Unit 4 Humans and the Environment

Content Area: **Science**
Course(s): **Environmental Science CP**
Time Period: **December**
Length: **10 Blocks**
Status: **Published**

Transfer Skills

Enduring Understandings

Land is covered with forest, farm fields and pastures, roads, and towns

Urbanization is the migration of people from rural to urban areas

Farmland is used to raise crops and livestock

Essential Questions

How does the human population affect the environment?

How can we balance our needs for housing and jobs with the needs of the environment?

Content

Vocab:

Industrial revolution, infant mortality, life expectancy, growth rate, demography, total fertility rate, replacement fertility, demographic transitions, wealth gap, land cover, land use, urban area, rural area, urbanization, infrastructure, heat island, sprawl

Skills

Describe how technological advances have contributed to human population growth

Explain recent trends in population growth

Identify characteristics of human population late are studies by demographers

Describe total fertility rates and replacement fertility

Explain how the age structure and sex ratio of a population define its potential for growth

Describe the demographic transition

Discuss social factors that affect population growth

Describe how humans impact their environments

Discuss the negative and positive impacts of technology

Differentiate between land cover and land use, and describe how people affect both

Explain how and where urbanization occurs

Describe the environmental impacts of urbanization

Describe the contributors to sprawl and its patterns

Explain the impacts sprawl has on an area

Resources

Standards

SCI.9-12.5.1.12	All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.
SCI.9-12.5.1.12.B	Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.
SCI.9-12.5.1.12.B.3	Revise predictions and explanations using evidence, and connect explanations/arguments to established scientific knowledge, models, and theories.
SCI.9-12.5.1.12.C	Scientific knowledge builds on itself over time.
SCI.9-12.5.1.12.C.2	Use data representations and new models to revise predictions and explanations.
SCI.9-12.5.1.12.D	The growth of scientific knowledge involves critique and communication, which are social practices that are governed by a core set of values and norms.

SCI.9-12.5.1.12.D.1	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
SCI.9-12.5.3.12	All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.
SCI.9-12.5.3.12.A	Living organisms are composed of cellular units (structures) that carry out functions required for life. Cellular units are composed of molecules, which also carry out biological functions.
SCI.9-12.5.3.12.A.3	Predict a cell's response in a given set of environmental conditions.
SCI.9-12.5.3.12.B	Food is required for energy and building cellular materials. Organisms in an ecosystem have different ways of obtaining food, and some organisms obtain their food directly from other organisms.
SCI.9-12.5.3.12.B.1	Cite evidence that the transfer and transformation of matter and energy links organisms to one another and to their physical setting.
SCI.9-12.5.3.12.C	All animals and most plants depend on both other organisms and their environment to meet their basic needs.
SCI.9-12.5.3.12.C.1	Analyze the interrelationships and interdependencies among different organisms, and explain how these relationships contribute to the stability of the ecosystem.
SCI.9-12.5.3.12.C.2	Model how natural and human-made changes in the environment will affect individual organisms and the dynamics of populations.