

Sustainability & Systems Thinking Lesson Plan

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For Duke University's Trillium Workshops on Sustainability Across the Curriculum

Learning Objectives

At the end of this session, participants will be able to...

- Define sustainability
- Use this definition to connect environment, economics, and equity to sustainability
- Explain the relationship between systems thinking and the field of sustainability
- Use a systems approach to connect their own field with sustainability

Activity Plan

1. Introduce case study.

- In small groups, look at one related photo. Discuss:
 - *Describe what you see in this photo.*
 - *What does this photo encourage you to think about?*
- Give each group an additional clip of writing connected to their photo.
 - *How does this writing shape how you perceive the photo?*

2. Introduce systems thinking. As a large group,

- Define a system: *A whole that cannot be divided into independent parts.*
 - Note: Components of the system can be considered alone, but they are not independent.
- Structure of a system: Components & their relationships.
 - *Identify components of the system suggested by the images* (Each group share their image. Can post on wall or have each group hold theirs up.)
 - *Suggest relationships between these components.* (Physically connect the images with string. Can tape it to the wall or run string between groups. Or, post on a white board and physically draw connections between them.)
 - *What does looking at all of the photos and their relationships encourage you to think about?*
 - *What is missing from this system?*

3. Introduce sustainability.

- Define sustainability: *"Achieving sustainability: Meeting the needs of the present without compromising the ability of future generations to meet their needs."*
- Sustainability is frequently considered to include three main elements: environment, economics, and equity.
 - Discuss (small groups): *How do these three components derive from the definition?*
 - Economic: People need financial income.
 - Environment: Natural resources are necessary to meet the economic & equity needs of present and future generations.

- Equity: Access to resources, safe & healthy environment, etc. Current inequities can hinder meeting needs in the future (durable inequalities).
- Discuss (small groups): *How do we see these three components in the case study?*
 - Economic:
 - Environment:
 - Equity:
- Discuss (large group):
 - *How does thinking about the system contribute to economic, environmental, and equity perspectives?*
 - *How do issues/concerns from these perspectives reveal trouble in the system?*
 - *How does thinking about the system support achieving sustainability?*

4. Connect with disciplinarity.

- Discuss (small groups):
 - *How does your field relate to the system in this case study?*
 - *How does your field connect with sustainability generally?*