

# Learning Activity A | Sustainable Development

## Defining Sustainable Development

### Targeted Learning Objectives

- 1.2 Understand that the term “sustainable development” has many interpretations.
- 1.3 Remember that proactive prevention of (environmental, societal, or economic) damage requires far fewer resources than reactively attempting to reverse damage after it has occurred.
- 3.4 Relate the concept of sustainable development to their own behavior and decisions.
- 4.4 Appreciate others’ views on sustainable development and see a situation from another’s perspective.
- 4.5 Sustainable solutions require the consideration of all peoples’ aspirations and the collaboration with others.
- 5.3 Value the perspectives brought by other disciplines in solving sustainability challenges.

### Activity

**Group Discussions:** Based on the different definitions of sustainable development that have been handed out and addressed in the lecture, **1** | Discuss which aspects those definitions addressed and which aspects those definitions missed. Some aspects that should be addressed, include identifying what should be sustained or developed for social, environmental, and economical aspects. Time duration of sustainable development should also be addressed. **2** | Propose your own definition of sustainable development and the aspects of sustainability that you personally view as important. Discuss these ideas with the group and try to come up with one definition that is satisfactory with the majority of the members in the group.

#### Objectives

1.2, 3.4, 4.4, and 5.3

#### Criterion

Critical thinking

#### Standards

5 PROFICIENT Practices the five virtues of critical thinking with openness and respect for others’ point of view.

3-4 DEVELOPING Practices less than all five of critical thinking or inconsistently practices them.

0-2 BELLOW EXPECTATIONS States own viewpoints as facts, creates an unwelcome atmosphere for those with differing viewpoints.

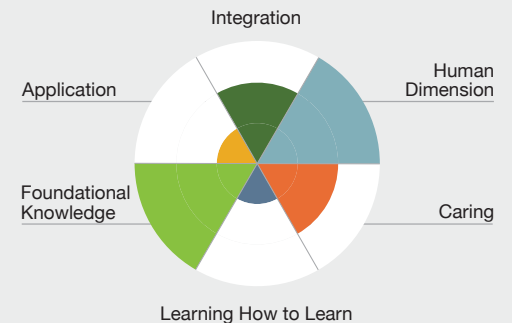
#### Active Learning Profile

information source: direct / indirect  
 experience: doing / observing  
 reflection: individual / group

#### Time Investment Profile

No individual component. Group component should be a 20 to 30 min. discussion

#### Development Profile



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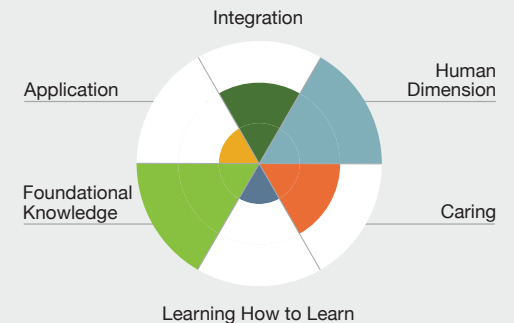
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#### Notes to Faculty

This activity is best completed through group work. There is no wrong or right answer. The goal is to have students think about sustainability and the different components that need to be addressed. Proposing their own definitions of sustainable development and arriving to a unified definition gives students an understanding of how hard it is to truly define and address sustainable development.

# Learning Activity B | Sustainable Development

## Sustainability Game

### Targeted Learning Objectives

- 1.2 Understand that the term “sustainable development” has many interpretations.
- 1.7 Identify the strengths and limitations associated with the following decision-making tools: Life-cycle assessment, ecological footprint, design for environment.
- 1.8 Sustainability indicators are locally-defined.
- 1.9 Sustainability indicators derive from social, environmental and economic measures.
- 1.10 Sustainable solutions rely on local resources.
- 3.2 Recognize the connection between sustainability and topics such as system thinking, population, water, material and energy.
- 4.2 Understand their role in sustainable development.
- 5.1 Feel they are important and “part of the solution” for sustainability .
- 6.2 Identify a problem related to sustainability in their community that they have a passion.
- 6.5 practice the virtues of critical thinking when evaluating new information.

### Activity

**Individual:** Go to <http://sustainability.publicradio.org/consumerconsequences/> and play the sustainability game. Choose a character of your choice and a neighborhood that is representative of your location. Complete until the end, where there is the option of improving your score. Try to see what type of changes need to be made to your lifestyle to reduce your ecological footprint. Answer the following questions: **1** | How is the ecological footprint calculated by the game? **2** | Are the indicators used to calculate your ecological footprint appropriate? Suggest other indicators that could be used to assess your ecological footprint that are more appropriate to your lifestyle. **3** | Is it possible to reduce your ecological footprint to on earth and is that feasible for your lifestyle?

**Group Discussion:** Discuss one or more of the following in your group. **1** | Will this sustainability game change some of your behaviors? If so, how? **2** | Compare your ecological footprint with others and discuss what can be reasonably done to reduce your respective footprints. **3** | Is the ecological footprint an appropriate tool to decide if your way of life is sustainable? Or are there other tools that can be used in tandem or separately?

