

Destination 2018: Sustainability Lesson Plan

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DISCIPLINE: COMMUNICATIONS

The goal of this lesson plan is to help you decide why and where you will infuse sustainability to improve student learning. Remember that sustainability is not an "add-on" content area; rather, sustainability can be integrated into already existing lessons as in-class examples of concepts and as a context for activities and problem sets that promote critical thinking.

Week 1: Needs Assessment

This week you will write a needs assessment for your lesson, learn about SDG goals, and identify 3 goals that could align with your course and topic.

Needs Assessment

1. Write your Needs Assessment:

(examples)

My students frequently complain that ENC1101/1102—an introductory, general education course—will not be relevant to their career or life goals. Part of this misalignment with their course material appears to be an engagement issue. They're not interested in improving their writing. More important, perhaps, is that students expect their instructors to create lesson plans and cover material that they *are* interested in. As an instructor, I fundamentally believe that students should work to find alignment between their course material and their interests, that this is a concrete example of critical thinking in practice.

2. Explain why you think infusing sustainability will help this need:

(examples)

If the National Union of Students' statistics suggest that 60% of students are interested in learning more about sustainability, then the focus of their research projects can be chosen goals of the United Nations Sustainability Development Goals. Using the SDGs will allow the students to research in an acute area of focus, relevant to their past and their personal priorities, connect to critical issues in their local environments, and create empathy for the developing world. Engagement with the topic could improve intertextuality and focus in their research work, ultimately allowing students to find relevant interests in their course work. The statistics also suggest that 87% of students care about the sustainability practices of their college and work places. The increase in sustainable action plans can begin with them, showing the students the power of the written word to effect change, and of their impact in places that matter to them.

3. State where (course or area) you are infusing sustainability and the topic:

(examples)

I'd like to infuse sustainability into my First-Year Writing Courses (FYWC), primarily in ENC1101. The focus of this class is on writing, but also on learning the methods of successful research. 1101 is a prime location for including sustainability, as many of the students will become STEM majors, and can benefit from a focus on science. Since the writing in the course can be on any topic, this allows some mobility within the course concerning topic of choice, while also having the class able to research as a group. The research essay in Professor Holt's course is scaffolded through small assignments over a series of 5-6 weeks. These assignments include peer drafting and review, a whole-course annotated bibliography, and research into writing by experts. Expert, peer-reviewed writing tends to be difficult for students to tackle, especially when the research is outside of their chosen degree field (as many FYWC students have not yet chosen an intended major). However, much of the writing on Sustainability is written with a diverse and general audience in mind to foster growth in a newer field of global study. Likely, the writing will be more engaging and easier to manage for FYWC students.

The intended approach is to theme the research essay around the United Nation's Sustainable Development Goals, allowing each student to learn first about sustainability in a general way, and then selecting a more acute area of focus using one of the 17 goals. The student will then engage with the topic to find overlap in their personal lives, use research to deepen their understanding of the topic, and propose solutions they'd like to see in their future, thus fostering the pathway to feeling confident in their opinions.

Research SDGs

Visit the [Sustainable Development Knowledge Platform](#) to research the Sustainable Development Goals.

4. Choose at least 3 of the SDGs of interest that could align with your topic and share why:

(examples)

11. SUSTAINABLE CITIES AND COMMUNITIES: In ENC 1102, we study five different literary criticisms, including Ecocriticism. As part of this unit, we learn what biomimicry is, and how engineers use it to design smarter cities. To practice, ENC 1102 students group think about how they'd like to see their own campus be designed in smarter ways. Using this SDG, students could research possible solutions to those designs by learning more about animals, plants, and ecosystems that they could mimic to create sustainable college campus designs. For instance, students interested in decreasing energy consumption could research how the electric eel displaces its energy into surrounding areas, or how fireflies create light by bouncing it around with a complex set of mirrored surfaces. This small assignment could easily be tailored to focus on sustainability goals instead of just design by switching the prompt to something like "In what ways could your college campus be more sustainable? Research an animal, plant, or ecosystem that performs this, or a similar, function sustainably. How can we mimic that biological system to create a more sustainable campus?"

