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Climate Change Education:

How can we teach climate change to create agency rather than anxiety with outdoor education?

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Abstract:

Climate change is leading to an increase in mental health impacts of anxiety, grief, and depression on young people, with many feeling it affects their daily life and functioning. Because of the direct and existential threat that climate change poses to youth, it is essential that educators provide opportunities for students to be informed and empowered through tools to cope with mental health impacts as well as tools for action. Outdoor education can provide the space for educators to engage with climate change discussion and an empowering structure for students to engage with nature, develop problem-solving skills, and strengthen their communities. Because of the structure and tools provided by outdoor education, as well as my experience planning and guiding trips, I decided to develop a weeklong climate change curriculum for a backpacking trip on the Big Island of Hawai'i. This trip aimed to engage students with climate discussions while teaching outdoor skills. The trip included many opportunities for engaging in climate discussions, practicing outdoor education skills as well as spending time connecting outside. Throughout this research and development of climate change curriculum I have learned more about how educators can utilize outdoor education and experiences as a resource, and it is essential we continue to learn more about how to teach climate change in an effective way as educators are on the frontline of helping students become informed citizens that feel empowered and safe in the world.

Introduction:

Climate change is a global threat that has impacts that will increase in intensity and frequency if there are not immediate actions taken to reduce greenhouse gas emission levels. Climate change is causing more severe and frequent storms, floods, droughts, wildfires, and other extreme weather events (IPCC, 2021). A healthy climate future depends on the changes the globe decides to make as a collective, whether that is a continuation of business as usual emissions or an extreme shift in the amount of carbon dioxide emitted (NASA). The current plans for combating climate change are not being executed with the urgency in which many scientists believe will be required to stabilize the climate.

Due to the lack of urgency and the complex nature of the issue, climate change has large impacts to mental health and general wellbeing. Young people are more at risk of these mental health impacts. Educators can play an essential role in helping young people understand climate change, as well as provide pathways forward. Climate Change education that addresses mental health and general wellbeing of students needs to be integrated into curriculum, as it is something that young people will be faced with for the rest of their life and it is important that schools adapt to assist in helping students with these burdens (Schneider, 2021). In order to assist schools with these burdens, outdoor education can be used as a tool to teach climate change effectively, in a way that empowers students rather than induces anxiety. Outdoor education is an effective tool because of the benefits of being in nature and learning with hands-on experiences in community building settings.

Needs Assessment:

Young people are exposed to the impacts of climate change, both current as well as an idea of impending doom. The knowledge of their future being at risk, while not being the main cause, or having the power to make immediate change, is hard to cope with. The lack of immediate action by governments is leading to a deep mistrust in world leaders and intense emotions of helplessness in youth. A recent study from the University of Bath focused on Climate Anxiety in 10,000 youth aged 16-25 in 10 different countries. (Australia, Brazil, Finland, France, India, Nigeria, Philippines, Portugal, the UK, and the USA) When these young people were asked about climate change over 50% responded as feeling sad, anxious, angry, powerless, helpless, and guilty. Over 45% said their feelings about climate change negatively affects their functioning in their day to day lives and many reported a high amount of negative thoughts. This anxiety and distress was reported as being significantly related to perceived inadequate government response and associated feelings of betrayal (Marks Et Al). Climate change has huge impacts on the future and health of young people but they have little power to create immediate change. Climate change's impact on mental health can be a chronic stressor that is likely to have long term health impacts over time (Marks Et al). This impact of chronic stress is extremely harmful to the human body. Chronic stress can lead to an increased risk of hypertension, heart attack and stroke (APA, 2023).

In addition to the chronic stress of climate change, many young people are experiencing mental health impacts from exposure to environmental and climate shocks. These shocks being severe drought, flooding, water scarcity, and high levels of air pollution. It is estimated that one in three children live in regions where at least four of these shock types happen and overlap (Perera, 2022). These emotions of stress, anxiety and sadness around the changing climate can be

termed ecological grief. Eco grief is the mourning of changing ways of life to climate change, and the loss of ecosystems, landscapes and species. (Heid, 2022). There are also many people experiencing chronic anxiety of environmental collapse, termed as climate anxiety. Many feel eco grief, climate anxiety and a missing of their home while they are still in it. This is the feeling of solastalgia. Solastalgia comes from the Latin word for comfort and the Greek root for pain, this is to capture the feelings that are coming from the trauma of rapid change to a home. (Albrecht, 2007). There are many terms to describe the emotions that people are enduring with the changing climate, now that our vocabulary is being upgraded to match climate change it is also essential that we upgrade our education systems too.

