

TEACHERS

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SUBJECT

Environmental Systems & Societies

SHARED GRADES

Year 1

START DATE


Week 1, January

DURATION

9 Weeks

COURSE PART

UNIT DESCRIPTION

 INQUIRY & PURPOSE

Essential Understandings

1.1 Environmental value systems.

Essential ideas:

- Historical events, among other influences, affect the development of environmental value systems (EVSs) and environmental movements.
- There is a wide spectrum of EVSs, each with its own premises and implications.

1.2 Systems and models.

Essential ideas:

- A systems approach can help in the study of complex environmental issues.
- The use of systems and models simplifies interactions but may provide a more holistic view without reducing issues to single processes.

1.3 Energy and equilibria.

Essential ideas:

- The laws of thermodynamics govern the flow of energy in a system and the ability to do work.
- Systems can exist in alternative stable states or as equilibria between which there are tipping points.
- Destabilizing positive feedback mechanisms will drive systems towards these tipping points, whereas stabilizing negative feedback mechanisms will resist such changes.

2.4 Zonation.

Essential ideas:

- Climate determines the type of biome in a given area, although individual ecosystems may vary due to many local abiotic and biotic factors.

Inquiry Questions

Debatable

Content-based

What value systems are at play in the causes and approaches to resolving issues?

Which strengths and weaknesses of the systems approach and of the use of models have been revealed through this unit of work?

 RESOURCES[Learning_goals.docx](#)Added by **Riedwaan Nassiep** on April 20, 2018 Summary CURRICULUM

Aims & Objectives

AIMS

Acquire the knowledge and understandings of environmental systems at a variety of scales

Apply the knowledge, methodologies and skills to analyse environmental systems and issues at a variety of scales

Appreciate the dynamic interconnectedness between environmental systems and societies

Value the combination of personal, local and global perspectives in making informed decisions and taking responsible actions on environmental issues

Develop awareness of the diversity of environmental value systems

Develop critical awareness that environmental problems are caused and solved by decisions made by individuals and societies that are based on different areas of knowledge

Engage with the controversies that surround a variety of environmental issues

Syllabus Content

Topic 1: Foundations of environmental systems and societies

- 1.1 Environmental value systems
 - Significant ideas:
 - There is a wide spectrum of EVSs, each with its own premises and implications.
 - Knowledge and understanding:
 - Significant historical influences on the development of the environmental movement have come from literature, the media, major environmental disasters, international agreements and technological developments.
 - An EVS is a worldview or paradigm that shapes the way an individual, or group of people, perceives and evaluates environmental issues, influenced by cultural, religious, economic and socio-political contexts.
 - An EVS might be considered as a system in the sense that it may be influenced by education, experience, culture and media (inputs), and involves a set of interrelated premises, values and arguments that can generate consistent decisions and evaluations (outputs).
 - There is a spectrum of EVSs, from ecocentric through anthropocentric to technocentric value systems.
 - An ecocentric viewpoint integrates social, spiritual and environmental dimensions into a holistic ideal. It puts ecology and nature as central to humanity and emphasizes a less materialistic approach to life with greater self-sufficiency of societies. An ecocentric viewpoint prioritizes biorights, emphasizes the importance of education and encourages self-restraint in human behaviour.
 - An anthropocentric viewpoint argues that humans must sustainably manage the global system. This might be through the use of taxes, environmental regulation and legislation. Debate would be encouraged to reach a consensual, pragmatic approach to solving environmental problems.
 - A technocentric viewpoint argues that technological developments can provide solutions to environmental problems. This is a consequence of a largely
 - There are extremes at either end of this spectrum (for example, deep ecologists - ecocentric to cornucopian-technocentric), but in practice, EVSs vary greatly depending on cultures and time periods, and they rarely fit simply or perfectly into any classification.
 - Different EVSs ascribe different intrinsic value to components of the biosphere.
 - Applications and skills:

- Discuss the view that the environment can have its own intrinsic value.
- Evaluate the implications of two contrasting EVSs in the context of given environmental issues.
- Justify, using examples and evidence, how historical influences have shaped the development of the modern environmental movement

Topic 2: Ecosystems and ecology

- 2.3 Flows of energy and matter
 - Significant ideas:
 - Ecosystems are linked together by energy and matter flows.
- 2.4 Biomes, zonation and succession
 - Significant ideas:
 - Climate determines the type of biome in a given area, although individual ecosystems may vary due to many local abiotic and biotic factors.
 - Knowledge and understanding:
 - Zonation refers to changes in community along an environmental gradient due to factors such as changes in altitude, latitude, tidal level or distance from shore (coverage by water).

Content, Skills & Concepts

CONTENT

- EVS.
- Systems and Models.
- Energy and equilibria.
- Zonation.

SKILLS

- 1.1.1 Discuss the view that the environment can have its own intrinsic value
- 1.1.2 Evaluate the implications of two contrasting EVSs in the context of given environmental issues.
- 1.1.3 Justify, using examples and evidence, how historical influences have shaped the development of the modern environmental movement.

- 1.2.1 Construct a system diagram or a model from given set of information.

- 1.2.2 Evaluate the use of models as a tool in a given situation, for example, climate change predictions.

- 1.3.1 Explain the implications of the laws of thermodynamics to ecological systems.

- 1.3.2 Discuss resilience in a variety of systems.

- 1.3.3 Evaluate the possible consequences of tipping points.

ASSESSMENT

Formative assessment

- Quiz quiz trade cards.
- Weekly revision activities.
- Revision quiz.

Summative assessment

End of term test.

Peer and self assessment

- Completion of classwork.
- Knowledge and understanding of the assessment statements.

Standardization and moderation

- Work will be marked using the IBO produced guides and models.
- IBO markbands.

Assessment criteria

- No criteria, markbands instead (single holistic criterion).

LEARNING EXPERIENCES

Prior learning experiences

- Year 10 Preparatory ESS.

Pedagogical approaches

- Teacher led discussions.
- Investigations.
- Practical field work.
- Student taught work.
- Collaboration on documents.

Feedback

- Are students able to undertake the assessment statements.

Student expectations

- Assessment statements provided at the start of the course.
- Assessment statements are referred to.
- Students are provided with the ESS guide.

Support materials

Examples

Rubrics

Templates

Sample Exam Questions

Mark Schemes

Learning Process

Lecture

Socratic seminar

PowerPoint lecture/notes

Individual presentations

Group presentations

Student lecture/leading

Differentiation

Scaffold learning

- Undertake the course in a systematic approach, whilst referring to previous knowledge and constructing links with all knowledge.

CONNECTIONS

Approaches to Learning

 **Thinking**

 **Social**

 **Communication**

 **Self management**

- Thinking: systems approach facilitates disciplinary and interdisciplinary learning, allowing for connections to be made with other subjects.
- Self-management: Independent creation of topic review notes based on class learning and assessment statements.
- Communication: Development of the use of ESS specific terminology when communicating verbally or in writing.
- Social: Building a supportive environment that collaborates well and celebrates success.

Learner Profile

Thinkers

ESS aim 3.

Principled

ESS aim 4.

Open-minded

ESS aim 3

Caring

ESS aim 4.

Risk-takers (Courageous)

ESS aim 4.

Reflective

ESS aim 3

International Mindedness

- The use of models facilitates discussion and learning that examines environmental issues both locally and internationally.
- The development of student EVS's, requires the students to examine points of views that others may hold.

Academic Honesty

- Workshops on referencing skills.

Information Communication Technology

- Continuing discussions on command terms and ESS specific terminology.

Language and learning

Activating background knowledge

Demonstrating proficiency

TOK Connections

Personal and shared knowledge