

Unit 3: Humans and Global Change

Chapters: section 5.3 & chapter 7

Standards:

- HS-LS2-1: Use data to explain factors that affect ecological carrying capacity at different scales
- HS-LS2-2: Use data to explain factors that affect biodiversity and populations at different scales
- HS-LS2-7: Design, evaluate, and refine a solution to reduce the impact of human activities
- HS-LS4-6: Create or revise a simulation to test a solution to reduce negative human impacts on biodiversity
- HS-ETS1-1: Analyze a major global challenge and identify qualitative and quantitative needs and limitations for solutions that also accommodate the needs and wants of society
- HS-ESS2-6: Develop a quantitative model to describe the cycling of carbon among the hydrosphere, geosphere, atmosphere and biosphere
- HS-ESS3-1: Construct an explanation for how the availability of natural resources, occurrence of natural hazards, and climate change have influenced human activity
- HS-ESS3-4: Evaluate a technological solution that reduces human impact on natural systems
- HS-ESS3-5: Analyze geoscience data to forecast the rate of global change and future impacts
- HS-ESS3-6: Use a computational representation to show the relationships between global systems, and how those relationships are impacted by human activity

Objectives:

1. Describe how human population size has changed over time
2. Explain why population growth rates differ among countries
3. Compare and contrast the ecological footprints of typical Americans to the global average
4. Describe the Anthropocene
5. Describe how human activities change the atmosphere and climate
6. Describe how atmospheric changes drive climate change and other changes in global systems
7. Describe how human land use drives change in global systems
8. Describe the kinds of pollutants that drive of global change
9. Describe evidence for climate change
10. Describe impacts of climate change
11. Describe the role of science in responding to global change
12. Describe the criteria for evaluating the sustainability of a development
13. Describe why innovation and resilience are important

Vocabulary:

- Demography
- Demographic transition
- Ecological footprint
- Climate change
- Global warming
- Deforestation
- Monoculture
- Invasive species
- Pollutant
- Ozone layer
- Smog
- Biological Magnification (biomagnification)
- Sustainable development
- Renewable resource
- Nonrenewable resource
- Resilience