The human brain is not built to compute something like climate change. The human brain has evolved to avoid quick threats, not something that is global and slowly happening. A threat such as climate change that evolves over decades and across the entire globe is hard to perceive as a true threat, and it is not moving at a rate that can accurately grab human attention. Even when it is understood as a threat, the fragmentation of agency makes it hard to fix the threat. (Harman, Et Al). Children and young people whose brains are still developing are faced with these mental health impacts and get conditions of PTSD, anxiety and depression that affects brain function into their adulthood (Perera, 2022).

Climate change also creates moral injury, which is a type of trauma that comes from experiencing a moral violation. As world leaders fail to make the right decisions for climate change, it is betraying the values and morals of their constituents. There is moral injury of others which includes this example of governmental leaders and the anger directed at someone else. This happens when governments decide to continue to approve drilling leases, when citizens are concerned about shifting to renewable energy. Moral injury of self results when you violate your

own morals, this violation is often paired with immense shame and guilt. In relation to the climate crisis, moral injury of self could come from consuming daily necessities, but knowing it contributes to larger systemic issues of climate change. Climate change impacts both of these moral conflicts as leaders fail to make responsible decisions, and individuals are filled with guilt for their day to day decisions. These moral injuries vary based upon experiences and resources. Young people are at a large risk of dealing with both moral injuries, as they have entered a world where the previous generations have failed to address climate change, and they feel the need to bear the burden of creating change. Viewing the threats posed by climate change through a moral lens highlights the different levels of power and responsibility. While all individuals bear the burden of moral conflict, only some are the decision makers (Henritz, 2023).

Climate change bears intense moral conflict, it has been coined a Perfect Moral Storm by Stephen M Gardiner. Climate change is an intense problem as it is both a geographical, intergenerational and theoretical storm. There is a large dispersion of cause and effects from climate change, globally and temporally. With a fragmentation of agency amongst different actors globally and generationally. While these issues are happening, it is also difficult to govern across borders and generations, leading to institutional inadequacies. Many of the places and people that will be faced with the largest climate impacts are not those who have reaped the benefits of those emissions. The complexity of this storm makes it harder to engage with and figure out a pathway forward (Gardiner, 2006).

When discussing the mental health impacts of climate change, it is also essential to discuss the implications it has for all nations and communities. Climate change is a very large issue, but for many people it is not the first time they are experiencing an extreme change in life and their home environment. For example, in the U.S. with settler colonialism the Indigenous

nations that have lived with the land since time immemorial experienced extreme changes to their homes. Through genocide, forced removal, and wars many Indigenous people have already and continue to experience a structural change to their ways of life. Often climate anxiety can be viewed through the lens of white people grasping onto their way of life that stems from places of privilege. Indigenous nations have lost 99% of their historical land, and have been displaced to areas that are more vulnerable to climate change risks (Treisman, 2022). Understanding the vulnerabilities and structural inequalities is essential, however, the agency and resilience of marginalized groups must also be integrated into the discourse and curriculum around climate change. climate education community can do this by building relationships with Indigenous leaders in climate action, and by teaching the resilience and wisdom in these communities that are in more vulnerable positions and have knowledge and values that are not intertwined with the ecologically destructive systems that have created these vulnerabilities in the first place. Wisdom and resilience must be recognized, as well as structural vulnerabilities. This is important to note when focusing on inequalities in climate change, and the structure of teaching these concepts in the classroom (Cuomo, 2011).

An additional aspect of this mental health and moral dilemma is the ways in which individuals tend to react. Responses can be prosocial, with community-based approaches that are focused on climate justice and building community resilience. Other responses can be antisocial, that encourages individuals to double down on hierarchical systems and social dominance orientations (Klein, 2022). Providing young people with pathways and communities to develop a prosocial reaction is essential.

Because of the mental health impacts, the moral complexities, and the difficulty to process the issue it is essential that students are provided with pathways and tools to face climate

change. It is something they will be dealing with for the rest of their lifetime, and educators would be failing young people if they did not prepare them.