12. RESPONSIBLE CONSUMPTION AND PRODUCTION: When asked, students often most equate sustainability with recycling. The SDGs switch the environmental focus away from disposal, and onto how we can instead consume and produce less to effect change in the trash cycle. This change in perspective can be beneficial to students in two ways: learning how they can be better stewards of their world, and understanding how a change in topic affects audience's likely actions. Admittedly, the latter is more aligned to the goals of the course. However, we should also foster the human behind the mind. Students can use what they currently know about trash, recycling, and waste management, and work towards editing an un-researched proposal for a new audience. This shift in perspective in their writing often yields fantastic results, allowing students to use what they know about digital audiences to create innovative arguments beyond the limitations of an essay.

14. LIFE BELOW WATER: Students can study their local water table, EPA data about their state's water, read a short story or nonfiction essay about someone's experience with clean water, and then compare all of this to their own experience with water. In this way, students could create a multi-faceted essay combining many different voices and perspectives, and use comparative analysis to find patterns between how citizens view their experience with water. As Floridians, each of us have had some connection to water: be it the ocean, lakes and rivers, swamps, or pools. This assignment would allow them to search for their own meaning through the recursive process of writing.

Week 1 Reflection

5. Now that you have completed this week's portion of the template, reflect on the following:

- a. I'm excited about creating a theme for a composition course that students can get excited about and can keep them focused all semester. I have recently finished a theme for ENC1102 around horror films, but as a literature course where students already have a background in writing, 1102 is a much easier course for which to develop a theme. 1101, on the other hand, is very content heavy already. What I like about sustainability as a possible theme, is that it's already so ubiquitous in our culture that each student likely already has *some* feelings about the topic, and can bring their knowledge to the table. It also creates a fantastic landscape through which to incorporate the Peace and Justice Principles and discuss the different perspectives available in the class and beyond, and how we can understand marginalized groups through their experience with the world around them, instead of specifically focusing on politics, which I find this generation is exhausted by.
- b. I have questions about finding resources that are on a reading level my students will be comfortable with. Additionally, I'd like to find resources that make room for my conservative students to feel like their opinions can be heard and participate, without capitulating to unrealistic or false assumptions about the data-driven science we know to be true.
 - a. I also really want a tutorial on creating flash cards in Quizlet that I can add to Canvas. That was really cool!

Week 2: Learning Outcomes/Research

This week you will write the student learning outcome for your lesson, explore lesson plan examples, look at a variety of classroom assessment techniques, and consider how you could incorporate the 3 Pillars of sustainability with a learning activity.

Student Learning Outcome(s)

The Student Learning Outcome is a statement of what the student will learn or be able to do because of this lesson. For more information on how to write a measurable learning outcome, review the following resources:

[How to write a Student Learning Outcome \(Slides 1 to 5\)](#) | Bloom's Taxonomy Resources - [Bloom's Taxonomy Action Verbs](#), [Bloom's Interactive Graphic](#), [Bloom's Taxonomy of Learning Domains](#)

6. Write your Learning Outcome:
([examples](#))

Students will use a brief practice in biomimicry to be able to articulate the role of personal opinion in creating strong proposals and analyses.

