C&I approved

Year at a Glance

Environmental Systems

TEKS in blue represent biology standards that coincide with the environmental systems TEKS.

1st Quarter

Beginning of School: Capturing Kids Hearts

Importance of Environmental Science

- Safety (E.1A, E.1B)
- The Tragedy of the Commons
- Biology Rvw: Dichotomous Keys (E.4A, B.8B)
- Carbon Footprint & Carbon/Nitrogen Cycle (E.4C, B.12D)
- Energy Interactions (Bio Rvw) (E.6E)
    - Photosynthesis & Cell Respiration (B.9B)

Geosphere

- Components of the Geosphere (E.6A)
    - Layers of the Earth
    - Rock cycle (E.4C)
- Natural Events (E.8A):
    - Tectonic Plates,
    - Earthquakes, and
    - Volcanoes (E.8A)
    - Succession (E.8A, E.8C, B.11B)
    - Feedback loops (E.8C, B.4B)
- Regional Changes creating Global Effects (E.8B, B.12E)

Biomes

- Components of the Biosphere (E.6A)
- Biomes (E.4B)
    - Vegetation and Climate within forest biomes (E.4B, E.4D, B.12B, B.12E)
        - Tropical Rainforest
        - Temperate Rainforest
        - Temperate Deciduous Forest
        - Taiga
    - Vegetation and Climate within grassland biomes (E.4B, E.4D, B.12B, B.12E)
        - Savanna
        - Temperate Grassland
        - Chaparral
    - Vegetation and Climate within desert and tundra (E.4B, E.4D, B.12B, B.12E)
    - Aquatic Ecosystems (E.4B, E.4D, E.9D, B.12B, B.12E)
        - Freshwater
        - Brackish
        - Marine

2nd Quarter

Ecology

- Natural Events impacting areas (E.8A, B.11B, B.12E)
    - Flood
    - Tornado
    - Hurricanes
- Thermodynamics (E.6D)
- Conduction, convection, radiation (E.6C)
- Food chains/webs (E.4B, E.4F, B.12A, B.12C)
    - Niche
    - Symbiotic relationships including predation and competition
    - Species extinction alters food change (E.4G, B.12C)
- Invasive species (E.4F, B.12C)
- Species Diversity (E.4H, B.7E, B.7F)
- How populations change in size:
    - Carrying Capacity (E.7A, B.7D)
    - Birth rates (E.7B, B.7C, B.7D)
    - Impact on Populations (E.7D, B.7D)

Land Use

- Deforestation (protection), municipal development, all-terrain vehicle use, (E.9E, E.9F, B.11B, B.12E)
- Land use and management- protected areas (E.5A)
- Social Ethics and legal practices- new buildings (E.9I)

Review and Midterms

3rd Quarter	4th Quarter

Agriculture
• Components of the Geosphere soil (E.6A)
• Species diversity monoculture (E.4H, B.7E, B.7F)
• Land use and management- agriculture (E.5A)
• Ethical beliefs and food production (E.9G)
• Organic
• Hunting and fishing (E.9E, B.12E)
• Soil pollution; types, causes, and concentration (E.9A, E.9B, E.9C)
 	
Water
• Water sources & use (E.5B)
• Components of the hydrosphere, cryosphere (E.6A)
• Water Cycle (E.4C, E.4D, E.9B, B.12E)
• Water properties; Solvents, solutes, solubility (E.4E)
• Water environmental effects caused by: (E.9A, E.9E, B.11B, B.12E)
  ○ Human activities (include erosion and dams),
  ○ habitat restoration,
  ○ nature conservation,
  ○ wetlands
• Water conservation (E.5B)
• Convection cycles (water turnover) (E.8D)
  ○ El Nino, La Nina
• Water pollution; types, causes, and concentration (E.9A, E.9B, E.9C)
  ○ Water quality testing (E.9C)
• Waste management (E.1B, E.5F)
 	
Waste
• Reduction, reuse, recycling, and composting (E.5F)
• Social Ethics and legal practices- recycling (E.9I)
• Advantages and disadvantages of “going green” (E.9J)
	Atmosphere
	• Components of the atmosphere (E.6A)
	• Temperature inversions (E.8D)
	• Air pollution; types, causes, and concentration (E.9A, E.9B, E.9C)
	
	Climate Change
	• Effects of pollution (E.9D)
	• Temperature inversions (E.8E)
	  ○ global warming,
	  ○ ice cap and glacial melting,
	  ○ changes in ocean currents and surface temperature
	• Different views on global warming (E.9H)
	
	Energy
	• Renewable and Nonrenewable; natural/ alternative sources(E.6B)
	• Effects of renewable resource depletion (E.7C, B.12D, B.7D)
	• Resources/ Sustainability (E.5C)
	• Cost Benefit Trade-offs of Commercial Activities- Mining (E.9F)
	• Social Ethics and legal practices- design of new buildings and emission standards (E.9I)
	• Resources from outside an ecosystem (E.5D)
	• Interdependence and economics of resources (E.5E)
	• Advantages in “going green” (E.9J)
	  ○ Energy efficient homes and appliances
	  ○ Hybrid cars
	
	Protocols
	• Endangered Species Act (E.9K)
	• National Park Services Act (E.9K)
	• Soil and Water Resources Conservation Act (E.9K)
	• Clean Air Act (E.9K)
	• Montreal Protocol (E.9L)
	• Clean Water Act (E.9K)
	• Antarctic treaty system, Kyoto Protocol (E.9L)
	
	Review and Final Exam

Process Skills will be taught throughout the entire year.