

Unit 1			
The Living World: Ecosystem			
Duration			Assessed
Priority Standard(s)	14-15	Describe how matter cycles through the environment.	
		Describe ecosystems and how they work using the following concepts:flow of energy and flow of matter	
		Define climate, weather, and how these help to determine biomes.	
Supporting Standard(s)		Explain how the availability of resources influences species interactions.	
		Describe the global distribution and principal environmental aspects of terrestrial biomes.	
		Describe the global distribution and principal environmental aspects of aquatic biomes.	
		Explain the steps and reservoir interactions in the carbon cycle.	
		Explain the steps and reservoir interactions in the nitrogen cycle.	
		Explain the steps and reservoir interactions in the phosphorus cycle.	
		Explain the steps and reservoir interactions in the hydrologic cycle.	
		Explain how solar energy is acquired and transferred by living organisms	
		Explain how energy flows and matter cycles through trophic levels.	
		Determine how energy decreases as it flows through ecosystems.	
		Describe food chains and food webs, and their constituent members by trophic levels.	

Unit 2			
The Living World: Biodiveristy			
Duration			Assessed
Priority Standard(s)	11-12	Summarize how Earth's biodiversity is generated and how it changes naturally over time.	
Supporting Standard(s)		Explain levels of Biodiversity and their importance to ecosystems	
		Describe ecosystem services	
		Describe island biogeography	
		Describe ecological tolerance	
		Explain how natural disruptions, both short and long-term, impact on ecosystem	
		Describe how organisms adapt to their environment	
		Describe Ecological succession	

Unit 3			
Populations			
Duration			Assessed
Priority Standard(s)	12-13	Explain growth models, reproductive strategies, survivorship curves, and metapopulations.	
Supporting Standard(s)		Identify differences between generalist and specialist.	
		Identify differences between K and r- selected species.	
		Explain survivorship curves.	
		Describe carrying capacity.	
		Explain how resource availability affects population growth.	
		Explain age structure diagrams.	
		Explain factors that affect total fertility rate in human populations	
		Explain how human populations experience growth and decline.	
		Define demographic transition model.	

Unit 4

Earth Systems and Resources

Duration			Assessed
Priority Standard(s)	11-12	Describe geologic process: plate tectonics, weathering, erosion, the rock cycle and soil formation.	
		Identify and explain the benefits and environmental impacts of common mining practices.	
		Explain how water is used by humanity.	
Supporting Standard(s)		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 differences between properties of different soil types.	
		Describe the structure and composition of the Earth's atmosphere	
		Explain how environmental factors can result in atmospheric circulation.	
		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 affects that result from El Nino or La Nina events (El Nino- Southern Oscillation).	

Unit 5			
Land and Water Use			
Duration			Assessed
Priority Standard(s)	18-19	Describe how humans use land and its impact on the environment	
		Explain the various techniques used to feed the world and how those impact the environment.	
Supporting Standard(s)		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.	
		Describe the benefits and drawbacks of different methods of irrigation.	
		Describe the benefits and drawbacks of different methods of pest control.	
		Identify different methods of meat production.	
		Describe the benefits and drawbacks of different methods of meat production.	
		Describe causes of and problems related to overfishing.	
		Describe natural resource extraction through mining.	
		Describe the ecological and economic impacts of natural resource extraction through mining.	

Unit 6

Energy Resources and Consumption

Duration			Assessed
Priority Standard(s)	16-17	Describe nonrenewable energy and explain the consequences of its use on the environment	
		Differentiate the various forms of renewable energy and their shortcomings.	
Supporting Standard(s)		Identify differences between nonrenewable and renewable energy sources.	
		Describe trends in energy consumption.	
		Identify types of fuels and their uses	
		Identify where natural energy resources occur.	
		Describe the use and methods of fossil fuels in power generation	
		Describe the use of nuclear energy and 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 and power generation.	
		Describe the use of hydroelectricity in power generation.	
		Describe the effects of the use of hydroelectricity in power generation on the environment.	
		Describe the use of geothermal energy in power generation.	
		Describe the effects of the use of geothermal energy in power generation on the environment.	
		Describe the use of hydrogen fuel cells in power generation.	
		Describe the effects of the use of hydrogen fuel cells in power generation on the environment.	
		Describe the use of wind energy in power generation.	
		Describe the effects of the use of wind energy in power generation on the environment.	
		Describe methods for conserving energy.	

Unit 7			
Atmospheric Pollution			
Duration			Assessed
Priority Standard(s)	11-12	Describe sources and impacts of air pollution.	
Supporting Standard(s)		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 pollution.	
		Describe natural sources of Carbon dioxide and particulates.	
		Identify indoor air pollutants.	
		Describe the effects of indoor air pollutants.	
		Explain how air pollutants can be reduced at the source.	
		Describe acid deposition.	
		Describe the effects of acid deposition on the environment.	
		Describe human activities that result in noise pollution and its effects.	

Unit 8

Aquatic and Terrestrial Pollution

Duration			Assessed
Priority Standard(s)	19-20	Describe the sources, causes and impact of water pollution.	
		Describe waste disposal methods and their environmental impacts.	
		Explain human pathogens and their cycling through the environment.	
Supporting Standard(s)		Identify differences between point and nonpoint sources of pollution.	
		Describe the impacts of human activities on aquatic ecosystems.	
		Describe endocrine disruptors.	
		Describe the effects of endocrine disruptors on ecosystems	
		Describe the impacts of human activity on wetlands and mangroves.	
		Explain the environmental effects of excessive use of fertilizers and detergents on aquatic ecosystems.	
		Describe the effects of thermal pollution on aquatic ecosystems.	
		Describe the effects of persistent organic pollutants on ecosystems.	
		Describe bioaccumulation and biomagnification.	
		Describe the effects of bioaccumulation and biomagnification.	
		Describe solid waste disposal methods.	
		Describe the effects of solid waste disposal methods.	
		Describe the best practice in sewage treatment	
		Define lethal dose 50% (LD 50)	
		Evaluate dose response curves.	
		Identify sources of human health issues that are linked to pollution.	
		Explain human pathogens and their cycling through the environment	

Unit 9

Conservation of Biodiversity and Global Change

Duration			Assessed
Priority Standard(s)	19-20	Summarize the environmental impacts of global climate change and loss of biodiversity.	
Supporting Standard(s)		Explain the importance of stratospheric ozone to life on Earth.	
		Describe chemicals used to substitute for chlorofluorocarbons.	
		Identify greenhouse gases.	
		Identify the threats to human health and the environment posed by an increase in greenhouse gases.	
		Explain how changes in climate, both short-and long-term, impact ecosystems.	
		Explain the causes and effect of ocean warming	
		Explain the causes and effect of ocean acidification.	
		Explain the environmental problems associated with invasive species and strategies to control them.	
		Explain how species become endangered and strategies to combat the problem.	
		Explain how human activities affect biodiversity and strategies to combat the problem.	