

A Window Into a Tree's World

Elicia Andrews, Quabbin Regional High School
Neil Pederson, Harvard Forest Senior Ecologist

DATA *Nugget*

A window into a tree's world

Featured scientists: Jessie K Pearl, University of Arizona and Neil Pederson,
Harvard University. Written by Elicia Andrews.





Data Nugget: Applicable Standards

Content Standards

NGSS: MS-LS2-4 Ecosystems: Interactions, Energy and Dynamics- Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations

MA: 8.MS-ESS3.5- Examine and interpret data to describe the role that human activities have played in causing the rise in global temperatures over the past century. Clarification Statements: • Examples of evidence can include tables, graphs, and maps of global and regional temperatures; atmospheric levels of gases such as carbon dioxide and methane; and the rates of human activities.

Science Practice Skills

- Analyzing and interpreting data
- Using mathematics and computational thinking
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

Lesson Objectives

Content

- Students will be able to identify how Atlantic White Cedars are responding to rapidly warming temperatures.
 - Students will be able to identify how dendrochronology can be used to determine growth response to environmental changes.
- Students will use scientific data (evidence) to support a scientific claim.

ELA

- Students will read and use mathematical data to write a scientific claim.

Lesson Objectives

Written Objectives should be characterized by:

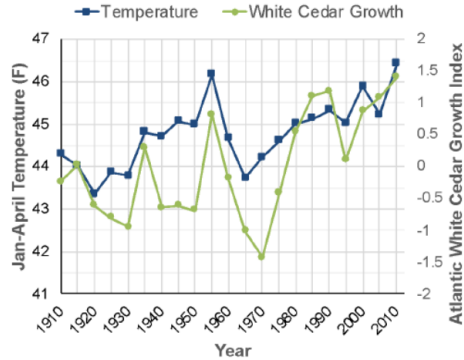
- Specific**
 - Well Defined to Students
 - Observable to Teachers
 - Who What When Where Why
- Achievable**
 - Students are Academically Ready for the Objective
- Measurable**
 - Can be Evaluated
 - Objective is Either Reached or Not
- Relevant**
 - Prepares Students for Standardized Testing
 - Relates to Larger Ideas
 - Builds on Prior Knowledge

Additional criteria shown on the right side of the graphic:

- Enough Time
- Assigned Date for Completion

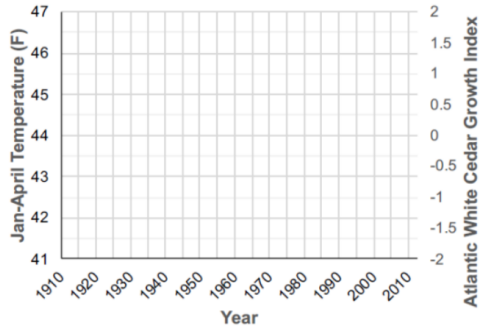
Data Nugget Levels

Identify any changes, trends or differences you see in your graph. Point out what you see and write one sentence describing what you see.



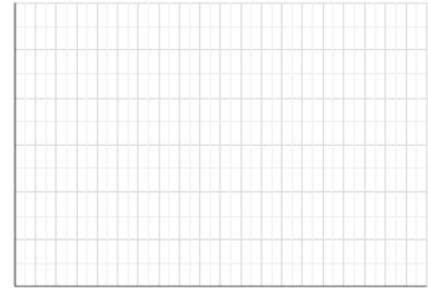
[Version A](#)

Draw your graph below: Identify any changes, trends or differences you see in your graph. Draw arrows pointing out what you see and write one sentence describing what you see next to each arrow.

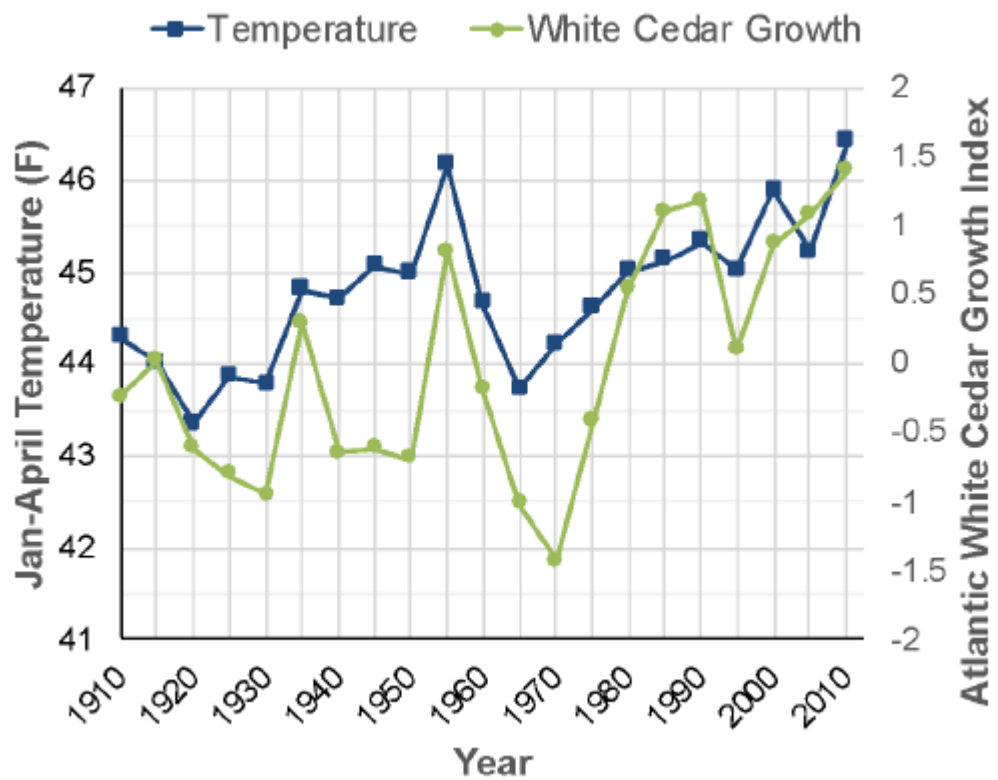


[Version B](#)

Draw your graph(s) below. Identify any changes, trends or differences you see in your graph(s). Draw arrows pointing out what you see and write one sentence describing what you see next to each arrow.



[Version C](#)



Student Responses

Science is an ongoing process. What new question do you think should be investigated? What future data should be collected to answer your questions.

- November 9th grade responses

- What change will the graph look like in 100 years
- I think it should be investigated how long the trees are living, because the heat increases growth, but does it increase life expectancy?
- How do you fix climate change
- How big can the trees get with increasing temperature
- Do other trees react the same as atlantic white cedar.
- What do the temps look like after 2010

Big Trees Are Not Necessarily Old

