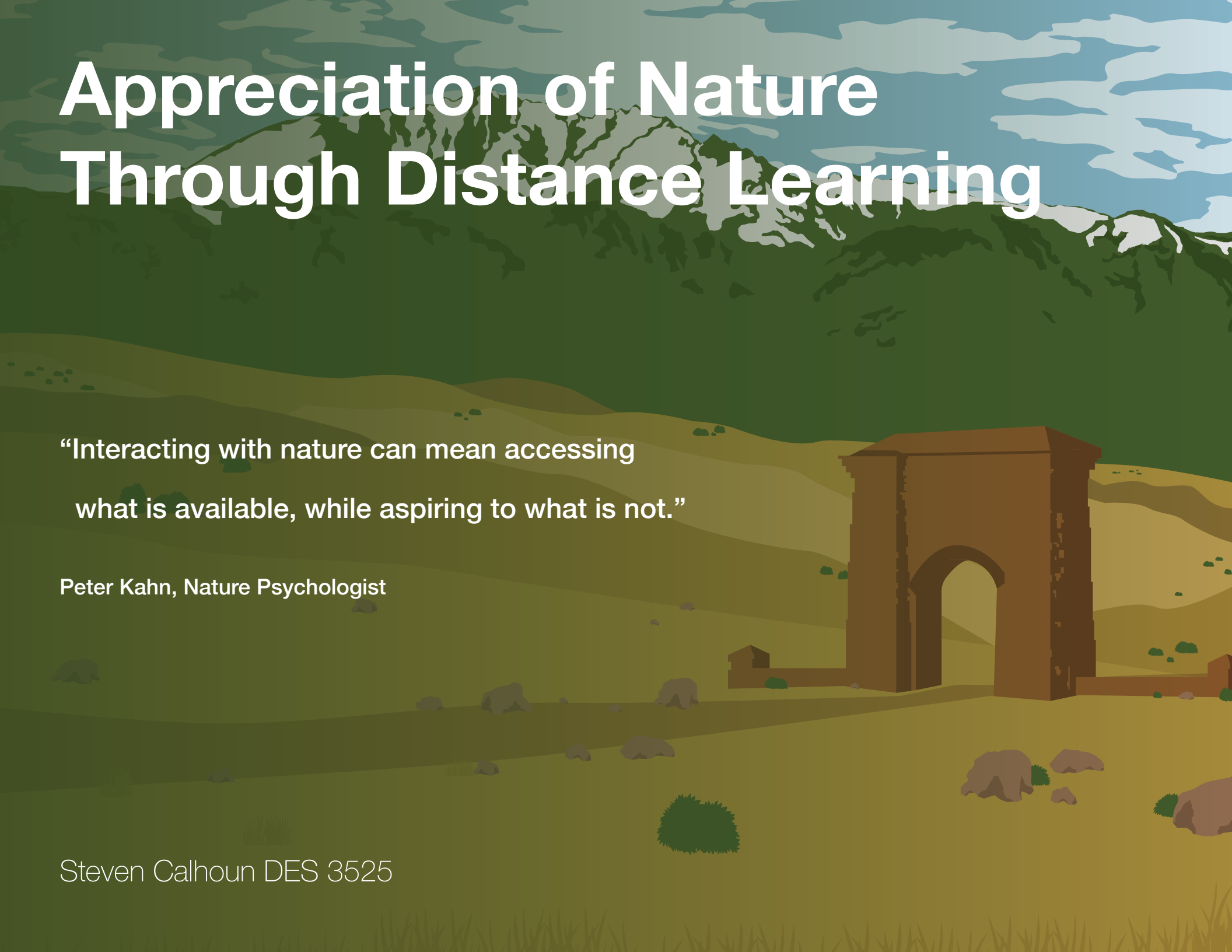
Appreciation of Nature Through Distance Learning



"Interacting with nature can mean accessing what is available, while aspiring to what is not."

