



Alignment Document
 State of Arkansas and Aventa Learning Environmental Science
Environmental Science

Strand	Standards	Benchmarks	Unit Name	Course Topic Description
PD Physical Dynamics	PD.1 Students shall understand the physical dynamics of Earth.	PD.1.ES.1 Describe the structure, origin, and evolution of the Earth's components:	Introduction to Environmental Science	The Dynamic Earth
		PD.1.ES.1.a atmosphere	Introduction to Environmental Science	The Dynamic Earth
		PD.1.ES.1.b biosphere	Introduction to Environmental Science	The Dynamic Earth
		PD.1.ES.1.c hydrosphere	Introduction to Environmental Science	The Dynamic Earth
		PD.1.ES.1.d lithosphere		
		PD.1.ES.2 Relate eras, epochs, and periods of Earth's history to geological development		
		PD.1.ES.3 Determine the relative and absolute ages of rock layers		
		PD.1.ES.4 Categorize the type and composition of various minerals	Mineral and Energy Resources	Mining and Mineral Resources
		PD.1.ES.5 Explain the processes of the rock cycle		
		PD.1.ES.6 Describe the processes of degradation by weathering and erosion		
PD.1.ES.7 Describe tectonic forces relating to internal energy production and				



	convection currents		
	PD.1.ES.8 Describe the relationships of degradation (a general lowering of the earth's surface by erosion or weathering) and tectonic forces:		
	PD.1.ES.8.a volcanoes		
	PD.1.ES.8.b earthquakes		
	PD.1.ES.9 Construct and interpret information on topographic maps		
	PD.1.ES.10 Describe the characteristics of each of the natural divisions of Arkansas:		
	PD.1.ES.10.a Ozark Plateau		
	PD.1.ES.10.b Arkansas River Valley		
	PD.1.ES.10.c Ouachita Mountains		
	PD.1.ES.10.d Coastal Plain		
	PD.1.ES.10.e Mississippi Alluvial Plain (Delta)		
	PD.1.ES.10.f Crowley's Ridge		
	PD.1.ES.11 Describe the physical and chemical properties of water	Water, Air and Land	Water
	PD.1.ES.12 Compare and contrast characteristics of the oceans:		
	PD.1.ES.12.a composition	Introduction to Environmental Science	The Dynamic Earth
	PD.1.ES.12.b physical features of the ocean floor		
	PD.1.ES.12.c life within the ocean		
	PD.1.ES.12.d lateral and vertical motion		
	PD.1.ES.13 Investigate the evolution of the ocean floor		
	PD.1.ES.14 Investigate the stratification of the ocean:		

		PD.1.ES.14.a colligative properties (depends on the ratio of the number of particles of solute and solvent in the solution, not the identity of the solute)		
		PD.1.ES.14.b biological zonation (distribution of organisms in biogeographic zones)		
		PD.1.ES.15 Predict the effects of ocean currents on climate		
		PD.1.ES.16 Explain heat transfer in the atmosphere and its relationship to meteorological processes:		
		PD.1.ES.16.a pressure		
		PD.1.ES.16.b winds		
		PD.1.ES.16.c evaporation		
		PD.1.ES.16.d precipitation		
		PD.1.ES.17 Compare and contrast meteorological processes related to air masses, weather systems, and forecasting		
		PD.1.ES.18 Construct and interpret weather maps		
		PD.1.ES.19 Describe the cycling of materials and energy:		
		PD.1.ES.19.a nitrogen		
		PD.1.ES.19.b oxygen		
		PD.1.ES.19.c carbon		
		PD.1.ES.19.d phosphorous		
		PD.1.ES.19.e hydrological		
		PD.1.ES.19.f sulfur		
BD Biological Dynamics	BD.2 Students shall understand the biological dynamics of Earth.	BD.2.ES.1 Compare and contrast biomes	Ecology	Biomes
		BD.2.ES.2 Describe relationships within a community:	Populations	Understanding Populations
		BD.2.ES.2.a predation	Populations	Understanding Populations