Education as A Tool:

The role of school is to help young people to be prepared for life, which makes teaching about climate change effectively and in an empowering way is essential. Education provides opportunities for young people to understand the world, and only providing the facts of climate change is not enough to prepare them for the world. This ineffective teaching of climate change is prevalent in the U.S, with a survey published in the journal *Science* in 2016, stating that most middle and high-school teachers in the U.S only incorporate an hour or two of climate change instruction over the course of a year, with thirty percent of educators incorporating less than an hour. Finland and Mexico have implemented mandates to integrate climate change education into curriculum, with holistic approaches that include mental health and facing climate related challenges (Plutzer, 2016).

Sharing information on the climate crisis without providing tools to process and pathways to action ensures climate anxiety. Schools provide an opportunity for students to see how their teachers are facing climate change, as well as experience emotions with their peers. If adults in young people's lives do not address climate change, young people feel that they have no one to trust, which can lead to lashing out, isolation and depression (Schneider-Mayerson, 2021).

Intergenerational discussions and work are crucial to climate mitigation and provides young people with insight into mentors in their lives who are engaging on the issues that they are concerned with. Education also helps students to make informed decisions as well as learn how to adapt to climate change. Institutions of education also are resilient buildings as peers can learn from each other, support innovative ideas and implement solutions on a local scale. Young

people in schools can also serve as exemplars and ambassadors for climate change action and adaptation. This is important as young people can increase awareness and action around climate change, with many young people being ambassadors it can influence other leaders and changemakers in the community. While it should not be on young people to fix these issues, their wellbeing and needs may interest more individuals and communities into taking action on climate change (Singh, Et Al 2022).

Outdoor Education as A Tool:

Fostering healthy experiences in the outdoors can help build interest in sustainability because emotional connectedness with the non-human world yields pro-environmental behavior. Building connectedness and pro-environmental behavior with nature is essential as it allows opportunities to be more involved with sustainability (Pirchio Et Al, 2021). Resources that allow for a connection to nature and an opportunity to be sustainable are essential. Outdoor experiences provide an opportunity for connection with the environment, and motivation to create change.

Spending time outside can lead to a connection with the earth, but it is also linked to an improvement in mood, mental health, and emotional well-being. Both vegetative and water bodies, also known as green and blue spaces are able to provide these benefits. Some studies show that the more biodiverse and remote places may have an increase in benefits, however, urban parks and green spaces are still leading to positive outcomes (Pirchio Et Al, 2021).

There are numerous studies that highlight improved performance in school when children have opportunities to learn outdoors. This improvement is seen through an increase in attendance, engagement, and overall student achievement. Learning outside also increases activity for students which improves physical, mental, and social health. This access outside is so beneficial it has been shown to decrease the symptoms of ADHD, and chronic stress. Learning

outdoors can help students to develop independence, creativity, confidence, problem-solving skills as well as initiative and empathy (Chawla, 2006). An additional benefit to learning outside is developing a stronger connection to place. During times with a changing climate there are strong feelings of solastalgia. Outdoor experiences can provide opportunities for young people to develop stronger connections to place, and a greater connection to the more than human community (Chawla, 2006).

Spending time outside has benefits for mental well-being and the body of research around it is increasing. More research is being developed into the mechanisms that are leading to mental health benefits. One of these benefits is a decrease in rumination, being repetitive thinking and dwelling on negative feelings (Bratman, 2015). Responses of rumination can contribute to the development of depression or anxiety as well as worsen those conditions (S-Noelan 1991). Results in a study published in Proceedings of the National Academy of Science indicated that nature experiences reduced self-reported rumination and subgenual prefrontal cortex activation. SgPFC is a portion of the brain that has been shown to be associated with behavioral withdrawal that is tied to rumination in both depressed and healthy individuals. Participants that went on a 90-minute nature walk showed reductions while urban walks did not receive these same results. These findings support the perspective that natural environments are able to provide psychological benefits and prevent rumination. These findings suggest nature provides impacts to activity in the sgPFC has implications for emotional regulation and social hierarchies that region of the brain is used for social processing (Bratman, 2015). This study highlights the importance of spending time outside and access to nature's benefits to mental health and processing in a rapidly changing time.