Sustainability Lesson Plan Samples

Explore the following resources for lesson plan ideas:

- [Sustainability teaching activities across the disciplines](#) (Repository developed by Carleton College)
- Lesson plans organized according to conceptual Sustainability Systems: [Water](#), [Energy](#), [Food](#), [Waste](#), [Landscape & Ecosystem](#), [Supply Chain](#), and [Quality of Life](#) (Developed by ASU faculty)
- [AASHE Curriculum Resources Hub](#) (requires login)

7. Of the lesson plans you've explored, pick 3 and share why you selected those:
([examples](#))

1. **Sustainable Transportation | sustainability.asu.edu:** ENC1102 students commonly focus on argumentative essays, and one of our first lessons is on effective opinions as the foundation of formal arguments. I like that students will be able to utilize this lesson plan to focus on how opinions affect arguments. Students will study different sustainable transportation systems, and critically analyze their opinions of the transportation options available, including suggestions for improvement. Using this lesson plan we can study how personal opinions can be supported by research.
2. **Read and Analyze a Short Story | serc.carleton.edu:** During this assignment students are asked to use an ecocritical focus to analyze how environmentalism affects the theme of a short story. This is one of the plans I've had in the back of my head to try, but haven't yet. I didn't feel that I had enough understanding of how to actually do this type of analysis on my own, but given the resources provided, I feel a lot more confident in teaching the material to students. This fits in line with our literary focus of ENC1102.
3. **Finding the Personal Voice of Sustainability | serc.carleton.edu:** In ENC1102, we study how a audience and writer affect the rhetorical choices of the essay. This is a fantastic small assignment for FYC students to understand that rhetorical shift first hand. Students will locate an article on sustainability or environmentalism, and rewrite the article as a first-person monologue. They might add hypothetical anecdotal evidence, or expostulate on the author's background given the information available. I believe this kind of assignment would help students understand both how passion for a topic affects quality of work, and also how audience affects rhetoric.

Classroom Assessment Techniques

Explore the following resource for Classroom Assessment Techniques:

- [101 Strategies to Demonstrate the Essential Competencies](#) – a college of classroom assessment techniques aligned to the essential competencies of a Valencia educator prepared by Valencia faculty Donna Colwell and Kevin Colwell
- [50 CATs by Angelo and Cross](#)
- [Classroom Assessment Techniques](#) by Northwest Evaluation Association

8. Of the CATs you've explored, pick 3 and share why you selected those:
([examples](#))

Each of the following CATs falls under the Inclusion and Diversity competency, because it bridges the space between the critical thinking in English Composition and in empathy learned through Sustainable teaching.

1. Curriculum as Window: This CAT allows students the opportunity to see perspectives they had not previously considered. We might utilize this through short stories from diverse authors in parts of the world that most experience climate change. This will provide a level of experiential learning in the classroom that is rarely attained outside of travel. This can also impress upon the students the power of the written word to deliver messages across the globe.
2. Curriculum as Mirror: This CAT, in contrast to windows, provides students the understand that people like them are experiencing similar thoughts about the world. Seeing voices like their own, whether it's based on race, gender, religion, or socioeconomic background, can help the student feel more confident in their own opinions. Seeing that the instructor values those author's perspectives might reinforce that the student's own opinions are valuable, and should be written down.
3. Opposing Viewpoints: Students often struggle to feel comfortable in political or controversial discussions. However, using opposing viewpoints might enable the student to feel more comfortable expressing opinions if they understand that everyone is required to take up a role in the conversation. The act of trying to defend a side you wouldn't normally agree with is also a powerful way to strengthen their own viewpoints through more critical understanding of the topic.

3 Pillars Activity Idea

Review the 3 Pillars Worksheet.

9. Describe an activity that incorporates the 3 pillars:
([examples](#))

I find that students enjoy poking holes. They don't want to proofread their own papers. But when you put a sample essay on the board, they'll ruthlessly cover it with red ink. When confronted with this hypocrisy later, the papers suddenly become more grammatically correct, as if by ****magic****. Using this thinking, I'd like to suggest that students find sustainability articles from amateur writers—their favorite kinds of authors for easy research—and identify possible failings in the environmental, social, and economical thinking of the sustainability suggestion. This could possibly be tied to a lesson on identifying logical fallacies. Possible pitfalls of this assignment are that amateur authors tend to repeat ideas they've heard elsewhere, and so maybe their ideas will be perfectly sound, but simply lacking in statistical or credible support.

