

Kenilworth Public Schools

Curriculum Guide

Content Area: AP Environmental Science
Grade: 11-12
BOE Approved: 3/13/17

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AP Environmental Science - 11-12 Scope and Sequence

Unit 1- The Living World: Ecosystems/Biodiversity	Unit 2- Populations	Unit 3- Earth Systems and Resources: Land and Water Use	Unit 4- Energy Resources and Consumption	Unit 5- Pollution and Global Change
Weeks 1-7	Weeks 8-11	Weeks 12-20	Weeks 21-25	Weeks 26-36
<p><i>Unit Description:</i> In the first unit students will examine the Earth as a system with interdependent components, processes, and relationships. The world's biomes and biogeochemical cycles will be discussed. The impact of natural and human caused disruptions on the environment and how the environment responds through ecological succession will be reviewed.</p>	<p><i>Unit Description:</i> This Unit will focus on populations within ecosystems and how they change over time. Population growth is limited by environmental factors, especially by the availability of resources and space.</p>	<p><i>Unit Description:</i> Students will explore earth's systems and its resources that support life. Tectonic plate boundaries can result in the creation of mountains, island arcs, earthquakes, volcanoes, and seafloor spreading. Soil production, atmosphere, and climate will also be discussed.</p>	<p><i>Unit Description:</i> Students will examine human's use of renewable and nonrenewable sources of energy and its impact on the environment. Energy consumption differs throughout the world and the availability of resources depends on the region's geologic history.</p>	<p><i>Unit Description:</i> Students will understand the global impact of local and regional human activities. Problems included are global climate change, ocean warming, pollution and endangered species.</p>
<p><i>Unit Targets:</i></p> <ul style="list-style-type: none"> • Explain how the availability of resources influences species interactions • Describe the global distribution and principal environmental aspects of terrestrial biomes 	<p><i>Unit Targets:</i></p> <ul style="list-style-type: none"> • Identify differences between generalist and specialist species • Identify differences between K- and r- 	<p><i>Unit Targets:</i></p> <ul style="list-style-type: none"> • Describe the geological changes and events that occur at convergent, divergent, and transform plate boundaries • Describe the characteristics and formation of soil • Describe similarities and 	<p><i>Unit Targets:</i></p> <ul style="list-style-type: none"> • Identify differences between nonrenewable and renewable energy resources • Describe trends in energy consumption • Identify types of fuels and their uses • Identify where natural energy 	<p><i>Unit Targets:</i></p> <ul style="list-style-type: none"> • Identify the sources and effects of air pollutants • Explain the causes and effects of photochemical smog and methods to reduce it • Describe thermal inversion and its relationship with

<ul style="list-style-type: none"> • Describe the global distribution and principal environmental aspects of aquatic biomes • Explain the steps and reservoir interactions in the carbon, nitrogen, phosphorous, and hydrologic cycles • Explain how solar energy is acquired and transferred by living organisms • Explain how energy flows and matter cycles through trophic levels • Determine how the energy decreases as it flows through ecosystems • Describe food chains and food webs • Explain the levels of biodiversity and their importance • Describe the results of human disruptions to ecosystem services • Describe how organisms adapt to their environment • Describe Ecological Succession • (Use Font: Times, Size 11, Not Italicized) Copy from unit learning targets on the unit of study doc. 	<p>selected species</p> <ul style="list-style-type: none"> • Explain survivorship curves • Describe the impact of carrying capacity on ecosystems • Explain how resource availability affects population growth • Explain age structure diagrams • Explain factors that affect total fertility rate in human populations • Define the demographic transition 	<p>differences between properties of different soil types</p> <ul style="list-style-type: none"> • Describe the structure and composition of the Earth's atmosphere • Describe the characteristics of a watershed • Explain how the sun's energy affects the Earth's surface • Describe how the Earth's geography affects weather and climate • Describe the environmental changes and effects that result from El Nino or La Nina • Explain the concept of the tragedy of the commons • Describe the effect of clearcutting on forests • Describe changes in agricultural practices • Describe agricultural practices that cause environmental damage • Describe different methods of irrigation • Identify different methods of meat production • Describe problems related to overfishing • Describe ecological and 	<p>resources occur</p> <ul style="list-style-type: none"> • Describe the use of fossil fuels and nuclear energy in power generation • Describe the effects of the use of nuclear energy on the environment • Describe the effects of the use of biomass in power generation on the environment • Describe the use of solar energy, hydroelectricity, geothermal, hydrogen, and wind in power generation • Describe methods for conserving energy 	<p>pollution</p> <ul style="list-style-type: none"> • Identify indoor air pollutants • Explain how air pollutants can be reduced at the source • Describe the effects of acid deposition on the environment • Describe human activities that result in noise pollution and its effects • Identify differences between point and nonpoint sources of pollution • Describe the impacts of human activities on aquatic ecosystems • Describe the effects of endocrine disruptors on ecosystems • Describe the effects of excessive use of fertilizers and detergents on aquatic ecosystems • Describe bioaccumulation and biomagnification • Describe waste disposal methods • Define lethal dose 50% (LD50) • Identify sources of human health issues that are
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		<p>economic impacts of natural resource extraction through mining</p> <ul style="list-style-type: none"> • Describe the effects of urbanization on the environment • Explain Ecological footprints • Explain the concept of sustainability • Describe integrated pest management • Describe sustainable agricultural and food production practices • Describe the benefits and drawbacks of aquaculture • Describe methods for mitigating human impact on forests 		<p>linked to pollution</p> <ul style="list-style-type: none"> • Explain human pathogens and their cycling through the environment • Explain the importance of stratospheric ozone to life on Earth • Identify the sources and potency of the greenhouse gases • Explain how changes in climate, both short and long-term impact ecosystems • Explain the causes and effects of ocean warming • Explain the environmental impact of invasive species • Explain how species become endangered and strategies to combat the problem • Explain how human activities affect biodiversity and strategies to combat the problem
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