

Lesson Outline

Lesson Objective: Student will have an understanding of climate change and will be able to think critically about the effects and discuss potential mitigation efforts.

Pre-assignment: (optional) Read short article on climate change in order to be acquainted with the basics (<http://www.epa.gov/climatechange/basics/>)

Introduction/Lecture

Goals:

What is PINEMAP? What is climate change? Definition of common terms: Global warming, Greenhouse gases, climate change, weather. How is climate change being researched? How are the effects being felt globally and locally? Name the most common effects of climate change. How can scientists gather a record of the climate from a tree? What are the effects of climate change on how plants will grow? Discuss the limiting factors on plant growth.

Introduction to outdoor activity

Go over the tools necessary to gather a “record” of climate change from a tree.

Introduce basics of increment boring and dendrochronology

Outdoor activity:

Students will engage in a hands on activity of taking a tree core from school grounds. Outside we will discuss various limiting growth factors and look at growth patterns on tree cores.

In the classroom:

After discussing the limiting factors on a micro level we will discuss how scientists examine similar parameters on a macro level.

Introduction to Geographic Information Systems

Students will be able to gather a basic understanding of how GIS works and understand basic terms such as overlay, spatial analysis, algorithms, data types, GPS, coordinate systems

Review:

Wrap up discussion about climate change and effects. Discussion on ways students can limit their carbon footprint.

Post-Assignment: (optional) Write a short paragraph discussing in your own words three major effects of climate change. Create a list of ten things you do in your home to alleviate your carbon footprint.