Week 2 Reflection

10. Now that you have completed this week's portion of the template, reflect on the following:

- a. I'm excited about finding more small assignments that fit into lessons I already use. There are quite a lot of lesson plans available in the links above, and they will take a while to sift through.
- b. I have questions about endurance of topic. If I do want to make this a larger, thematic project, will an entire composition course on sustainability be too repetitive? Considering that I'd only be providing a small introduction to sustainability, so as not to take focus away from the teaching of composition, will students lose steam and feel like they're writing the same ideas over and over again without digging deeper? Is there a way to combat this educational fatigue?

Week 3: Putting it All Together

The goal for this week is to create an activity that incorporates the SDG, CAT, and connection to the 3 Pillars of sustainability.

SDG Selection

11. Choose the SDG that aligns best with your Needs Assessment/Student Learning outcome and explain why:
[\(examples\)](#)

Since I've settled on the idea of using a previous exercise on biomimicry, I think Sustainable Cities and Communities would be the best fit for this assignment. Focusing on sustainable communities would allow each student to individually develop a project that fits a variety of biomimicry options. Since biomimicry uses biology as a foundation for how to engineer and innovate changes in our community and city structures, it opens up a diverse array of potential topics, and overlaps into other SDGs for related research.

CAT Selection

12. Choose the CAT that aligns best with your Needs Assessment/Student Learning out come and explain why:
[\(examples\)](#)

The CAT I'll be using is "Curriculum as a Mirror." I want students to understand their own involvement in effecting change. My Needs Assessment discussed student's inability to engage with the writing goals of the course, and if I can convince them that their opinions matter, then we are halfway there. As such, I want them to start with their own opinions and see how they can create mirrors to the problems and opinions of others.

3 Pillars Activity

13. Describe how you will incorporate the 3 Pillars into your activity:
([examples](#))

When each student identifies the element they'd like to innovate during their activity, they will have to identify the Economic, Environmental, and Social benefits and drawbacks of their decision. This will probably be used as a self-evaluative tool before the final draft in the process to check their work in groups, but also as a foundation for the thinking in their essay.

Activity Draft

14. Create a draft of the activity using the SDG, CAT, and 3 Pillars:
([examples](#))

Lesson Objective: Students will use a brief practice in biomimicry to be able to articulate the role of personal opinion in creating strong proposals and analyses.

Prep Work: I have a set of twelve whiteboards and markers that I will bring for students to brainstorm and draw designs in groups.

Introduction: Students will begin the lesson by reviewing the elements of Ecocritical Literary Criticism. One of those elements is experiential learning: doing the processes we study to understand them at a fundamental level. Students will learn the definition and function of biomimicry through the following video, <https://www.youtube.com/watch?v=iMtXgTmfta0>. Finally, students will be introduced to the goals of the Sustainable Cities and Communities SDG.

Activity: In groups, students will brainstorm design elements they think are outdated or dysfunctional in a college campus. This might include the style or function of classrooms, architecture, tools, tech, energy, or processes the college uses. The groups will then identify a single element of college campuses they'd like to innovate. They'll identify what's wrong with the element, and then how they'd prefer it to work, creating mirrors for the needs of others in the real world. They'll use this as the beginning of research for the biological creature or ecosystem that could solve their problem. For example, if students don't like that classrooms do not have energy efficient lighting, they might research plants or animals that create their own light, and discuss how to innovate the lighting in the room by mimicking the plant or animal they chose.

Assessment: On the following class day, the student groups will present their findings and suggest how to mimic ecology to improve an element of the college campus, as well as the environmental, economic, and social benefits and drawbacks of their proposal.

15. Explain how the activity aligns with your Needs Assessment/Student Learning Outcome
([examples](#))

Students need to find value in their own opinions, and how writing about their opinions will effect change. I'm hoping that students will become engaged in the opportunity to make wild, ridiculous, and unrealistic changes to college campuses, when not limited by the confines of having be graded on a problem that has a single answer.