Learning outside, specifically outdoor education trips and volunteer work are high-impact practices. High-impact practices are a pedagogical approach that engages students in a way that leads to an increase of deep learning, increased engagement, and positive impacts on previously underserved student populations. High-impact practices can be within the classroom; however, the criteria are exemplified through an outdoor education model. High impact practices can be identified within these ten learning experiences: First Year Seminars and Experiences, Common Intellectual Experiences, Learning Communities, Writing Intensive Courses, Collaborative Assignments and Project, Undergraduate Research, Diversity/Global Learning, Service Learning, Community-Based Learning, Internships, Capstone Courses and Projects. Outdoor education can apply to any of these experiences, however learning communities and service learning are experiences that are be applied to an outdoor education model. Outdoor education trips in groups can be transformed into learning communities, and consistent engagement outside with different outdoor experiences. Rather than only having class outside, creating a learning community that is consistently together builds strong bonds within each other as well as with nature. Outdoor education provides opportunities for students to engage in service and community approaches to difficult and immersive issues. In High Impact Practices, the field-based approach of experiential or service learning is a strategy that gives students direct experiences to issues that are studied alongside community partners that are actively working towards solving these problems. This real-world application allows for young people to experience the ways in which action is being enacted, as well as the importance of community integration. (AACU, 2023).

Everyone is capable of playing a role in creating a healthy climate community. When I reevaluated my skills and what I enjoy doing I found myself at the intersection of the outdoors and education. I wanted to look into how young people can be given tools to process these

emotions and feel empowered in their communities, rather than hopeless. I have always loved spending time outside and when I am camping and backpacking it is often when I feel the most empowered. I also have the resource of the high school I graduated from, which is further developing its Experiential Education Program. After understanding the need of mental health being addressed, and the advantage of outdoor education I knew I wanted to build a curriculum for an outdoor education trip.

Curriculum:

I have been working with young people outside on summer and spring trips for multiple years and have experienced first-hand the benefits of outdoor education. I appreciate the relationships I have developed with nature and the skills I have learned outside and believe it is a great tool for teaching larger concepts. Because of my appreciation and the research around outdoor education, as well as my experience planning and guiding trips, I decided to develop a weeklong climate change curriculum. This curriculum was developed specifically for a 10-day trip on the Big Island of Hawai'i, with 3 days of backpacking. The course aims were to build students' self-reliance on a 3-day backpacking trip in Volcanoes National Park, develop collaboration skills through expeditionary learning while backpacking and engage with community partners and build relationships. The main learning objectives include students being able to recognize the difference and connections between individual and collective action, describe environmental justice in terms of climate change and apply to local settings and recognize their agency and power in the community.

The trip began in Hilo, on the Big Island of Hawai'i. In Hilo the students met with Kumu Hayden. This teacher provided the space for students to play on his property and learn more about the culture of Hawai'i. His house has solar power, compost, a water catchment system and

Indigenous agricultural practices. This place and experiences with Kumu Hayden allowed the students to learn Traditional Ecological Knowledge, and the resilience that can be found in the culture of Hawai'i. This experience provided an opportunity for students to build a reciprocal relationship with both the land and the community partner. As they got to play, camp and explore that area, they also reciprocated that by caring for the place through invasive plant removal.

Students being able to recognize the difference and connections between individual and collective action is important when focusing on mental health. A large portion of the mental health impacts can stem from the unequal benefits and burdens of climate action. Learning opportunities to develop this will be a discussion of individual and collective action through the lens of climate change as well as backpacking. When backpacking there is a lot of gear that is being carried and used when camping, which would be too much for just one person to carry, but gear can be split up and those who are able to carry more are able to help out. To start this mindset of collaboration we had a journal prompt that focused on what individuals' intentions were for the trip and the impact that they were hoping to have.

Preparing students to face climate change it is also important to have them equipped to understand issues of climate and environmental justice. Understanding their resources, privileges and opportunities helps to further understand their responsibilities. The climate crisis will be impacting all individuals differently based on structural inequalities and helping students to understand briefly what that means is beneficial. In order for young people to become informed citizens they should be able to define environmental justice, and what that means in their local community. A Journal prompt that we did on the course in relation to this objective with students was "How does it feel to go backpacking for school? What resources do we have that allow us to do this? What responsibility does that lead to?" This was a reflection on resources in the

community and school. Their school provides a resourceful network and financial support that could be used in the case of climate action. This reflection stemmed from the understanding of resources leading to having responsibility, as there is structural injustice when it comes to climate change.

