



Unit Plan Template

BACKGROUND:

Lesson Background:

- Why is the unit designed this way?
 - This unit is designed this way to show students that the impact that they can make on the environment as a whole starts with a local environment to them.
- How did you select your community partners?
 - The community partners that I selected include the student's friends, family, and faculty members. These are members that not only live or work near areas where students are going to do their work but are also people whom the students can feel accountable.
- Is there relevant or special content knowledge or background information that you think is required to implement the unit. For example background info on lo'i.
 - Because of the nature of my unit the students will understand the basics of ecology however the individual environment that they will select will be unique. Students will need to understand the differences between environments described in class and the environment that they select, meaning they will need to be able to think about their environment as an individual.

Unit Overview:

The overall purpose of this unit is to engage students in understanding the changes that they can make locally to better the natural environments that they enjoy. This tackles a real-world problem of students being faced with global issues but not being given local tasks to tackle that together can result in global changes. The basic design of this unit is learning about the basics of ecology and environments and the understanding of being successful in their capacity. The culmination of this unit will be their final project which is a visual podcast that includes interactions (or questions) from local members of significance to the student.



STAGE 1:

- What is important for students to understand and be able to do?
 - It is important for students to be able to recognize problems that are not only global issues but issues that exist in their own community. It is important for students to be able to think through ways that they can assist in alleviating a problem rather than contributing to a problem.
- What do students already know and are already able to do?
 - At this point students will already know about the ecosystem and species interactions in a general sense. Students are able to conduct their own research.
- What are students curious about?
 - Students are curious about what they can actually do. In the past talking about global issues and thinking of creative ways to solve them was just that, only thinking. Students are curious about what they can do now in their own communities and how their communities are being affected.

Unit Plan Title:

Essential Question:

- **Why should we care about our impact on the environment?**

Enduring Understanding(s):

- **Students understand that the health of an environment is impacted by external factors.**
- **Students understand that diversity within and between environments affects the interactions that occur in an ecosystem.**

Standard Benchmarks and Values

Science	Technology	Engineering	Mathematics	Social Science
<u>Standards Addressed</u> NGSS HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity. (practice) HS-LS4-5. Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species (introduce) HS-LS4-6. Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity. (introduce)				

C3

D1.1.9-12. Explain how a question reflects an enduring issue in the field. (introduce)

D4.6.9-12. Use disciplinary and interdisciplinary lenses to understand the characteristics and causes of local, regional, and global problems; instances of such problems in multiple contexts; and challenges and opportunities faced by those trying to address these problems over time and place. (practice)

ELA

CCSS.ELA-LITERACY.SL.9-10.4

Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task. (practice)

Standards Assessed

NGSS

HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

C3

D4.3.9-12. Present adaptations of arguments and explanations that feature evocative ideas and perspectives on issues and topics to reach a range of audiences and venues outside the classroom using print and oral technologies (e.g., posters, essays, letters, debates, speeches, reports, and maps) and digital technologies (e.g., Internet, social media, and digital documentary).

CCSS.ELA-LITERACY.SL.9-10.5

Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Sense of Place (Nā Hopena A'ō and beyond)

- Belonging
 - Caring for an area of land that means something to them.
 - Being able to see the positive influence of their work.
- Responsibility
 - Showing that humans have a responsibility as a dominant species to care for the environment.
- Excellence



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|---|
| <ul style="list-style-type: none">○ Conducting work to the best of their ability to show their success. |
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Critical Skills and Concepts:

- Students are able to identify local environmental issues
- Students are able to effectively speak on local environmental issues
- Students understand that a large majority of environmental problems stem from human interactions.
- Students understand that humans have the capacity for change and the ability to work towards bettering the environment.
- Identification of environmental issues
- Identification of causes of environmental issues
- Processing what a student can do, in their position, to assist in the betterment of the environment.



STAGE 2:

Reflections before completing Stage II:

- o Students have learned about their specific environment
- o Students have grown beyond identification into action and advocacy

Authentic Performance Tasks:

- o Students conduct a podcast talking about a specific environment, the issues that the environment faces, and solutions that are taking place or can be implemented to better that environment. Students show examples of work they have accomplished to help better a specific environment. The podcast is then uploaded onto the school website for students and faculty to listen to.