		BD.2.ES.2.b competition	Populations	Understanding Populations
		BD.2.ES.2.c parasitism	Populations	Understanding Populations
		BD.2.ES.2.d mutualism	Populations	Understanding Populations
		BD.2.ES.2.e commensalism	Populations	Understanding Populations
		BD.2.ES.3 Differentiate between primary and secondary succession	Ecology	How Ecosystems work
		BD.2.ES.4 Construct a trophic-level pyramid (energy level)		
		BD.2.ES.5 Construct a food chain		
		BD.2.ES.6 Diagram a food web		
		BD.2.ES.7 Compare and contrast food webs and food chains	Ecology	How Ecosystems work
		BD.2.ES.8 Describe biodiversity		
		BD.2.ES.9 Explain how limiting factors affect populations and ecosystems	Populations	Understanding Populations
		BD.2.ES.10 Describe the natural selection process in populations	Populations	Understanding Populations
SP Social Perspectives	SP.3 Students shall understand the impact of human activities on the environment.	SP.3.ES.1 Explain the reciprocal relationships between Earth's processes (natural disasters) and human activities		
		SP.3.ES.2 Investigate the relationships between human consumption of natural resources and the stewardship responsibility for reclamations including disposal of hazardous and non-hazardous waste		
		SP.3.ES.3 Explain common problems related to water quality:	Water, Air, and Land	Water
		SP.3.ES.3.a conservation	Water, Air, and Land	Water
		SP.3.ES.3.b usage	Water, Air, and Land	Water
		SP.3.ES.3.c supply	Water, Air, and Land	Water
		SP.3.ES.3.d treatment	Water, Air, and Land	Water
		SP.3.ES.3.e pollutants (point and non-point sources)	Populations	Understanding Populations

	SP.3.ES.4 Explain problems related to air quality:	Water, Air, and Land	Water
	SP.3.ES.4.a automobiles	Water, Air, and Land	Water
	SP.3.ES.4.b industry	Water, Air, and Land	Water
	SP.3.ES.4.c natural emissions	Water, Air, and Land	Water
	SP.3.ES.5 Evaluate the impact of different points of view on health, population, resource, and environmental issues:		
	SP.3.ES.5.a governmental		
	SP.3.ES.5.b economic		
	SP.3.ES.5.c societal		
	SP.3.ES.6 Research how political systems influence environmental decisions		
	SP.3.ES.7 Investigate which federal and state agencies have responsibility for environmental monitoring and action		
	SP.3.ES.8 Compare and contrast man-made environments and natural environments		
	SP.3.ES.9 Evaluate personal and societal benefits when examining health, population, resource, and environmental issues		
	SP.3.ES.10 Predict the long-term societal impact of specific health, population, resource, and environmental issues		
	SP.3.ES.11 Investigate the effect of public policy decisions on health, population, resource, and environmental issues		
	SP.3.ES.12 Explain the impact of factors such as birth rate, death rate, and migration rate on population changes	Populations	Understanding populations
	SP.3.ES.13 Distinguish between developed and developing countries	Populations	The human population

NS Nature of Science	NS.4 Students shall use mathematics, science equipment, and technology as tools to communicate and solve environmental science problems.	NS.4.ES.1 Collect and analyze scientific data using appropriate mathematical calculations, figures and tables		
		NS.4.ES.2 Use appropriate equipment and technology as tools for solving problems (e.g., microscopes, centrifuges, flexible arm cameras, computer software and hardware)		
		NS.4.ES.3 Utilize technology to communicate research findings		
	NS.5 Students shall describe the connections between pure and applied science.	NS.5.ES.1 Compare and contrast environmental concepts in pure science and applied science		
		NS.5.ES.2 Explain why scientists should work within ethical parameters		
		NS.5.ES.3 Evaluate long-range plans concerning resource use and by-product disposal for environmental, economical and political impact		
		NS.5.ES.4 Explain how the cyclical relationship between science and technology results in reciprocal advancements in science and technology		
	NS.6 Students shall describe the various environmental careers and the training required for the selected career.	NS.6.ES.1 Research and evaluate science careers using the following criteria		
		NS.6.ES.1.a educational requirements		
		NS.6.ES.1.b salary		
NS.6.ES.1.c availability of jobs				
	NS.6.ES.1.d working conditions			