Supplemental Activities for Introduction to Sustainability Module

Table of Contents

i. Slogan for Sustainability.................................................................p.2

ii. Water Usage .................................................................p.2-4

iii. Is it Sustainable? .............................................................p.4-7

iv. What is Your Carbon Footprint? ...............................................p.8

v. Electronics Energy Expenditure..................................................p.8

vi. The Misperception of Materialism..............................................p.8-9

vii. People and Resources..............................................................p.9
Activity #1: Slogan for Sustainability
Time needed: Long Version- 60 minutes; Short Version ≈ 35-40 minutes
Materials needed: individual computers

1. Students will spend 5 minutes in groups of 3 to 4 to generate a list of barriers that may get in the way of individuals engaging in sustainable behaviors.

2. Then, students will work independently, for about 15 minutes, to research different slogans that have been used to encourage sustainability.

3. Students will get back in their groups for 10-15 minutes and will discuss the slogans that they found. Then, each group will design a slogan to encourage sustainable behaviors.

Instructions: Based on the barriers that get in the way to sustainability that you came up with and different slogans you have found, design a message that could encourage students to act more sustainably on UGA’s campus. Explain why you chose the slogan you did.

Option A: Have the students share with the class their slogans and their rationales for coming up with the slogans.

Option B: Have the students share with the class their slogans and their rationales for coming up with the slogans. In addition, have the students sign into a type of social media of their choice (e.g., Facebook, Twitter, Instagram) and share the slogan in the form of a post, a video, etc. Then, students will answer the following questions together in their groups.

1. How do you think people will respond to your slogan?

2. Do you anticipate a lot of “likes” to your slogan? Why or why not?

3. What are some ways that you could encourage people to listen to your slogan?

Note: The next class period, you can have a short discussion for about 5-10 minutes, asking students the following questions:

1. How was your slogan received on social media?

2. What would you do to make your slogan more effective?

Activity #2: Water Usage
Time needed: ≈ 25-30 minutes
Note: If choosing Option B, individual computers are needed.

1. Give students about 5 minutes to answer the following question:

1. Think about your daily water use, starting from when you wake up in the morning and go to bed at night. Write down, in list form, all the activities you do on a usual day that require direct water use.
2. The class will share a couple items, and the instructor and/or students will look up on the internet how much water is used for the items shared.

Here are some examples of items and how many gallons of water needed to make them:

A pair of jeans- 1,800 gallons of water
Loaf of bread- 1,000 gallons of water
40 sheets of paper- 100 gallons of water

3. Next, have the students get into small groups to share their lists and to see if they left off important water uses in their lists. They will also answer the following questions.

2. *What are things that you use or do on a usual day that require indirect water uses?*

3. *Pick out 1 thing you listed. How much water do you think is required to create or use it?*

4. Then, choose Option A or Option B to finish this activity.

**Option A:** Independently, students will complete the following to calculate their daily water use of the seven direct uses of water.

**Option B:** Students will go to this website and calculate their water footprint. Give students about 10 minutes to do this.


Then, have students answer the following questions:

1. *What are your scores for each water category?*
My Scores

| Home and yard |   |
| Diet          |   |
| Transportation and energy |   |
| Stuff         |   |

2. Click on the ‘Water Conservation Tips’. Write down at least one tip below that you learned about from reading these tips that you did not know before.

3. Now, pick one category that you think you could reduce your water consumption in. Edit your consumption by clicking on the value of the category you choose. Now, report your new score below

5. Last, students will watch a 3 min video made by a student who tracked her own water footprint: https://www.youtube.com/watch?v=uI8M_unm994

Activity #3: Is it Sustainable?
Time needed: ≈30 minutes
Based off of UNC Chapel Hill’s Environmental Resource Program

1. Remind students of the Venn diagram depicting the 3 spheres of sustainability: environment, society, and economy. Explain that when evaluating the sustainability of an activity/product/service, the positive and negative aspects (including unintended consequences) of this activity on all three of these areas are considered. The Venn diagram can be used to illustrate that there can be an overlap between these components.

