

**Davison Community Schools
Environmental Science**

Course Outline

Unit 1: ECOLOGY & ECOSYSTEMS: (30 days)

Unit 2: BIODIVERSITY: (20 days)

Unit 3: SUSTAINING BIODIVERSITY: (20 days)

Unit 4: ENVIRONMENTAL QUALITY: (40 days)

Unit 5: ENVIRONMENTAL CONCERNS: (30 days)

Priority Standards

ESS2.A	<p>Earth Materials and Systems</p> <ul style="list-style-type: none"> ● Earth’s systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original changes.
ESS2.C	<p>The Roles of Water in Earth's Surface Processes</p> <ul style="list-style-type: none"> ● The abundance of liquid water on Earth’s surface and its unique combination of physical and chemical properties are central to the planet’s dynamics. These properties include water’s exceptional capacity to absorb, store, and release large amounts of energy, transmit sunlight, expand upon freezing, dissolve and transport materials, and lower the viscosities and melting points of rocks.
ESS2.D	<p>Weather and Climate</p> <ul style="list-style-type: none"> ● The foundation for Earth’s global climate systems is the electromagnetic radiation from the sun, as well as its reflection, absorption, storage, and redistribution among the atmosphere, ocean, and land systems, and this energy’s re-radiation into space. (HS-ESS2-2)(HS-ESS2-4) ● Gradual atmospheric changes were due to plants and other organisms that captured carbon dioxide and released oxygen. (HS-ESS2-6),(HS-ESS2-7) ● Changes in the atmosphere due to human activity have increased carbon dioxide concentrations and thus affect climate. (HS-ESS2-6),(HS-ESS2-4)
ESS3.A	<p>Natural Resources</p> <ul style="list-style-type: none"> ● All forms of energy production and other resource extraction have associated economic, social, environmental, and geopolitical costs and risks as well as benefits. New technologies and social regulations can change the balance of these factors.
ESS3.C	<p>Human Impacts on Earth Systems</p> <ul style="list-style-type: none"> ● The sustainability of human societies and the biodiversity that supports them requires responsible management of natural resources.
ESS3.D	<p>Global Climate Change</p>

	<ul style="list-style-type: none"> ● Though the magnitudes of human impacts are greater than they have ever been, so too are human abilities to model, predict, and manage current and future impacts.
ETS1.A	<p>Defining and Delimiting an Engineering Problem</p> <ul style="list-style-type: none"> ● Criteria and constraints also include satisfying any requirements set by society, such as taking issues of risk mitigation into account, and they should be quantified to the extent possible and stated in such a way that one can tell if a given design meets them. (<i>secondary</i>)
ETS1.B	<p>Developing Possible Solutions</p> <ul style="list-style-type: none"> ● When evaluating solutions it is important to take into account a range of constraints including cost, safety, reliability and aesthetics and to consider social, cultural and environmental impacts. (<i>secondary</i>)
LS2.A	<p>Interdependent Relationships in Ecosystems</p> <ul style="list-style-type: none"> ● Ecosystems have carrying capacities, which are limits to the numbers of organisms and populations they can support. These limits result from such factors as the availability of living and nonliving resources and from such challenges such as predation, competition, and disease. Organisms would have the capacity to produce populations of great size were it not for the fact that environments and resources are finite. This fundamental tension affects the abundance (number of individuals) of species in any given ecosystem.
LS2.B	<p>Cycles of Matter and Energy Transfer in Ecosystems</p> <ul style="list-style-type: none"> ● Photosynthesis and cellular respiration are important components of the carbon cycle, in which carbon is exchanged among the biosphere, atmosphere, oceans, and geosphere through chemical, physical, geological, and biological processes.
LS2.C	<p>Ecosystem Dynamics, Functioning, and Resilience</p> <ul style="list-style-type: none"> ● Moreover, anthropogenic changes (induced by human activity) in the environment—including habitat destruction, pollution, introduction of invasive species, overexploitation, and climate change—can disrupt an ecosystem and threaten the survival of some species.