# Student Handout: Climate Change Concept Map

## Purpose

Students will make a concept map to improve their understanding of the connections among the many interacting factors that influence and are affected by climate change. The activity will familiarize students with common climate science terminology and acronyms.

## Supplies Needed

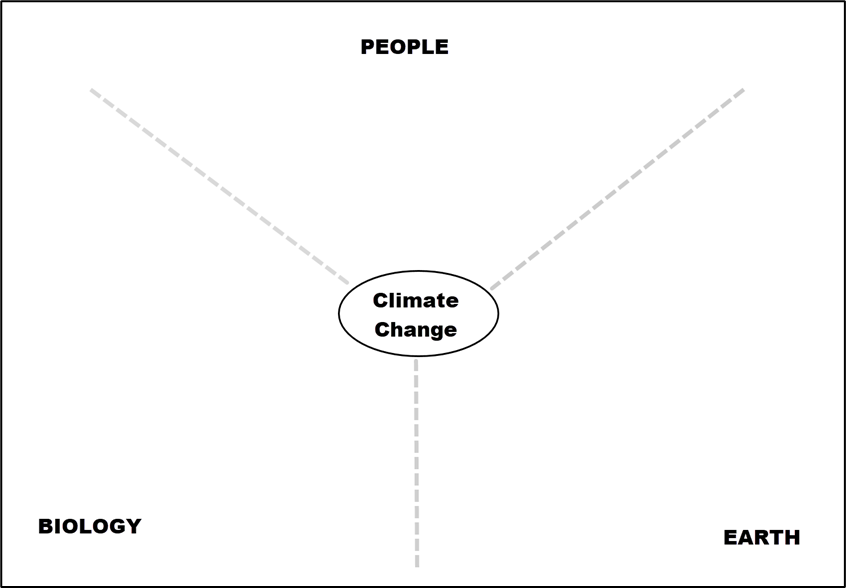
Poster sheet, writing utensils, sticky notes in three colors, and the keyword list found at the end of this handout.

## Directions

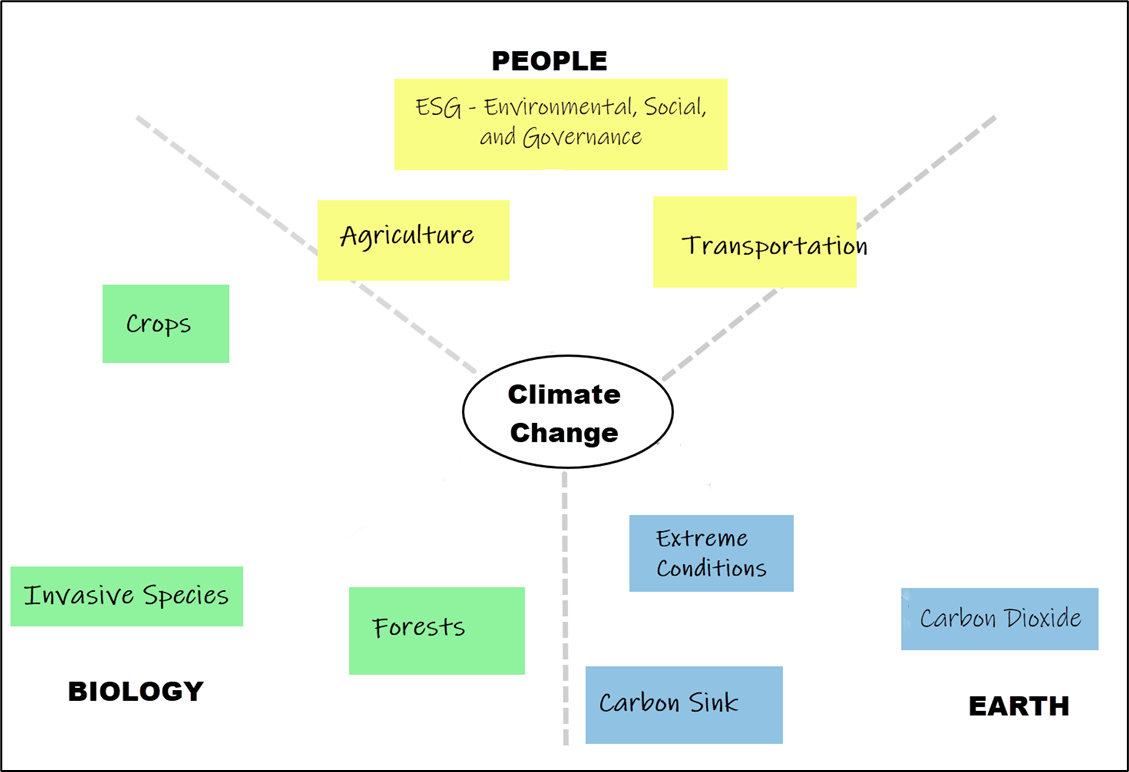
1. **Set up your Concept Map Poster Space as shown below.**