2. Inform students that some activities are more sustainable than others and thus, every activity can be placed somewhere on a sustainability scale:

3. To help students gain experience in evaluating the sustainability of an activity, the class will evaluate one activity together – driving to school. As students consider the question “Is driving to school a sustainable activity?”, encourage them to consider the impact of driving to school on the environment, the economy, and society by answering the following questions:

<table>
<thead>
<tr>
<th>Environment</th>
<th>Economy</th>
<th>Society</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What resources are used?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. Project the Venn diagram at the front of the room and ask students to tell some positive and negative impacts that they came up with – write these impacts down with either a green (positive) or red (negative) marker on the appropriate area in the Venn diagram. Remember that some impacts may fall within more than one category and should be placed in the overlap regions on the Venn diagram.

5. By looking at the number and location of green (positive) impacts, the class should be able to come to a consensus about whether the activity is economically, environmentally, and/or socially sustainable. You can also discuss how some unsustainable aspects of driving to school can be made more sustainable (e.g. using biofuel instead of diesel).

6. Students will now repeat this activity by evaluating another activity of their choice as they complete Think-Pair-Share #2. Working with their partner, students will evaluate an activity within ONE of these categories: Individual Activities, School Activities, Government Actions, and Business Products/Services.
7. For each positive/negative impact that students come up with, ask them to write that impact down on either a green (positive) or pink (negative) post-it note. Instruct them to place each post-it note on the appropriate area in the Venn diagram provided on the back of their worksheet. Remind them that some impacts may fall within more than one category and should be placed in the overlap regions on the Venn diagram. By looking at the number and location of green (positive) post-it notes, students will be able to determine whether the activity is economically, environmentally, and/or socially sustainable.

8. Once students have had some time to evaluate their activity, direct them to determine where their activity should be placed on the sustainability scale. Ask them to bring their Venn diagram with the post-it notes attached to the front of the room and place it at this position on the scale provided at the front of the classroom so that they can see their activity compares to others. Alternatively, you may ask students to present their completed Venn Diagrams to their classmates as they place it on the sustainability scale. It is also interesting to see where groups evaluating the same activity place their Venn diagram.

9. Go over the various activities and the placement of their corresponding Venn diagrams as a class. You may address the following questions to the class:

1. How did you decide where to place your activity on the sustainability scale?
2. Did one category (e.g. economy) outweigh the others as you made your decision?
3. Do you agree with the placement of the various activities on the sustainability scale?
4. How can an unsustainable feature of an activity be adjusted to become more sustainable (e.g. using solar panels to power lights at a football field instead of electricity)?

**Extension**

Once students have gained experience evaluating the sustainability of an activity, present students with a scenario that requires them to critically evaluate the sustainability of two related activities and make an informed decision about which one is more sustainable, if possible. Scenarios you may wish to provide include:
• Recycling a bottle versus throwing it into the trash
• Drinking bottled water versus drinking tap water
• Using cloth diapers versus disposable diapers
• Using paper versus plastic shopping bags
• Replacing a working washing machine now with an Energy Star model versus waiting until the current washing machine breaks to replace it with an Energy Star model
• Buying a fuel efficient car versus buying a hybrid vehicle
• Eating foods grown locally versus eating fast food from a restaurant chain

Culminating Activities
• Ask students to discuss or write about how they can incorporate more sustainable practices into their daily life.
• Invite someone who works in the field of sustainable development to speak to the class.

Activity #4: What is Your Carbon Footprint?
Time needed: ≈15 minutes
Note: Students will need a computer for this activity.

1. Students will go to this website: http://www.nature.org/greenliving/carboncalculator/

At this website, students will enter their own personal information and a total greenhouse gas emissions number will be calculated for 4 categories: home energy, driving & flying, food & diet, and recycling and waste.

2. As students are finishing, the instructor will go around the room to record the carbon footprint number from each student (that way it is anonymous; or students can say their numbers out loud to the class).

3. The responses can be entered into excel or something similar to display the distribution of scores. The U.S. average is 27, so the class average can be compared to that to see how they compare.

