

# Climate Change Education: What Do We Know and How Might that Assist the Science Classroom Teacher?



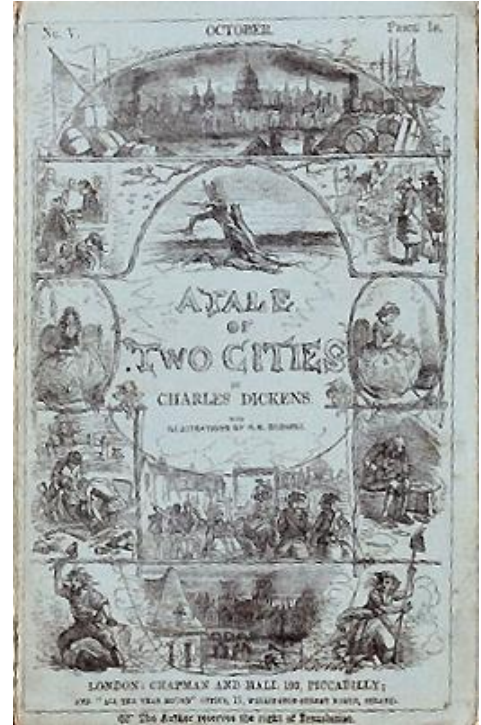
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*Paleoclimate Day*  
Smithsonian National  
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# Foci of This Lightning (and “Thunder”!) Talk

- The Climate Change Topic and the USA Context
- What Do Learners Know About Climate Change (Accurate and NOT) Prior to Instruction
- Science Classroom Practices To Effectively Teach Climate Change



# Some Key Questions to Keep in Mind

- How much of climate science do learners need to understand climate change?
- Is knowledge enough for action?

# Learners

What do students know about climate change before instruction that is:

- Accurate?
- Not accurate?

# Learner Key Alternative Conceptions of Climate Change

1. Many learners confuse weather and climate.
2. Some conflate the greenhouse effect and ozone depletion.
3. Some think recycling will significantly mitigate CC.
4. About 20% think projections are uncertain because they are based on scientists' opinions.

# Learner Key Alternative Conceptions of Climate Change

*I made a picture of a factory with fumes coming out which is depleting the ozone layer. This is causing climate change*

(Devon, drawing data)



# What do learners already know?

1. Recognize that fossil fuels are increasing the amount of CO<sub>2</sub>
2. Are generally aware that the atmosphere functions to hold heat energy to warm the Earth.
3. Attribute recent increase in global temperatures to human-generated emissions.
4. In our study of student thinking, students had the most accurate ideas to communicate regarding consequences of climate change as predicted by scientists.

# Effective Teaching and Learning of Climate Change

- Present it from a scientific perspective in which there is consensus for its occurrence and causes
- Focus on providing learners opportunities to engage with authentic scientific data
- Focus on identifying local and global consequences of it to make it relevant and meaningful





For resources and research, please visit us at:  
[www.ClimateEdResearch.org/smithsonian](http://www.ClimateEdResearch.org/smithsonian)



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