Alongside of understanding systemic inequalities it allows for students to learn about their own agency, power and resources. The mental health impacts of climate change and the fragmentation of agency often makes individuals feel powerless. Students having the ability to understand their resources and skills allows for a more empowering viewpoint and an understanding of their own agency. A guided discussion that we had in relation to this objective included a Venn diagram climate activity developed by Dr. Ayana Elizabeth. This includes looking at the intersection between, what you are good at, what you enjoy doing, and what problems need to be solved. This intersection is where people can find their role in the climate crisis. This was a little hard at first, as students were quick to say that they had no skills, but it quickly dived into a fund appreciation of each other and themselves, and a realization of the network they had access to. In addition to this guided discussion a way that the curriculum engaged with the learning objective was through having a workday removing invasive plant species and restoring land for native species to thrive. This hands-on service allowed for students to see their actions have evident consequences that provided instant gratification. While this is an ongoing battle of plant restoration, having an opportunity to work together and pull out invasive plants let students see the power that they can have in day's work.

Since this curriculum was developed for an International Baccalaureate school it included global citizen diploma elements and UN sustainable development goals (Appendix A). The Global Citizen Diploma elements included core values of community engagement and global

understanding. Community engagement is defined by the International Baccalaureate program as, “Make a consistent, sustained commitment to serving & developing connections with others.” Global Understanding is to “Seek personal understanding of the interaction of power or privilege & economics, ethics, politics, religion, environment between countries / cultures.” The competency focus was wilderness engagement. This curriculum also touched upon two United Nations Sustainable Development Goals, which include life on land and climate action, which is focused on protecting and restoring the environment as well as taking urgent action to combat climate change.

A large indicator of the learning objectives was the self-reliance and joy that was seen by the students after the trip. Many students reported that they would like to return and continue learning this curriculum as well as work on the service projects. The curriculum allowed for many discussions, journal prompts, and activities that were centered around climate change action and justice. However, I do not think that during the time of course that all of the learning objectives were met or indicated that students were able to develop that understanding. While the learning objectives were not fully tested, the curriculum can be applied largely to any other experiential education program or school. This curriculum can serve as an example of integration of backpacking and climate change through the lens of a trip on Big Island, however the main ideas can be expanded upon for any area and place.

Conclusion:

Climate anxiety and the mental health impacts associated can be extremely difficult to deal with in isolation. In community there are opportunities for resilience, joy and action. Outdoor education provides a platform for the community, as well as an opportunity for intergenerational communities both human and non-human to become integrated more deeply.

In order to effectively combat climate change there must be all individuals finding their niche responsibilities. If individuals are expected to combat climate change in the business as usual hierarchical system it will only lead to burn out, exhaustion and guilt. Individuals finding the ways in which their professions, skills and hobbies fit into building a healthy climate community ensures resiliency and pathways for the future. Moving forward the resource of outdoor education can be utilized to help young people develop skills and resiliency moving forward, as well as help them build communities for them to rely on in an unclear future.

Appendix A: Backpacking and Climate Change I-Term Syllabus

Backpacking and Climate Change I-Term 2022-2023

1/2 - 1/8/2023

Location: Big Island

18 Students: 6 Guides

COURSE OVERVIEW

The purpose of this I-Term course is for students to engage in a deep exploration of what it means to be a part of their community here in Hawaii by connecting with the land over the course of a 3-day hike through Volcanoes National Park on Hawaii Island. Students will also get to work the land and help contribute to Hawaii Island's environmental sustainability. Each I-Term course is designed to align with our Global Citizenship Diploma (GCD) program. You can learn more about the GCD here:

<https://globalcitizendiploma.org/>. For our course, we are focusing on the GCD Core Values of Community Engagement and Global Understanding, and our GCD Competency is Wilderness Engagement. We hope students will gain a deeper appreciation for the land and for the people they share it with, as well as a better understanding of their own resilience and the diverse gifts they bring to the table. Specifically in the face of climate change, a better understanding of the tools and strengths that they have. The impact we would like students to have on the world, moving forward, is that they become passionate community members of the land, its people, and the traditions that bring us together.

