Day 6: Global Warming and Human Impact

Do Now: Day 6

S9.1e Draw a pyramid of energy for the food chain:

Label each level of the pyramid with ALL the appropriate labels (Not just the species name).

Then write two sentences to explain its shape.

1. **Describe the shape**
2. **Explain why it is that shape**

Content Objective: Relate cause and effect of human actions on ecosystems.

Language Objective: Use evidence to engage in a socratic seminar, using phrases like "as shown in the graph", and "as stated in the article".

Socratic Seminar Prompts

What is the major trend in Earth's temperature data?
What is causing that trend?
What are some implications for this trend?
What counter arguments are there for your position? Can you refute them?

Rubric

Group	Members	Communicate Productively?	Take Risks?	Work Persistently?	Address prompts?	Use of evidence?	Professional?	Respond to other groups	Total Score /10
1									

Evidence Example:
Does Burning Fossil Fuel Produce CO2?

1. What do you know about fossil fuels?
2. Carbon-based molecules?
3. What happens when they react/burn/combust?

Evidence Example:
Does Burning Fossil Fuel Produce CO2?

Equation for Combustion

$C_2H_6O + O_2 \rightarrow CO_2 + H_2O$ + heat energy

Practice: How would you use this piece of evidence in a discussion?

I know _____is true because _____.

Gathering Evidence: Group Work

You have 10 minutes to gather as much evidence as you can to answer our question: What is the trend in Earth's temperature data, and what is causing this trend?

Class Packet Resources - Start here!
1. Temperature Data and carbon dioxide vs. temperature overlay (class packet)
2. Greenhouse Effect

One thing I can bring to the group?

- See and show relationships between issues
- Justify with evidence
- Make connections between representations
- Ask/rephrase/challenge/build on ideas
- Think beyond / see in abstraction
- Organize to communicate to others
- Look for ways to apply information
- Makes sure everyone's voices are heard

One thing I NEED from the group?

- See and show many relationships

- Justify with evidence

- Make connections between representations

- Ask/rephrase/challenge/build on ideas

- Think beyond / see in abstraction

- Organize to communicate to others

- Look for ways to apply information

- Makes sure everyone's voices are heard

Roles

- **Team Capitan** (Hearts) – Make Sure EVERYONE'S IDEAS ARE HEARD! Keep group on task

- **Facilitator** (Spades) – Encourage clear communication!

- **Recorder/Reporter** (Clubs) – Record group ideas, call me over for questions, and ready for teacher check.