Peter Kahn, Nature Psychologist

Steven Calhoun DES 3525

Project Summary

Children construct rich and varied conceptions and values of the nature…

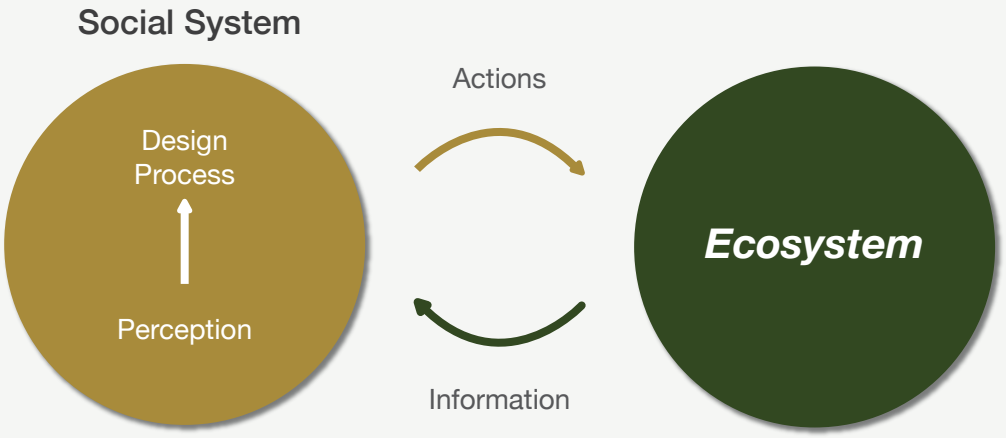
but as we degrade the environment… we destroy the wellspring of our children's psychological constructions.

This document explains the purpose of creating the Yellowstone Forever Learning Portal and the process of doing so. The YSF Learning Portal allows students from all over the world to learn about natural spaces through the context of their own lives. By utilizing a variety of educational methods such as contextual learning, this platform strives to personalize each learning experience to an individual student. This will help ensure a deeper connection to new and important information.

In a time of environmental and ecologistic change, it is important that YSF approach students as guides into the world of nature. Rather than telling students what to appreciate and what is important, this platform helps students develop their own morals, views, and expereinces that will dictate how they view the world for the rest of their lives. Acting as a small nudge, YSF can help students learn foreign concepts and develop appreciation for nature and wildlife both in Yellowstone and at home.

Project Objective

Combat Environmental Generational Amnesia



With each ensuing generation, the amount of environmental degradation increases, but each generation in its youth takes that degraded condition as the non-degraded condition–as the normal experience.

- Peter Kahn

The concept of Environmental Generational Amnesia is extremely relevant to Yellowstone Forever. As children grow up in more urbanized environments, they begin to lose access to natural spaces. This, in turn, leads younger generations to lose their grasp of what nature is and how it affects their own lives. Without an understandng of what nature is, in the context of their own lives, students will remain ignorant to the importance and significance of the natural world.

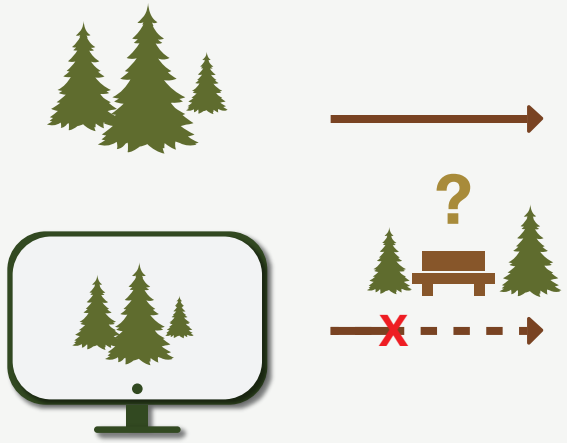
It is important for institutions such as Yellowstone Forever to reach students when they are younger and more accepting of new information. By reaching students in the 4th-6th grade range, primarily, YF can begin to plant the seeds of appreciation of nature, conservation of our natural spaces, and enjoyment of simply being outdoors. Helping children explore their definition of nature will allow them to generate meaning and personal connection to natural spaces.

Research

What is distance learning?

Distance Learning:

the education of students who may not always be physically present at a school or context in which learning content is located.