*Write the phrase “Climate Change” and circle it in the middle.*

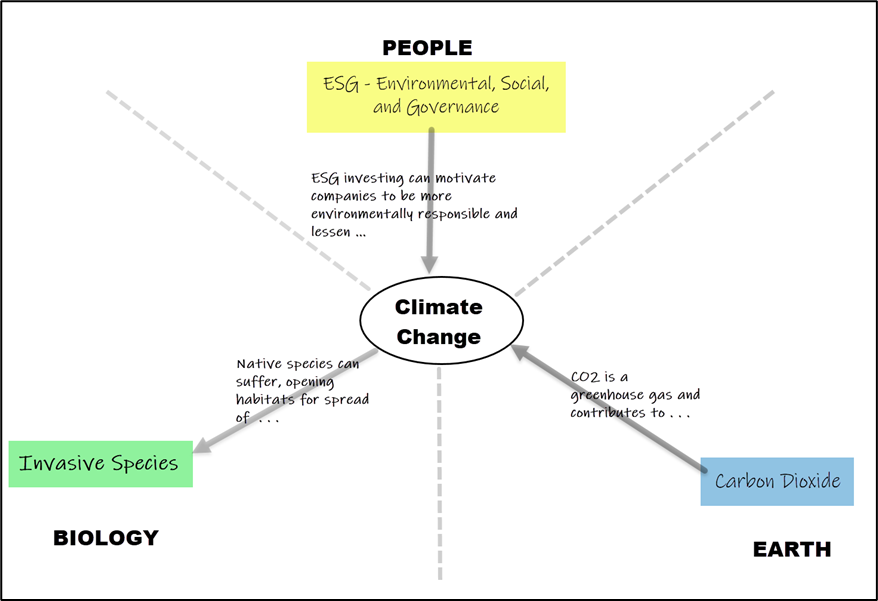
*Divide the space into three areas: “People”, “Biology”, and “Earth”.*



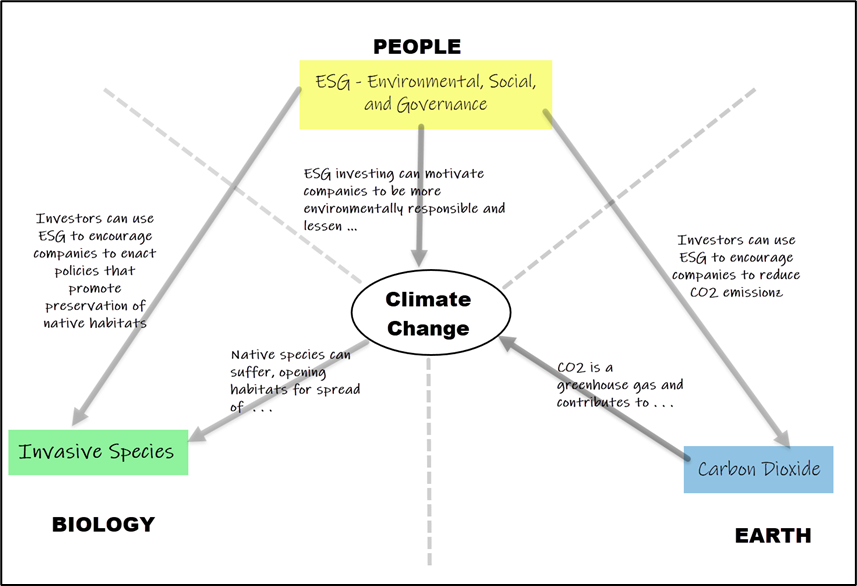
1. Using the keyword list at the end of this document, **choose 3 of the terms on the list that your group wants to explore and that fit in the “People” category**. Write each of those terms on their own yellow sticky note. Be prepared that some terms that you use may not neatly fit into these categories and that is ok. Do the best you can to assign terms to categories. In general, the people category refers to social, economic, and political factors.
2. **Choose 3 terms that your group wants to explore and that fit best in the “Biology” category,** each on their own green sticky notes. In general, the biology category refers to living organisms.
3. **Choose 3 terms that your group wants to explore and that fit in the “Earth” category** and write each on blue sticky notes. In general, the Earth category refers to physical and atmospheric aspects of the planet.
4. **Working as a group, complete the table at the end of the handout, categorizing and defining all 9 terms chosen.**
5. **Put all 9 sticky notes on your concept map poster (see the following example).**  You can use some of the same terms in the example, but make sure that your group chooses at least 5 terms that differ from the example.