Authentic Audience:

- o Family members, friends, and faculty members. Students will show their draft visual podcast video and record their audience's reaction to the video. Reactions will be placed at the end of their podcast.

Other Evidence:

- o Planning their podcast and topics to be discussed
- o Researching and identifying changes that have occurred in their environment



STAGE 3:

Reflections before completing Stage III: (note: you do write answers to this question here)

- How do students best learn?
 - Students best learn by being the center of the learning process and engaging in activities that challenge them.

Learning Plan:

- How are the STEMS² Pillars integrated across your learning plan?
 - A'o - student presentations and digital advocacy
 - Makawalu - analyzing the different factors and viewpoints on global issues
 - Mo'olelo - History of local places and connection to learning journey
 - Sense of Place - Awareness of places near to the students that they can build a sense of place with.
 - Advocacy - authentic assessment where students go out of the classroom to show their digital advocacy pieces and record the reactions of their viewers.
- Identify knowledge and skills students will need to accomplish the Authentic Performance Task.
 - Students need to have an understanding of what impacts ecology and how students are able to alleviate impacts.
 - Students need the skill of light video making and editing.
 - Students need the skill to approach someone and talk about important issues.
- Address how lessons will spiral and scaffold to build up to the culminating assessment.
 - The lessons start with a creative activity that displays that people are often thinking about sensational global problems rather than local problems.
 - Learning journey shows the students that there are a lot of local problems that have practical solutions.
 - Students then research local ecology and restoration projects to build advocacy media as a practical solution to the problem of human impact on environments.
- Notate how you will link to Enduring Understandings and make connections between discrete knowledge and larger themes often.
 - Students will see that one of the largest external influences on environments is humans. Both halves of this unit focus on this thought process through a global and local lens.
 - Students will build connections in how our actions have indirect ecological consequences. This will be shown in their innovation vs extinction project presentation, the learning journey, and through their digital advocacy.
- Give students a chance to practice all skills needed to accomplish the final assessments several times.
- Offer students a chance to
 - Think about new knowledge/skills
 - Do /create/make using the knowledge/skills
 - Reflect and receive *feedback* on knowledge/skills
 - Re-do (several times, if needed) constantly pushing for excellence



Day 1

Time:

- 75 minutes including the homework section that students can work to accomplish in class.

Lesson Objective(s):

- HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
- HS-LS4-5. Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.
- HS-LS4-6. Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.
- D1.1.9-12. Explain how a question reflects an enduring issue in the field.
- D4.6.9-12. Use disciplinary and interdisciplinary lenses to understand the characteristics and causes of local, regional, and global problems; instances of such problems in multiple contexts; and challenges and opportunities faced by those trying to address these problems over time and place.

Lesson Launch Notes:

- In my class we do checkpoints at the beginning, middle, and end of a unit. This lesson follows their ecology exam where I now have them do their second checkpoint.
- Students are then asked the question “Why should we care about the environment.” Students are instructed to think-pair-share.

Lesson Closure Notes:

- Closing activity: Students form groups to identify an ecological impact on a specific species within a specific area. The impact is limited to human impact and is encouraged to pursue indirect impacts (examples of direct impacts include poaching and deforestation; these offer less “innovative” or creative thought processes).

Lesson Tasks, Problems, and Activities:

- Ecology 2nd Checkpoint
- Why should we care about the environment?
- Why do you think a lot of people don't spend time taking an active role in taking care of the environment?
- [How to Train Your Coral](#)



- T-chart on strengths and weaknesses of the innovative solution at the gates lab leading into a class discussion
- Sign up and begin the brainstorming process for the innovation vs. extinction project.

Evidence of Success:

Students will be able to analyze the strengths and weaknesses of a given innovative ecological solution as well as the limitations that a solution currently has.

Notes and Nuances:

- Human Impact
- Ecological Impact
- For the most part students will focus on “global” problems, let them. This will be addressed later in the unit.

