# 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.

|  |  |
| --- | --- |
| FloodingPovertyPolicyWeatherSustainabilityGreenhouse GasesZooplanktonRange ShiftCarbon NeutralCOPTransportationOcean AcidificationpHUncertaintiesExtreme Weather EventsDisproportionate ImpactsInfrastructureNatural BuffersSocial VulnerabilityMigration/ DisplacementCarbon DioxideExtreme ConditionsBiodiversityHABAgricultureHeat DomeFood Webs (Disruptions)Invasive SpeciesExtinction RatesPathogens/Diseases/ParasitesMethaneIPCCAlternative EnergiesCarbon Cap-And-TradeFamineAlbedoAnthropogenicPhenologyHeat IslandTundraDesertificationFishingEcosystem Services | VulnerabilitiesEconomic ValueIntrinsic ValueNitrogen DioxideClimate ModelsWildfiresResiliencyPhytoplanktonLobstersWind Damage/Hurricane/TornadoMusselsRemote SensingForestsPollutantESG – Environmental, Social and GovernanceFood InsecurityAdaptationSaltwater IntrusionGrasslandsCarbon Source Carbon SinkPrecipitationIndigenous Environmental KnowledgeAfforestationTourismOystersTree MigrationHeat StressPermafrostCarbon FootprintLegislationAdministrative OrdersGreen EconomyF-GasesDroughtGlaciersAdaptive CapacityCarbon Capture and SequestrationFeedback MechanismsReforestationWater VaporAgricultural CropsOcean 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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| 3. |  |  |  |
| 4. |  |  |  |
| 5. |  |  |  |
| 6, |  |  |  |
| 7. |  |  |  |
| 8. |  |  |  |
| 9. |  |  |  |