

Environmental Science Pacing Guide - Mrs. Newman

Quarter 1

Timing	Unit & Topics Covered	Labs & Activities	Standards
3 weeks	<p>Introduction to Environmental Science</p> <ul style="list-style-type: none"> ● Environmental science vs. ecology vs. environmental activism ● Renewable and nonrenewable resources ● Tragedy of the Commons ● Ecological footprints ● Environmental Science career <p>Scientific Processes</p> <ul style="list-style-type: none"> ● Scientific methods ● Quantitative vs qualitative data ● Peer review process ● Scientific theory vs. law <p>Economics & Policy</p> <ul style="list-style-type: none"> ● What are economics? ● Ecosystem services ● Cost-benefit analyses ● Types of environmental policies (regulatory vs. incentive) 	<ul style="list-style-type: none"> ● Tragedy of the Commons ● Ecological Footprint ● Environmental Policy Timeline ● Environmental Careers 	EVSC.ESS3.11 EVSC.ESS3.14 EVSC.ESS3.18 EVSC.ETS2.2
2 weeks	<p>Dynamic Earth</p> <ul style="list-style-type: none"> ● Spheres of the Earth ● Basic ecology ● Plate tectonics ● Layers of the earth 	<ul style="list-style-type: none"> ● Spheres of the earth activity ● Plate mapping ● Volcano project based learning 	EVSC.ESS2.1
4 weeks	<p>Ecosystem & Biomes</p> <ul style="list-style-type: none"> ● Symbiotic relationships ● Prey adaptations ● Organism relationships ● Biotic vs. abiotic factors ● Organization of living things ● World biomes ● Natural Selection ● Speciation and Extinction 	<ul style="list-style-type: none"> ● Animal habitat and niche survey ● Biological relationships symbiosis activity ● Prey adaptations research ● Biome travel brochure research 	EVSC.LS2.1 EVSC.LS2.3 EVSC.LS4.1 EVSC.LS4.2 EVSC.ESS3.9 EVSC.ETS3.1

*Quarter 1 project: Biomes Research

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Quarter 2

Timing	Unit & Topics Covered	Labs & Activities	Standards
1.5 weeks	Energy Flow <ul style="list-style-type: none"> ● Food chains vs. food webs ● Energy pyramid and trophic levels ● Conservation of energy and First Law of Thermodynamics 		EVSC.LS2.4 EVSC.LS2.5
2 weeks	Aquatic Ecosystems <ul style="list-style-type: none"> ● Types of aquatic ecosystems ● Adaptations ● Oil spills and clean-up methods ● Aquaculture vs. fishing ● wetlands 	<ul style="list-style-type: none"> ● Commercial fishing and aquaculture ● Research a fish 	EVSC.LS2.2
3 weeks	Populations <ul style="list-style-type: none"> ● Endangered vs. threatened species ● Endangered Species Act ● Speciation interspecific competition ● Population growth ● Carrying capacity and limiting factors ● Natality, fecundity, fertility, mortality, life expectancy 	<ul style="list-style-type: none"> ● Endangered species research project ● Deer ecology population analysis 	EVSC.LS4.4 EVSC.ESS3.2 EVSC.ESS3.3
2 weeks	Biodiversity <ul style="list-style-type: none"> ● Communities and ecological succession ● Biodiversity index ● Sampling methods ● Invasive species 	<ul style="list-style-type: none"> ● Invasive species research 	EVSC.LS2.7 EVSC.LS4.3

*Quarter 2 project: Endangered Species Research

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Quarter 3

Timing	Unit & Topics Covered	Labs & Activities	Standards
2 weeks	Water <ul style="list-style-type: none"> ● Properties of water ● Human impacts on water ● Eutrophication and acidification ● Human impacts on water ● Water quality ● Point-source vs non-point source 	<ul style="list-style-type: none"> ● Properties of water stations ● Macroinvertebrate stream study ● Personal water audit ● Watershed mapping ● Oil spill lab ● Water quality testing ● Wetland mitigation 	EVSC.ESS2.5 EVSC.ESS3.13
2 weeks	Air <ul style="list-style-type: none"> ● Pollution ● Human influence on quality 		EVSC.ESS3.13
3 weeks	Atmosphere & Climate Change <ul style="list-style-type: none"> ● Composition and layers of the atmosphere ● Weather ● Tilt of the earth, seasons, solar radiation ● Global circulation effects ● Weather maps ● Biogeochemical cycles ● Human activity 	<ul style="list-style-type: none"> ● Composition of the atmosphere ● Layers of the atmosphere graphing 	EVSC.LS2.6 EVSC.ESS2.2 EVSC.ESS2.3 EVSC.ESS2.4 EVSC.ESS3.17
2 weeks	Land <ul style="list-style-type: none"> ● Soil composition and conservation ● Soil horizons and profile ● Soil erosion ● Urbanization and land use 	<ul style="list-style-type: none"> ● Soil erosion ● Soil analysis ● Impacts of urbanization ● Urban sprawl 	EVSC.ESS2.6 EVSC.ESS3.4 EVSC.ESS3.6 EVSC.ESS3.13

*Quarter 3 project: National Park Research

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Quarter 4

Timing	Unit & Topics Covered	Labs & Activities	Standards
2 weeks	Food & Agriculture <ul style="list-style-type: none"> ● The Green Revolution ● Agriculture impacts on the environment ● Sustainable agriculture ● Organic vs traditional farming ● GMOs 	<ul style="list-style-type: none"> ● GMOs 	EVSC.ESS3.5 EVSC.ESS3.7 EVSC.ESS3.8
4 weeks	Renewable & Nonrenewable Resources <ul style="list-style-type: none"> ● Minerals, rocks and mining ● Fossil fuels ● Renewable vs. nonrenewable energy ● Conservation 	<ul style="list-style-type: none"> ● Mineral identification ● Edible mining simulation ● Types of rocks ● Mining impact research ● Energy impact 	EVSC.ESS3.1 EVSC.ESS3.10 EVSC.ESS3.11 EVSC.ESS3.12
2 weeks	Environment & Human Health <ul style="list-style-type: none"> ● Waste management ● Ozone breakdown ● Role engineering and technology play in a sustainable society 		EVSC.ESS3.15 EVSC.ESS3.16 EVSC.ESS2.1

Quarter 4 project: Leaf Collection (Honors ES) // Environmental Review (Regular ES)

Pacing guide is subject to change throughout the year