COURSE AIMS

The aims of Backpacking and Climate Change are to:

- *Build students' self-reliance on a 3-day backpacking trip in Volcanoes National Park*
- *Develop collaboration skills through expeditionary learning while backpacking*
- *Engage with community partners and build relationships*

Learning Objectives: Students will be able to -

- *Recognize the difference and connections between individual and collective action*
- *Describe environmental justice in terms of climate change and apply to local setting*
- *Recognize their agency and power in the community*

GLOBAL CITIZEN DIPLOMA ELEMENTS

- **Core Values:**
 - **Community Engagement** — Make a consistent, sustained commitment to serving & developing connections with others.
 - **Global Understanding** — Seek personal understanding of the interaction of power or privilege & economics, ethics, politics, religion, environment between countries / cultures.
- **Competency:** Wilderness Engagement

United Nations Sustainable Development Goals

- **UN SDG: Life on Land**
 - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- **UN SDG: Climate Action**

- Take urgent action to combat climate change and its impacts

EXPECTATIONS AND ASSIGNMENTS

In order to meet the course objectives and aims, students will be required to participate in the daily tasks and activities. Students will be encouraged to take photos and/or video to share via our selected public platform, which may include a PowerPoint presentation and/or a mini-documentary. Please note that photos may be taken using a group device or individual cameras; **use of personal cell phones is not allowed during I-Term unless a student has been given the role of photographer or there is a specific reason related to the course.**

Prior to the start of the course, students will need to research aspects of our itinerary and prepare relevant questions and focus points to deepen the learning experiences.

IMPORTANT I-TERM POLICIES:

Attendance: Attendance to I-Term courses is mandatory. Any absences, whether excused or unexcused, will be treated the same as during our normal academic session.

Cell Phones and Communication: Unless specifically noted otherwise by course leaders, student cell phones are not allowed during I-Term. If parents need to reach their children, they may contact the course leader via their personal cell, as listed at the top of this document. Our goal is for students to fully immerse in these unique learning experiences. We believe cell phones will distract from mindful engagement.

Completion of Assignments: I-Term courses are Pass/Fail based on attendance, participation and completion of assignments. It is expected that students will approach all opportunities for learning with a mature, disciplined and thoughtful work ethic.

Behavior and Attitude: Students are expected to adhere to the Four Agreements that govern our LJA code of conduct in addition to a few other ways of being that facilitate mindfulness:

1. **Mutual Respect:** *Students and teachers will demonstrate mutual respect in words and action not only towards one another, but to everyone they may encounter.*
2. **Attentive Listening:** *Students and teachers will pay close attention to verbal and nonverbal communication, actively demonstrating their engagement through relevant questioning, summaries and follow-up.*
3. **No Put-Downs:** *Students and teachers will actively contribute to a positive and safe learning experience.*
4. **Right to Pass and Participate:** *Students and teachers will respect one another's boundaries while also making space for everyone to participate fully in each learning experience.*
5. **Curiosity:** *Students will bring an open mind to each day*
6. **Compassion:** *Students will practice being aware of their own challenges and those that others may be facing, and respond with kindness.*
7. **Adventure:** *Students will be ready to explore their hearts, minds and worlds with a willingness to challenge their assumptions.*

Appendix B: Daily Overview

Day	Daily Overview	Journal Prompt and Discussion
Day 1 - Monday 1/2 Fly into Hilo @ Kaiwiki	"Set the Table" <ol style="list-style-type: none"> 1. Arrive in Hilo <ol style="list-style-type: none"> a. Pick up Rentals 2. Protocol, Intro to Kaiwiki, Rules, Kilo <ol style="list-style-type: none"> a. E Hō Mai - chant to ask permission to be at the 	What are your intentions on this trip? What impact do you want to have? Share journal responses in a circle - then discuss collective and individual actions. How can our individual