Resources:

- Computer and projector
- Student 1-1 computers

Homework:

- Between this lesson and the next lesson students will continue to think about and assess the ways in which humans impact the environment, focusing on their specific species. Prior to the next class period, students will have their google slides started and will have identified the following:
 - The species that are being impacted
 - The environment that the species lives in
 - How humans are impacting that species
 - The role that the species plays in their environment (leading to what happens should these species go extinct).



Day 2

Time:

- 75 minutes including the homework section that students can work to accomplish in class.

Lesson Objective(s):

- HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
- HS-LS4-5. Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.
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Lesson Launch Notes:

- Focus the students that they should now have the background information they need to have an understanding of their species, the environment they live in, and our human impact.
- Go over the expectations of today's class in that students will come up with their draft innovative solution and ready their presentations for the next class.

Lesson Closure Notes:

- As this is their major work day to be immersed in a creative process there will be no closing activity. The teacher will meet with each group to make sure that students are on track and provide timing recommendations.

Lesson Tasks, Problems, and Activities:

- Students work to create a detailed drawing/3D model and description of their innovative solution and how that solution solves or reduces the negative impact that humans have on a specific species.



- By the end of the class period students will have their completed slides for presentation. Groups that are not finished will have this assigned as homework to be completed before the next class.

Evidence of Success:

- Students are expected to be able to give a detailed description of how their innovative solution directly solves a key issue in regards to negative human ecological impact.

Notes and Nuances:

- Students that may have sidestepped the assignment requirement of an indirect impact are going to feel a little lost at this point. Direct solutions have, for the most part, direct answers. Since the requirement for this assignment is something that is innovative it can be hard for students to think of innovative solutions to direct human impacts.

Resources:

- Paper and drawing utensils
- Computers

Homework:

- Students complete their slides (including their innovation drawing and description) and prepare for their presentation.



Day 3 +4

Time:

- 150 minutes (will vary depending on how many groups are presenting and the length of their presentations and feedback).

Lesson Objective(s):

- HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
- D4.6.9-12. Use disciplinary and interdisciplinary lenses to understand the characteristics and causes of local, regional, and global problems; instances of such problems in multiple contexts; and challenges and opportunities faced by those trying to address these problems over time and place.

Lesson Launch Notes:

- I begin this lesson to make it very clear to the students the expectations of behavior and participation.
- Explain to the students that their current presentation is not their final grade, the incorporation of the peer feedback and their revisions will be their final grade.

Lesson Closure Notes:

- Student feedback will already be organized via google forms.
- Students focused on analyzing the feedback to look for themes in the suggestions and analysis of weaknesses in their design.

Lesson Tasks, Problems, and Activities:

- All students will be presenting, asking questions, and giving feedback (verbally and via google forms) on the innovative solutions presented by their peers.

Evidence of Success:

- Students are able to analyze the weaknesses of an innovative solution and offer guidance on suggestions for improvement.

Notes and Nuances:



- Students will go into a presentation thinking that this is their grade. For this assignment they are not graded on their presentation, their presentation serves as a spotlight for feedback.
- Student feedback may need to be modeled for the students.

Resources:

- Computer
- Projector
- Personal student computers to access feedback on google form

Homework:

- Depending on how much time you have during the class period where the presentation ends this homework section will look different.
- If there is a lot of time, have the students look over their feedback and begin to find themes in suggestions, and begin to think about what they can do to revise their solution.
- If there is little to no time, consider modeling how to theme the suggestions and have the students do this for homework, or to save this task for the next class session.



Day 5

Time:

- 75 minutes.

Lesson Objective(s):

- HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
- HS-LS4-5. Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.
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- D1.1.9-12. Explain how a question reflects an enduring issue in the field.
- D4.6.9-12. Use disciplinary and interdisciplinary lenses to understand the characteristics and causes of local, regional, and global problems; instances of such problems in multiple contexts; and challenges and opportunities faced by those trying to address these problems over time and place.

Lesson Launch Notes:

- Focus students on analyzing their feedback for themes on suggestions and weaknesses as it pertains to their innovation.

Lesson Closure Notes:

- The activity for today is reflection and revision. Students focus on creating a second iteration of their innovative solutions. There will be no foreshadowing of the next lesson as the next lesson is meant to be in stark contrast to the work they have done.