#### Objectives

1.7, 3.2 and 5.1

#### Criterion

Critical thinking

#### Standards

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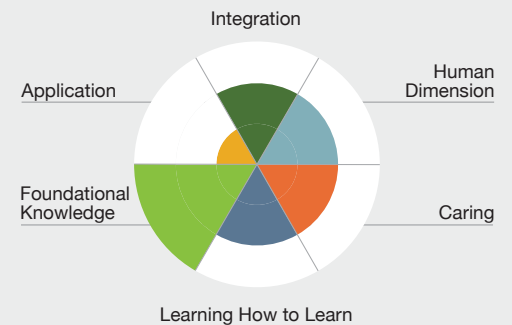
#### Active Learning Profile

information source: direct / indirect  
 experience: doing / observing  
 reflection: individual / group

#### Time Investment Profile

Activity addresses fundamental knowledge, integration, human dimension, caring, and learning how to learn.

#### Development Profile



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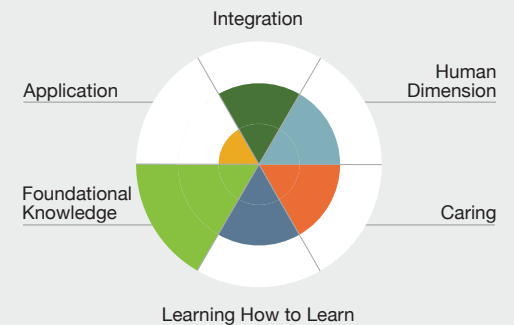
experience: doing / observing

reflection: individual / group

#### Time Investment Profile

Activity addresses fundamental knowledge, integration, human dimension, caring, and learning how to learn.

#### Development Profile



#### Notes to Faculty

The important part of this activity is completed both individually and groups. There is no wrong or right answer. The goal is to have students gain a greater understanding of their impact on the Earth and think of ways to reduce their impact.

Group Discussion encourage students to share their ideas on ways to reduce their ecological footprint and critically evaluate sustainability indicators and decision-making tools.

# Learning Activity C | Sustainable Development

## Sustainability Indicators

### Targeted Learning Objectives

- 1.8 Sustainability indicators are locally-defined.
- 1.9 Sustainability indicators derive from social, environmental and economic measures.
- 1.10 Sustainable solutions rely on local resources.
- 2.2 Identify appropriate sustainability indicators for a system.
- 2.3 Select the right method to evaluate the sustainability of products, processes or services from system perspective.
- 2.7 Learn to set sustainability goal and select appropriate indicator and method to monitor sustainability performance of a system.
- 3.3 Identify sustainable indicators that have a local and global relevance.

### Activity

**Individual:** Read “Following Sustainable Development in Relation to the North-South Dialogue: Ecosystem Health and Sustainability Indicators” by H.A.M. De Kruijf and D.P. Van Vuuren, *Ecotoxicology and Environmental Safety*, 40:19 8 pp 4-14.

**1** | Based on the recommendation and guidelines proposed by the article develop sustainability indicators that appropriate for your location. **2** | Describe the difference that could arise in the development in indicators for North and South countries.

**Group Discussion:** Discuss one or more of the following in your group. **2** | Discuss the appropriateness of the indicators that have been proposed by individual group members. **3** | How will the indicators proposed aid in achieving sustainability that is appropriate for the area?

Objectives	Criterion	Standards
1.8-10, 2.2-3, and 3.3	Application	<p>5 PROFICIENT Indicators that include all dimensions of sustainable development and local consideration.</p> <p>3-4 DEVELOPING Indicators that include only two dimensions of sustainable development or does include local consideration.</p> <p>0-2 BELOW EXPECTATIONS Indicators that include only one dimensions of sustainable development without considering local conditions.</p>

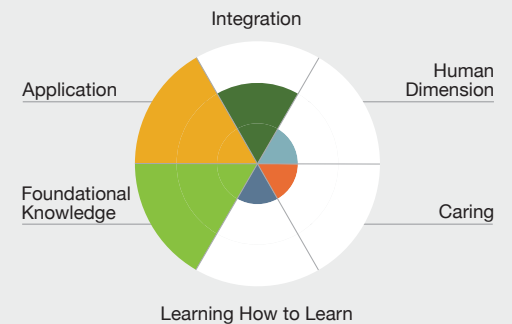
#### Active Learning Profile

information source: direct / indirect  
 experience: doing / observing  
 reflection: individual / group

#### Time Investment Profile

individual: 90-120 minutes reading  
 group: 40-60 minutes discussion

#### Development Profile



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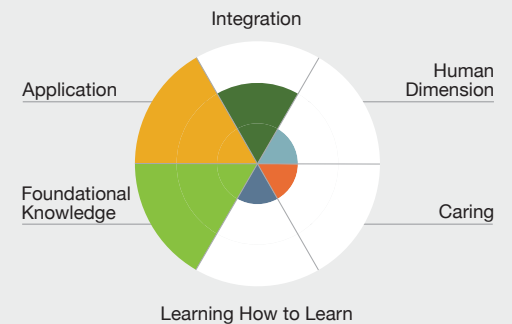
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 reflection: individual / group

#### Time Investment Profile

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 group: 40-60 minutes discussion

#### Development Profile



#### Notes to Faculty

The important part of this activity is completed both individually and groups. There is no wrong or right answer. The goal is to have students gain a greater understanding of sustainability indicators. Students should also realize that sustainability indicators are subjective.

Group Discussion encourage students to share their ideas on sustainability indicators and can help students develop a greater appreciation of views of others.