	<p style="text-align: center; color: red;">property, helps everyone to ground themselves in Kaiwiki</p> <ol style="list-style-type: none"> 3. Setup Camp 4. Dinner and Talk about Tmrw Plans 5. Play games and journal discussion 	<p>actions on this trip benefit each other, how can we be more effective as a collective?</p> <p>In the climate crisis we are often asked to take on individual actions with guilt such as carbon footprints, yet there is a lot of power in collective action. What outlets in our community do we have for collective action?</p> <ul style="list-style-type: none"> - Wild Kids - LJA - Kailua - Hawai'i Community - Sports clubs
<p>Day 2 - Tuesday 1/3</p> <p>@ Kaiwiki</p>	<p>Workday @ Kaiwiki</p> <ol style="list-style-type: none"> 1. Breakfast 2. Workday overview <ol style="list-style-type: none"> a. Safety orientation b. 3 Crews for work projects 3. Lunch and Waterfall and rinse off 4. Sustainable living discussion with Hayden 5. Observations and Journaling 6. Free time: Football, Soccer, Lawn games 7. Dinner, Appreciations and Debrief 	<p>Why is reciprocity important in a culture? How does that help our community?</p> <p>Share journal responses in a circle then discuss - Why do we have workdays when we visit Kaiwiki? What is the importance of native plant restoration? What is the larger impact for the community?</p> <ul style="list-style-type: none"> - Native Hawaiian culture has reciprocal relationships <ul style="list-style-type: none"> - Ask permission through chant - Reciprocate through invasive plant removal - Planting native plants - Building community amongst peers - Actionable items - Next best thing! - Supporting community
<p>Day 3 - Wednesday 1/4</p> <p>@ Hakalau and Kaiwiki</p>	<p>Hakalau Sanctuary</p> <ol style="list-style-type: none"> 1. Breakfast 2. Drive to Hakalau Forest National Wildlife Refuge <ol style="list-style-type: none"> a. Meet with Hakalau specialist to 	<p>Guided Journal: What is something that you are good at, what is something you love to do, and what is something that needs to be done?</p>

	<p style="text-align: center; color: red;">discuss the importance of the refuge and the impact that climate change has had on it</p> <ol style="list-style-type: none"> 3. Lunch 4. Drive back to Kaiwiki 5. Prep for Backpacking <ol style="list-style-type: none"> i. Final Gear check, Food Distribution 6. Dinner, Appreciations and Debrief 	<p>Discussion of Visit to Hakalau Forest National Wildlife Refuge - What is something you learned? Did anything surprise you?</p> <p>What is something you are good at?</p> <ul style="list-style-type: none"> - Go around the circle <p>What is something you love to do?</p> <ul style="list-style-type: none"> - Go around the circle <p>What is something that needs to be done?</p> <ul style="list-style-type: none"> - Go around the circle - can reflect on what was shared at Hakalau national refuge or during our work day in Kaiwiki
<p>Day 4 - 1/5 Thursday BP Day #1</p>	<p>Day #1 Backpacking</p> <ol style="list-style-type: none"> 1. Leave early for Trail 2. Breakfast on the Go (keep breakfast simple) 3. Pick up Permits from Backcountry Office <p>Pod # 2 Halape - approx. 7.6 miles</p> <ol style="list-style-type: none"> 1. Start- Mau Loa o Maunaulu and go 2.0 miles to Junction that meets with Keauhou Trailhead 2. Keauhou Trail: 3.6 miles to Halape Junction then hike 1.3 miles. 3. Find junction again to hike the final 1.6 miles 4. Arrive at Halape! <ol style="list-style-type: none"> a. Hang food with bear line to keep away feral cats/mongoose 	<p>No Journal - long hike day</p> <p>Share appreciations - No journal</p>
<p>Day 5 - Friday 1/6 BP Day #2</p>	<p>Pod # 2 Halape - Free Day at Halape - Hike 3 miles to Keahou</p> <ol style="list-style-type: none"> 1. Rest, relax, swim, 2. Check out surrounding areas 3. Lunch 4. Hike to Keauhou 3 miles 5. Dinner 	<p>How does it feel to go backpacking for school? What resources do we have that allow us to do this? What responsibilities does this then lead to?</p> <ul style="list-style-type: none"> - Call back to discussion of reciprocity - Reflect on the adventure of the day - Reflect on LJA as a community and the resources - Define Environmental Justice: Justice for the disproportion between the benefits and harms in regards to the