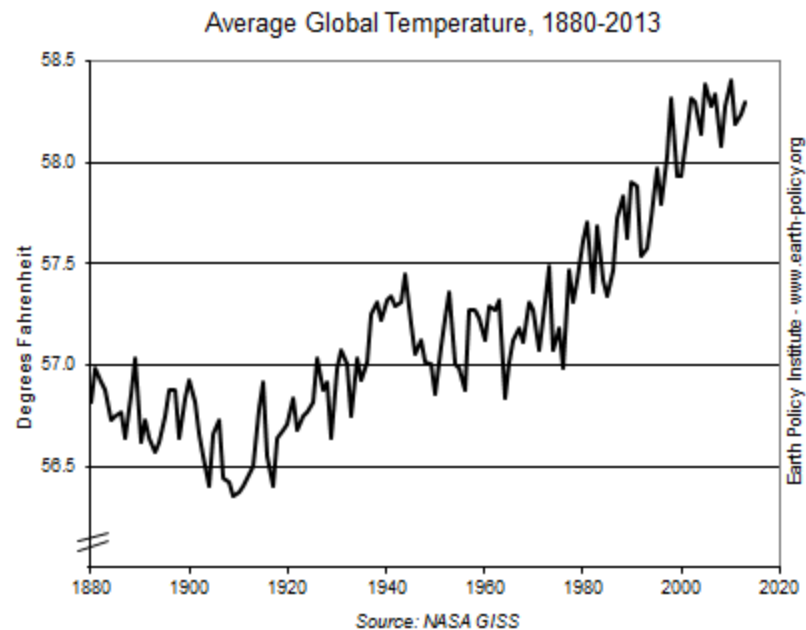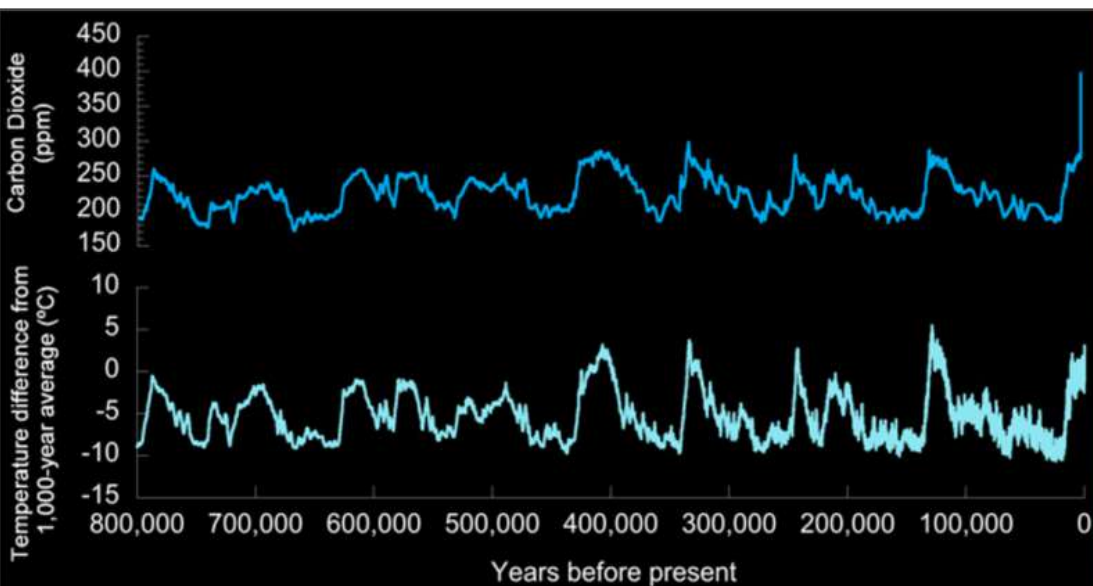- **Resource Manager** – Set up materials for your team

I will be tracking you on how well you…

Work Persistently

Take Risks

Communicate Productively

What is the trend?

Average Global Temperature, 1880-2013

Source: NASA GISS

Expert Task Cards!

Each group is going to represent one stakeholder in the climate change discussion.

The rest of your discussion should center on this task card. You will be responsible for sharing your group's reflections with the whole class during the Climate Change Summit

I could call on any group member to represent your group, so be ready!

During the seminar, each group's observers must respond to at least one of the other groups by asking a question, agreeing or disagreeing.

GVR HS Climate Change Summit Prep (15 min.)

During this summit, your group will **present your findings** and perspective. Given the urgency of this issue and the limited available time and money, your job is to **present a convincing case for why your issue is important** and should be considered a priority. Once each group has presented their perspective, the summit will work together to establish criteria for choosing priorities to focus on, and then choose **3 top priorities.** Your rubric is below.

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1									

GVR HS Climate Change Summit Agenda

1) **Establishing Consensus - Meteorologists (4 min.)**
   a) What is the major trend in Earth's temperature data?
   b) What is causing that trend?
   c) What counter arguments exist?
2) **What are some implications for Climate Change? (2 min. each)**
   a) Hearing from each stakeholder
3) **Establishing priorities (10 min.)**
   a) Establish criteria for which priorities are most important
   b) **Choose top 3 priorities** to dedicate international time and resources toward
   c) Establish a timeline for priority items. (if time)

Socratic Seminar Prompts

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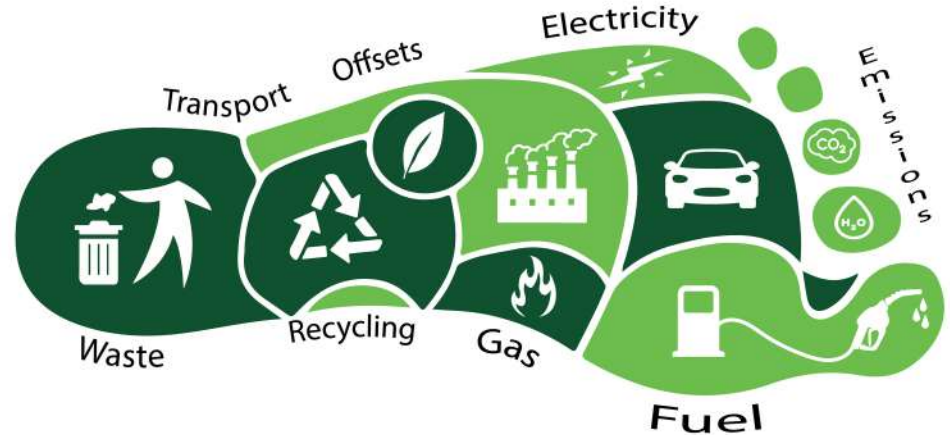What counter arguments are there for your position? Can you refute them?