4. Then, students will go back to their carbon calculator and pick one category (home energy, driving & flying, food & diet, and recycling and waste), that they realistically think they could do to decrease their carbon footprint.

5. Last, students will answer the following questions:

1. What is your total carbon footprint score?
2. Do you think it is accurate?
3. What is one thing you can change in your daily life that could reduce your carbon footprint?
4. What are some other areas that were not included in the carbon calculator that could tell more about someone’s carbon footprint?
Activity #5: Electronics Energy Expenditure
Time needed: ≈25 minutes
Note: Students will need a computer for this activity.

1. Students will answer the following question:

1. Out of the following categories, which one do you think you use the most energy in?
   a. computing and wireless
   b. entertainment
   c. home office
   d. telecommunication

2. Then, each student will calculate their energy use of their technological devices, of the four categories listed above: [http://www.greenergadgets.org/Energy-Calc.aspx](http://www.greenergadgets.org/Energy-Calc.aspx)

3. As the students calculate their energy use, there are tips and information that pop up. Make sure they read them, as this is part of the learning for this activity.

4. Next, students will get into small groups and will share their scores and interesting facts and tips they learned from calculating their energy.

3. Afterwards, ask the students if they have used solar power before. Then, tell them about the solar-powered charging station across from Herty Field on North Campus, which is a wooden table with solar panels. Ask the students to go there during the next week to charge one of their devices (e.g., cellphone, laptop, etc).

Activity #6: The Misperception of Materialism
Time needed: ≈30-35 minutes


2. After reading the article, students will take 5-10 minutes to write down their initial reactions to the article. The following questions can guide their writing:

1. Have you ever thought about the connection between money and happiness prior to reading this article? Explain.
2. How do you relate to the research presented?
3. What are the implications of the findings presented in the article in terms of sustainability?

3. Next, students will write out on their paper two columns: needs and wants. They will write down as many as they can of each in 5 minutes.

4. Then, students will answer the following questions:

4. How do you define a need?
5. What are two things that you could do in your daily life to increase your happiness that do not involve the purchase of material items?

5. Last, the instructor will lead a class discussion where students share their reactions to the article, responses of needs and wants, and ways to increase happiness that do not involve materialistic gains.

**Activity #7: People & Resources**

**Time needed:** ≈15-20 minutes

**Materials needed:**
- dry beans (e.g., black, pinto)
- tools/utensils—suggestions: spoon, fork, pencil, small cup, quarter, piece of paper, a ruler
- a large cooler, bag, or box

This activity focuses on the use (and abuse) of natural resources. By the end of this activity, students will have a better understanding of systems thinking, sustainability, and social justice.

1. A cooler full of all the natural resources in the world, represented by beans, sits in the middle of the room. Divide the students into families, with about 3 to 5 students per group.

2. Each family is randomly given a different utensil to use to gather the resources. Each family group sends a representative to simultaneously retrieve as many beans “as they care to take” from the cooler in ten seconds. (Almost inevitably, this turns into a competition with each family striving to procure as many beans as they can during each round.)

3. After the first ten seconds are up, have each representative go back to their families and give the beans to the family. Have the families pick another representative. Give the students another ten seconds to collect as many beans “as they care to take”.

4. After these two rounds, assign the students to write down their answers to a few of the questions below:

1. **When collecting beans, what was your goal?**
2. **The directions said to take “all the beans you care to take.” Did your family equate this to take what you need or as much as you can?**
3. **How do you define need? What values surfaced about sustainability and resources?**
4. **In this game, your utensil was provided, not earned. What could your utensil symbolize in life?**
5. **Did anyone choose to share their beans with another family? How would that have changed the game?**
6. **Have you experienced a similar situation at home, with friends, or in your community, where several people relied on a common resource? (For example, several people in the house competing for hot water in the morning.) How, in the long run, can the whole group benefit when individuals refrain from taking too much? What sort of attitude do we need to have as individuals to achieve the greatest benefit for all?**

5. After students write down their responses, have the students start a class discussion, sharing their opinions.