: While Reading

Evaluating an Article Set

	News Article 1	News Article 2	News Article 3
What does the author want you to believe, know, or do?			
How does the author support their conclusions with evidence?			
What information from the article do you trust? Why?			
What information from the article are you skeptical of? Why?			
How does this reading connect with what you have learned in school? Have seen in the world?			

CarbonTIME 2020

10 mins to read

Evaluating an Article Set

<p>What do the authors agree on?</p>	
<p>Where do the authors disagree or contradict each other?</p>	
<p>What new questions do you have after reading?</p>	

Responding to the Texts

- Whole class discussion across questions on the graphic organizer
- Individual or pair writing in response to the article(s) to prompts such as:
 - Write a paragraph that supports or disagrees with the claim: *Meat production could further increase average global temperatures.*
 - What would you share about the texts you read with an interested but uninformed citizen? What would be a reason for you to share that information?
 - Write a letter to a government official in favor of or opposed to taxation of meat.

Teacher Reflections

“I think the high point was when the students got together and were talking about the back of the graphic organizer...Because that is where *we really saw the kind of critical thinking come through, and we saw them comparing with each other and having those collaborative conversations*, and talking about, “Here’s what the author said. How does that relate to what your author said?” So it really forced them to work together as a group at that point.”

“... What is your goal as a teacher? And I literally wrote *my goal is to create scientifically literate citizens. It’s not just about them knowing facts...I think it’s about them being able to interpret information*. So I’m going to give you information, you need to be able to critically analyze it and think about and know what it means and understand it, yes, but are you going to do something with that information? Do you believe it, do you not believe it? *So I think that reading those articles is an applicable skills for real life and it definitely important for science teachers to do.*”

Student Reflections on the Lesson

On why the graphic organizer was helpful:

Matt: At least for me, the graphic organizer would *help organize my thoughts a little more.*

Simone: I thought it changed the questions because it made it like think of like a what and a how and made you cite specific evidence to back up your reasoning. *To make you—so it's like not as easy to just say, "Well, this is this..." You had to think, "This is this because of this."*

On the Importance of learning to read media articles in school:

Talia: Well, *we do need to distinguish when we're older what is credible and what isn't credible.*

Because if we read something that's not credible and it's totally lying to us and we don't know the difference, we're just going to go and tell that to everyone and they might think we're crazy.

Personal Reflection

How could you see using this in your classroom?

How might you modify it for your students?

Want more information on *Carbon TIME*

Complete the following Google Form to be sent more information after the conference:

<https://tinyurl.com/CarbonTIMEMSTA20>

Questions?

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Carbon TIME

<http://carbontime.bsccs.org/units>

SCECH Code: Hypothesis



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