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Calculating Your Carbon Footprint

Each of us consumes some of the Earth's products and services every day. How much we take depends on the ways in which we satisfy our needs and wants - the many habits together create our lifestyle.
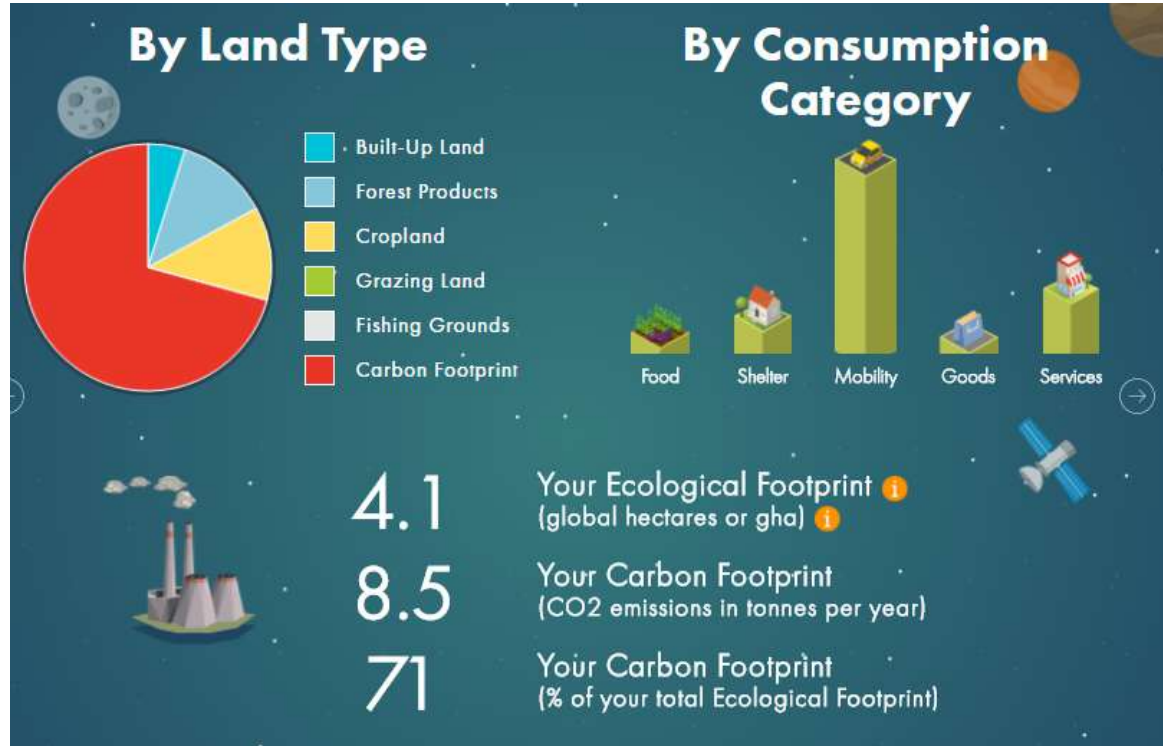
How much carbon dioxide do YOU emit!
http://www.footprintcalculator.org/

Carbon Footprint!

1. How many Earths would it take to sustain the world's population if they all lived like you do?
2. What are some things you could do that would change your carbon footprint?

Short Answer Practice

Level 1 - Using your notebook, answer the questions

Level 2 - Checking with a partner, answer the questions

Level 3 - Unassisted, answer the questions

Global Warming Mastery Check - Google Form!

What are ways that humans have altered the carbon cycle?

How has an altered carbon cycle affected global climate?

What are 2 implications of climate change (negative effects)?

Group Work Mastery Check

What does it look like and feel like when your group is communicating productively? When you're working persistently?

What's one thing you gave to your group today? What's one thing you got from your group?