Week 3 Reflection

16. Now that you have completed this week's portion of the template, reflect on the following:

- a. I'm excited about implementing this assignment in a more successful way. I have taught biomimicry before, but it lacked structure and context.
- b. I have questions about nothing right now. I think I'm okay.

Week 4: Lesson Plan Draft

This week you will finalize your activity and create directions for students.

17. Prepare a set of instructions on how to facilitate this activity.
([examples](#))

Answer the following questions:

What prior knowledge will students need to be successful with this activity?

At this point in the unit students will be familiar with literary criticisms, and learned the specific foundations of ecocriticism. They will have studied guided experiential learning once already, and this lesson will allow them to test their skills with more control of their project.

What needs to be setup prior to delivering the lesson?

The instructor will bring in a set of 12 mini whiteboards, markers, and erasers for product design and planning.

What resources and materials will you need?

The instructor will utilize an introductory video on biomimicry by Vox
<https://www.vox.com/videos/2017/11/9/16628106/biomimicry-design-nature>

How do you plan to introduce the topic?

Students will be introduced to biomimicry as one of the ways that we integrate ecology into our world. Biomimicry is an example of the same kind of systems thinking we use when we take an ecocritical focus to any literature we read.

How will you keep students engaged?

This is a hands-on activity scaffolded with many small steps in a larger process. They also have a showcase of selected projects the following class period.

Step-by-step run of the activity

Now that you have addressed the questions above, include directions in the draft of your activity

Students will be studying in the ecocriticism unit of a composition 2 course. They have studied three different literary criticisms, and are working on their fourth, ecocriticism, which studies the ways in which our literature engages with or critiques the connectivity between humanity and the natural world. Students will be reminded of the three pillars of sustainable design, and of the four types of experiential learning: toponymic, narrative, experiential, numinous. Students have already discussed how stories can create toponymic and narrative experiences for us, but we are practicing experiential learning as a way to engage with the text. Experiential learning requires engaging with the source material to understand it more fully. As preparation for doing this in literature, we are taking a hands on approach and learning one of the ways in which our Anthropocene engages with the natural world: through biomimicry.

Students will begin by watching a 7 minute video podcast on biomimicry in Japan. We will follow this up by reviewing the relevant portions of the video: definition of biomimicry, the different sectors of ecology than engineering can mimic, and the goals of biomimicry.

Students will organize into groups to brainstorm a list of processes or products on a college campus that are either out of date, or they don't like for whatever reason. Each student will select an individual product or process on the campus and work in groups to resolve it. Though they will have their own product or process to solve through biomimicry, each group will work together in the brainstorming phase. Students should ask questions like "what, at the core of this product/process does not work? (Example, student desks either allow for group work, or allow everyone to see the board, usually not both. There's a lack of multifunctionality in classroom design. Maybe they should be able to move easier?) Students will then brainstorm what plants, animals, or ecosystems use or produce the function they are looking for. (Example: well, all animals move. Wolves move in packs but can also travel alone. Ecosystems move, but I'm not sure how that helps. What about prayer plants and sunflowers? They follow the sun like the student needs to follow the teacher). Students should study how that process happens in the plant/animal/ecosystem, and work to find a way to recreate that natural process in a world engineered for humans.

At home, students will produce a brief report, including research, on how the problem with the college classroom can be resolved using biomimicry. In the report, students will include the economical, environmental, and social benefits and drawbacks of the project. Students will vote on which products or designs they'd like to see presentations of. Chosen projects get extra credit or extra participation.

Week 4 Reflection

18. Now that you have completed this week's portion of the template, reflect on the following:

- a. I'm excited about including the 3 pillars in this assignment. I've tried one version of this assignment in a much smaller form, as a whole class, and there was a lack of cohesion in the assignment. We went through the steps, but I felt the activity lacked impact.
- b. I have questions about I'm fine right now. I'm excited to hear everyone's lesson plans.