

MATRIX LINKING SYSTEMS CONCEPTS AND ENVIRONMENTAL SCIENCE

Systems Concept -> Topic	Stocks Flows	Graphical Functions	Exponential Growth	S- Shaped Growth	Oscillations	Dynamic Stability	Feedback
Interdependence of Earth Systems							
Energy Flow	X	X	X		X	X	X
Cycling of matter							
The Solid Earth							
The Atmosphere							
The Biosphere	X	X	X	X	X	X	X
Human Population Dynamics							
History and Global Distribution	X		X	X		X	X
Demographics	X	X	X	X		X	X
Resource Utilization	X	X	X	X		X	X
Carrying Capacity	X	X	X	X		X	X
Cultural Influences	X	X	X	X	X	X	X
Economic Influences	X	X	X	X	X	X	X
Renewable and Nonrenewable Resources							
Fresh Water: Agricultural, Industrial and Domestic	X	X	X	X	X	X	X
Ocean: Fisheries, Industrial	X	X	X	X	X	X	X
Minerals							
Soil							
Biological	X	X	X	X	X	X	X
Energy	X	X	X	X	X	X	X
Land	X	X	X	X	X	X	X
Environmental Quality							
Air/Water/Soil Pollutants							
Effects of pollutants on systems	X	X	X	X	X	X	X
Pollution Remediation, Reduction and Control							

Solid Waste							
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	Stocks Flows	Graphical Function s	Exponenti al Growth	S- Shaped Growth	Oscillation s	Dynamic Stability	Feedbac k
Impact on Human Health							
Global Changes and Their Consequences							
First Order Effects (Changes): Atmosphere							
First Order Effects (Changes): Oceans							
First Order Effects (Changes): Biota							
Higher Order Effects (Consequences): Atmosphere	X	X	X	X	X	X	X
Higher Order Effects (Consequences): Oceans	X	X	X	X	X	X	X
Higher Order Effects (Consequences): Biota	X	X	X	X	X	X	X
Environment and Society							
Economic Forces	X		X	X	X	X	X
Cultural and Aesthetic Considerations							
Environmental Ethics							
Environmental Laws and Regulations							
Issues and Options	X		X	X	X	X	X