



Curriculum Units by Fellows of the National Initiative
2021 Volume V: Human Centered Design of Biotechnology

Human Population Over Time - Analyzing the Demographic Transition Model

Guide for Curriculum Unit 21.05.03, published September 2021
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This unit, designed for AP Environmental Science, helps students develop a deep understanding of the Demographic Transition Model, including its causes and effects, limitations as a model, and some potential solutions to the environmental challenges it poses. Throughout the unit students are introduced to specific vocabulary words, including birth and death rates, total fertility rates, replacement level fertility, developed and developing countries, communicable and noncommunicable diseases, as well as the Human Development Index and population pyramids/age-structure diagrams. Students build their own learning map using the vocabulary terms as a means of organizing their own learning. Additionally, students engage in design thinking in order to develop, propose, and justify a solution to the social, cultural, economic, and/or environmental problems experienced by individuals in countries moving through the Demographic Transition. Students also present their work to the class and respond to mock and previously released Free Response Questions as their end of unit assessment. This unit addresses several Science Practices outlined by the College Board, including explaining environmental concepts, processes, and models presented in written and visual format, analyzing and interpreting both text and data, and proposing and justifying solutions to environmental problems. Students use these practices to satisfy Learning Objectives EIN-1.A (explain age structure diagrams) EIN-1. B (explain factors that affect fertility rate in human populations), EIN-1.C (explain how human populations experience growth and decline), and EIN-1.D (explain the demographic transition).

(Developed for AP Environmental Science, grades 11-12)

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