



Resource Guide: Why Climate Science

AWSP Theory of Adult Learning for your Community of Practice:

Learning happens when adults...

- Access expertise inside and outside of the room
- Participate in authentic activities with the group
- Practice with relevant Problems of Practice
- Engage (formally and informally) with colleagues
- Apply new learning to professional contexts
- Reflect on leadership and new learnings

This learning resource will engage you and your colleagues in learning more about the importance of learning and teaching climate science as part of the Next Generation Science Standards (NGSS). You will hear from multiple stakeholders about the importance and impact of learning about climate science, as well as engage with learning tools and reflection questions to deepen your learning and position you to take action in your setting. We envision this professional learning taking place in an ongoing community of practice. We encourage you to determine and proceed at your own pace that reflects the needs of your team.

Adult Learning Strategies you might consider when leading this learning:

- Joint Work Moves – Joint enterprise through participation in a collaborative effort
 - By working through the provided learning tools, you and your team will be able to collaborate to improve science learning in your context.
- Meta-Cognition – Moves that increase a learner’s awareness of subject matter and their own learning
 - Reflection questions are embedded into the learning tool subsections. Consider adding additional questions that fit your unique context.
- Differentiation – Different avenues to learning that match the learner’s readiness, interests, and preferred modes of learning
 - This professional learning includes a variety of modalities to meet the diverse needs of our learners. You can proceed through the learning tools based on readiness. A number of the resources allow you to go deeper based on interest.

This resource guide will take you through 5 learning tools you will be utilizing as part of this video-based professional learning. As you use each learning tool, download using the link provided and make sure you and each member of your team has access (this can be print or electronic). Several the resources that can be accessed electronically include links to additional resources, should you want to go further with your learning.

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Before getting started, *please complete* a very brief, 2-question pre-survey to help us gather information related to the usefulness of this video format and the learning tools that are included. We ask that you and each member of your team complete the survey (1-2 minutes). This survey can be found at

<http://tinyurl.com/WAElemPre>

Learning Tool 1) Reflecting on the Why

Read through the infographic [Science Education Needs an Update](#). List some significant scientific events from the last 4 years that you would add to the timeline.

Read STEM teaching Tool #12: [Scientific literacy involves understanding global climate change & what people can do about it](#) and discuss the reflection questions as a group.

Learning Tool 2) The Importance of Teaching Climate Science

Read these two articles that discuss recent data around the importance of teaching climate science in our schools, making notes about important, evidence-based ideas in the article.

Northwest Public Radio-- [Most Teachers Don't Teach Climate Change; 4 In 5 Parents Wish They Did](#)

Inside Climate Science News-- [The Majority of Teachers are Teaching Climate Science, but Not Always Correctly](#).

Complete a Box and T-chart to and compare and contrast the information in the two articles. To use a [Box and T-Chart graphic organizer](#), label one column in the differences section with one article title and the other column with the other article title. In the Similarities Box jot ideas that were the same or similar for both articles. In the Differences Columns jot an idea from one article that was different from the other and then be sure to jot what the other article said under its column that was different from the first one.

Learning Tool 3) Teaching Climate Change

Read this excerpt from [Understanding Climate Change, Grades 7-12](#). “Believing” in Climate Change by Laura Tucker and Lois Sherwood. Highlight key ideas that resonate. Text is used with permission of the author.

“Believing” in climate change

“As science educators, it is critical that we don’t use the phrase believing in climate change. The Oxford English Dictionary defines a belief as “an acceptance that something exists or is true, especially one without proof.” Our beliefs are personal and do not need to be proven to anyone.

The nature of science, on the other hand, is reproducible results. A concept in science is accepted if the same situation is repeated over and over again, with evidence collected that shows the same results. Only after repeatedly collecting evidence can we say whether the results



support or do not support our initial predictions. If a study is published, we might say that we agree with the results of that study or accept the results of that study. If there are lots of replications and variations that all say the same thing, we might call the results a “fact,” such as the fact that water freezes at 32°F or 0°C. We can agree with those facts. When there are numerous replications and numerous variations that all say the same thing, we might start talking about a theory or a law, such as evolution or gravity. In the case of climate change, there are countless reputable studies that show the Earth is warming, causing changes in our climate. We don’t believe in climate change, we accept the results of tens of thousands of studies and papers by reputable scientists that show our Earth is warming, resulting in a changing climate.”

Now read through STEM Teaching Tool #44—[Addressing controversial science topics in in the K-12 classroom](#). After reading, discuss as a group some of the ideas in the Recommended Actions You Can Take section. What actions might you take related to the learning and teaching of climate science?

Learning Tool 4) What Do I Need to Know About Climate Science?

Before watching this [Climate Science 101 video from the Smithsonian](#), set the stage for the Scientist Circle protocol.

- 1) Frame the conversation around one of the three topics:
 - a) General Science
 - b) Climate Science
 - c) Climate Science vs Politics
- 2) Have three different colored post-it notes on hand
 - a) One is for what you “notice”
 - b) Second is for what you “know”
 - c) Third is for what you “wonder”

After watching the video, conduct a “Scientist Circle” Protocol.

- 1) Have three large posters with “notice”, “know”, and “wonder” written at the top
- 2) Have teachers gather at the three posters and one-by-one share their post-its with the group until all post-its have been shared.
- 3) Have group examine each poster one-by-one and cluster like post-its together and call out why they chose to cluster them in the manner they chose.
- 4) Group Reflection: What are some key scientific ideas you took away from the video? What other ideas resonate with you? How did this activity model equitable learning and teaching?

If you want to learn more about what is happening with climate science education in Washington State, visit our ClimeTime website at <https://www.climetime.org/>

Learning Tool 5) Fostering Hope and Resilience

Scavenger Hunt-- Visit these two websites to find responses to the questions.

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[U.S. Climate Resilience Toolkit](#)

Questions:

- What are the five steps to resilience?
- Name at least one expert in the field?
- What are some training courses available?
- What three states have up to date 2019 data?
- What are some of the tools available?

[Toolbox for Teaching Climate and Energy at Climate.gov](#)

Questions:

- What are the steps for the Climate Action Learning Process?
- What are some of the activities someone can do when wanting to act individually or collectively?
- What are three topics in the News feature?
- How would you get ahold of someone if you wanted to contact the site manager?
- What does the CO2 graph show about the amount of CO2 in the atmosphere?

School Leader Paradigm

Culture Sets the Foundation
Systems Support the Culture
Learning Shows the Belief

School Improvement Planning Document: <http://www.awsp.org/docs/default-source/professional-learning-documents/video-workshops/school-improvement-planning-tool.pdf?sfvrsn=2>