Lesson Tasks, Problems, and Activities:

- Students work to revise their innovative solutions to account for the major suggestions and weaknesses brought forth by their peers.
- Students submit their second iteration with a description of the improvements.

Evidence of Success:

- Students will be able to explain their second iteration showing that they have been able to analyze and think critically about the feedback given by their peers.

Notes and Nuances:



- Students may need help to “theme” the responses they gathered. The process should be explained in a way of analyzing what was most prominent (what did most people say) and what was most important (what were the changes that absolutely needed to be made).

Resources:

- Student computers
- Paper and drawing utensils

Homework:

- The homework for this lesson can range from no homework to giving students information to read/interact with on the learning journey to take place the following day.



Day 6: Learning Journey

Learning Journey is placed here to help with students' awareness and transition of thought from a global perspective to a local one.

The recommendation is to partner with a local organization that does ecological restoration and has an opportunity for education and volunteering.

In this students will learn about a place, and how it has been impacted and will participate in service-learning through assisting with ecological restoration.

Time should be taken at the end of the day to debrief and lead into the work that will be done on days 7 and 8.



Day 7

Time:

- 75 minutes.

Lesson Objective(s):

- D4.3.9-12. Present adaptations of arguments and explanations that feature evocative ideas and perspectives on issues and topics to reach a range of audiences and venues outside the classroom using print and oral technologies (e.g., posters, essays, letters, debates, speeches, reports, and maps) and digital technologies (e.g., Internet, social media, and digital documentary).
- CCSS.ELA-LITERACY.SL.9-10.4. Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to the purpose, audience, and task.
- CCSS.ELA-LITERACY.SL.9-10.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Lesson Launch Notes:

- Frame the transition by referencing how many groups reported on global issues in the previous activity. Transition this into talking about some of the ecological impacts that is happening locally. Use this time as a short reflection on the learning journey that took place on the previous day.

Lesson Tasks, Problems, and Activities:

- Teacher will go over some math and statistics that revolves around human volunteer hours and the impact on the environment. An example for Oahu leads to a calculation of about 65,000 days of human work that can be done per month to better the environment (3 hours once a month, 70% of individuals that are aged 10-54).
- Present the call to action for students to build their concept of how advocacy can help to achieve this.
- Go through an example of using abode express video maker to do voiceovers over a video that has images and videos.
- Students practice by making a short 30-second video on any topic
- Students are directed to research specific places and organizations where volunteer ecological restoration opportunities exist.

Evidence of Success:



- By the end of this lesson students should be able to identify opportunities

Resources:

- Internet access and personal computers
- Video editing software (adobe express)

Homework:

- Students continue to gather images and information on their specific restoration opportunity.



Day 8

Time:

- 75 minutes.

Lesson Objective(s):

- D4.3.9-12. Present adaptations of arguments and explanations that feature evocative ideas and perspectives on issues and topics to reach a range of audiences and venues outside the classroom using print and oral technologies (e.g., posters, essays, letters, debates, speeches, reports, and maps) and digital technologies (e.g., Internet, social media, and digital documentary).
- CCSS.ELA-LITERACY.SL.9-10.4. Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to the purpose, audience, and task.
- CCSS.ELA-LITERACY.SL.9-10.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Lesson Launch Notes:

- Students are instructed on the expectations for today and what their product will be.
- Students work to put together their video and script, voice-over will be recorded for homework.
- Students are instructed that they will show their video 1 family member and 4 other people of their choosing to interview them on if they knew about this volunteer opportunity and what they think about it. This portion will be recorded and added to the end of their video.

Lesson Closure Notes:

- This is the final lesson of this unit. Students will be taking their product and completing it for homework before showing it to the community.

Lesson Tasks, Problems, and Activities:

- Writing their script for their digital advocacy video
- Creating a completed image gallery on adobe express
- Rough timing their script to their video

Resources:



- Internet access and personal computers
- Video editing software (adobe express)

Homework:

- Students do their voice over
- Students show their video and record the reactions of 5 people
- Students turn in their assignment.