		<p>environment.</p> <ul style="list-style-type: none"> - Those causing climate change will not be the same feeling with the most intense impacts. - What does that mean for us in our community at LJA? <ul style="list-style-type: none"> - Resources = Kuleana <p>Journal prompt we ended up doing - What does resilience mean to you? How does resilience overlap with climate change and backpacking?</p>
<p>Day 6 - Saturday 1/7</p> <p>BP Day #3</p>	<p>Day #3 Backpacking Pod # 2 Halape -</p> <ol style="list-style-type: none"> 1. Breakfast 2. Breakdown camp 3. Hydrate and reload on water Hike 11 miles along coast to Pu'u Loa parking lot (bottom of Chain of Craters) 4. Shave Ice! 5. Head back to Kaiwiki 	<p>Group Discussion - Sub Journal</p> <ul style="list-style-type: none"> - What is a trait, skill or attitude that you are taking with you? - What is a trait, skill or attitude that you would like to leave behind?
<p>Day 7 - Sunday 1/8</p> <p>Fly out</p>	<p>Clean Up, Debrief, Appreciations, Fly out</p> <ol style="list-style-type: none"> 1. Breakfast 2. Pack up, Clean up <ol style="list-style-type: none"> a. Reinstate importance of leaving Kaiwiki better than how we found it 3. Debrief, Appreciations 4. Fly out 	<p>Final Appreciation Circle</p>

<p>Appendix C: Course Aims</p>
<p style="text-align: center;">Course Aims and Learning Objectives Detailed</p> <p>The aims of Backpacking and Climate Change are to:</p>

- **Build students' self-reliance on a 3-day backpacking trip in Volcanoes National Park**

Students' self-reliance will be built through expectations of helping to prepare for the trip, packing their own backpacks as well as carrying their own items. Students will demonstrate this by completing the backpacking portion of the trip to the best of their ability.

- Learning opportunities include:

- Multiple meetings on campus that are reviewing safety and logistics for a backpacking trip. Students will form committees and become incharge of either food logistics, risk management, or logistics. These committees will be overseen by teachers, but provide opportunities for students to take a leadership role.
- Packing meeting where the teacher will review what to pack on a backpacking trip and the importance of each item.
- Students will be backpacking with their own gear as well as group items, building self-reliance and confidence.
- Students will learn how to set up tents pre-trip, as well as review how to set up a tent at basecamp.

- **Develop collaboration skills through expeditionary learning while backpacking**

Students will collaborate with each other through group tasks pre-trip as well as during the trip.

- Learning opportunities include:

- Work day in Kaiwiki will need collaboration when dealing with labor intensive tasks.
- Setting up camp will require collaboration with students having varying experience camping. Teachers will oversee but students will be given opportunities to lead setting up the group tarp, hanging food lines, setting up the kitchen and filling water.
- Hiking from Halape to the output is a long hike in the sun and will require collaboration amongst different hiking speeds. Students will be expected to set a pace that works for each member.

- **Engage with community partners and build relationships**

Students will engage with community partners, the Atkins as well as community partners at Hakalau National Forest Refuge.

- Learning opportunities include:

- Opportunity to form relationships with the Atkins who reside in Kaiwiki. Hayden will be backpacking on the trip, and Kait will be at the house but potentially dropping in for work days and meals. Hayden and Kait are both examples of mentors with their knowledge as well as their sustainable living

in Kaiwiki.

- Students will also engage with the director at Hakalau National Forest Refuge, through participating in discussions.

Learning Objectives: Students will be able to -

- Recognize the difference and connections between individual and collective action
 - Learning opportunities include:
 - Discussion of individual and collective action through the lens of climate change as well as backpacking
 - Journal prompt focused on intentions and impact
- Describe environmental justice in terms of climate change and apply to local setting
 - Learning opportunities include:
 - Discussion prompted on what it means to be backpacking for school activities
 - Include discussion of Mauna Kea - visit Pu'u Huluhulu
 - Students will engage in a journal prompt regarding the trip that they are on and what resources their school has
 - Students will engage in a discussion of the resources as well as the responsibility with being a dominantly white school in the Hawai'ian islands.
- Recognize their agency and power in the community
 - Learning opportunities include:
 - Students will engage in guided discussion of Dr. Ayana Elizabeth's Venn Diagram for climate change
 - What is something you are good at?
 - What is something you enjoy?
 - What is something that needs doing?
 - Can include issues discussed on the trip; Climate change, native birds, native plant restoration, invasive plant removal, environmental justice, Native Hawaiian sovereignty, Mauna Kea
 - Journal prompt around discussion of Climate Change venn diagram

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