*\* As mentioned earlier, some terms that you use may not neatly fit into these categories. Feel free to put the sticky note close to the intersection of two areas to reflect that ambiguity.*

1. **Draw arrows to connect each 9 terms to “Climate Change”.** **Above the arrows, explain how the terms relate to each other.** Think carefully about which direction the arrow will go. In other words, is the term influencing or causing climate change (the arrow should point toward climate change) or is the term influenced or affected by climate change (the arrow should point to the term)? An example is provided below with three terms. 
2. **Make 9 connections (arrows) between terms.** To do this, draw 9 arrows between any of the sticky notes on your group’s poster. Your group needs to explain the relationship by writing on each arrow. You have flexibility in how your group draws the 9 arrows. A term may have one arrow, two or more arrows, or no arrows to other terms. **Don’t worry if it is messy! Concept maps are often messy!**

The example below has 2 new arrows added that would count toward the 9 needed.



1. **Be ready to share and explain your concept map with everyone.** Your instructor will likely ask your group to share their map. Be ready to define the terms that your group chose and to explain the connections made on your group’s concept map.

Keyword List – you will be choosing 9 total terms from this list, 3 that relate to people, 3 that relate to biology, and 3 that relate to the Earth.

|  |  |
| --- | --- |
| Flooding  Poverty  Policy  Weather  Sustainability  Greenhouse Gases  Zooplankton  Range Shift  Carbon Neutral  COP  Transportation  Ocean Acidification  pH  Uncertainties  Extreme Weather Events  Disproportionate Impacts  Infrastructure  Natural Buffers  Social Vulnerability  Migration/ Displacement  Carbon Dioxide  Extreme Conditions  Biodiversity  HAB  Agriculture  Heat Dome  Food Webs (Disruptions)  Invasive Species  Extinction Rates  Pathogens/Diseases/Parasites  Methane  IPCC  Alternative Energies  Carbon Cap-And-Trade  Famine  Albedo  Anthropogenic  Phenology  Heat Island  Tundra  Desertification  Fishing  Ecosystem Services | Vulnerabilities  Economic Value  Intrinsic Value  Nitrogen Dioxide  Climate Models  Wildfires  Resiliency  Phytoplankton  Lobsters  Wind Damage/Hurricane/Tornado  Mussels  Remote Sensing  Forests  Pollutant  ESG – Environmental, Social and Governance  Food Insecurity  Adaptation  Saltwater Intrusion  Grasslands  Carbon Source  Carbon Sink  Precipitation  Indigenous Environmental Knowledge  Afforestation  Tourism  Oysters  Tree Migration  Heat Stress  Permafrost  Carbon Footprint  Legislation  Administrative Orders  Green Economy  F-Gases  Drought  Glaciers  Adaptive Capacity  Carbon Capture and Sequestration  Feedback Mechanisms  Reforestation  Water Vapor  Agricultural Crops  Ocean Currents and Climate |

Please list the 9 terms that your group chose for their concept map and state the definitions and relationships to climate change here. Remember that 3 terms should relate to people, 3 to biology, and 3 to the Earth.

|  |  |  |  |
| --- | --- | --- | --- |
| Term | Category: People, Biology, or Earth? | Definition | How is this term related to climate change?  Is the term an impact of climate change? Does the term drive or cause climate change? Or does the term have some other relationship to climate change? |
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| 2. |  |  |  |
| 3. |  |  |  |
| 4. |  |  |  |
| 5. |  |  |  |
| 6, |  |  |  |
| 7. |  |  |  |
| 8. |  |  |  |
| 9. |  |  |  |