Appreciation of Nature

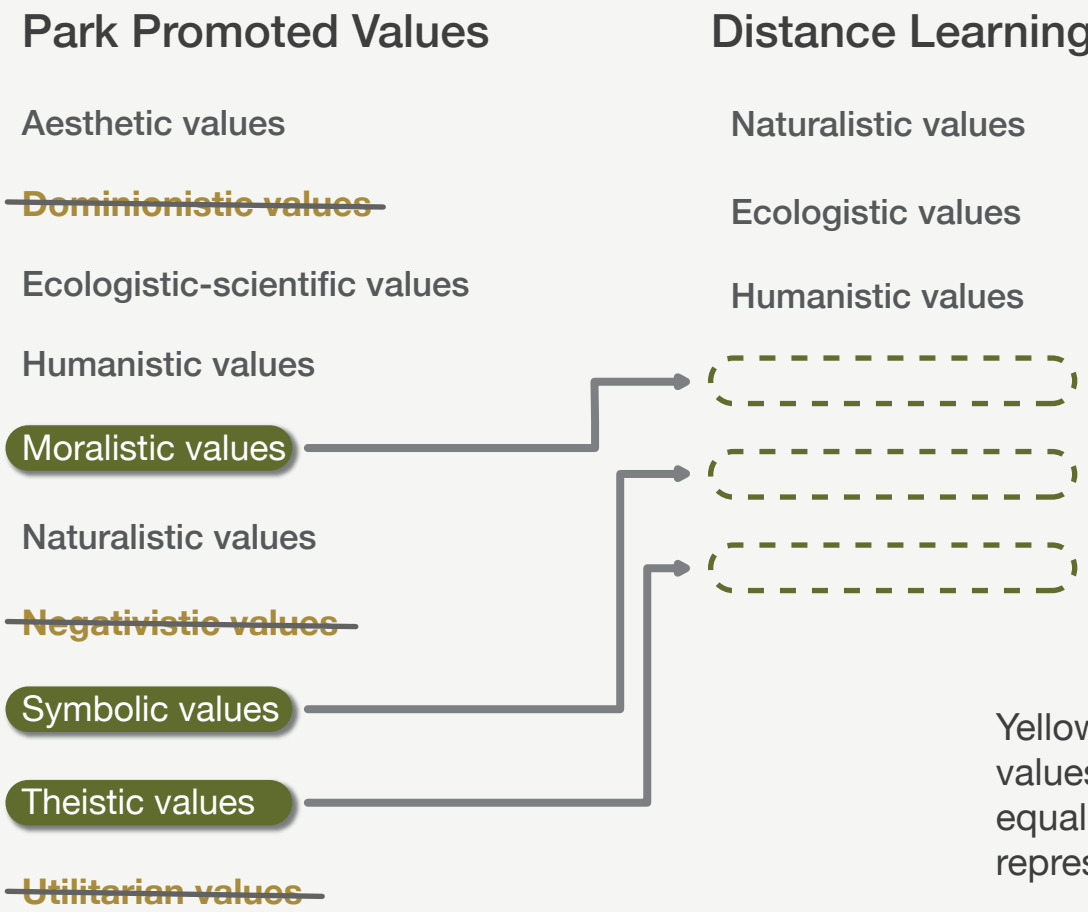
Benefits of distance learning:

- Reach audiences unable to visit the park
- Spread park values past geographic reach
- Encourage interaction with local nature
- Spread appreciation of nature

When considering how to communicate and relate educational material which pertains to nature, we must prioritize the values which can be translated and understood even through digital mediums. There is a need for another point of connection between Yellowstone National Park and distance learning students.

Value lost through translation

Value Disparity Breakdown



Yellowstone Forever promotes a variety of these values. However, these values are currently not equally represented through online and digital representations of the park.

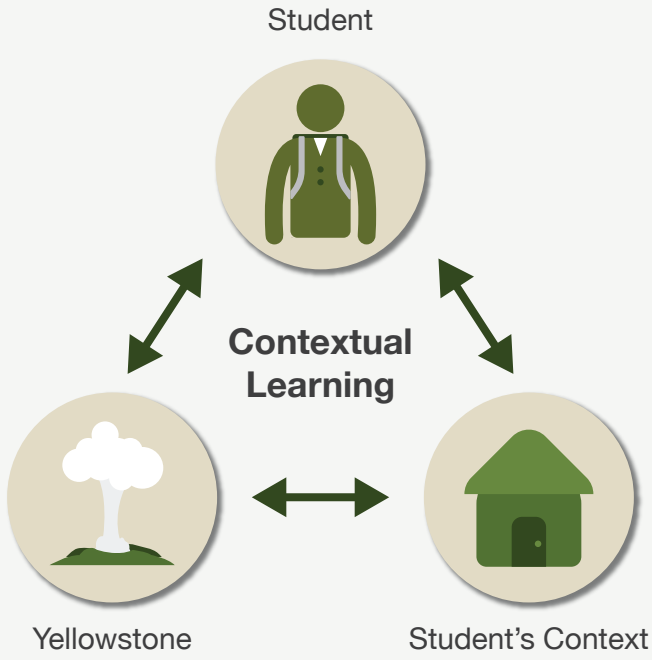
Due to this misalignment, distance learning students have a much different interpretation of both nature and Yellowstone as a whole when compared to on-site visitors.

How do you handle these lost values?

Contextual Learning:

Contextual learning is based on a constructivist theory of teaching and learning.

Learning takes place when teachers are able to present information in a way that students are able to construct meaning based on their own experiences.



Context is key to retaining and applying newly learned content.

Students construct meaning and value from self driven contextualization of information.

Contextual learning helps student's process new information that is given to them in a way that makes sense to them in their own world, they can relate their own memories, experiences, and emotions. This allows a stronger connection to foreign topics, because students will be able to draw connections to their own life.

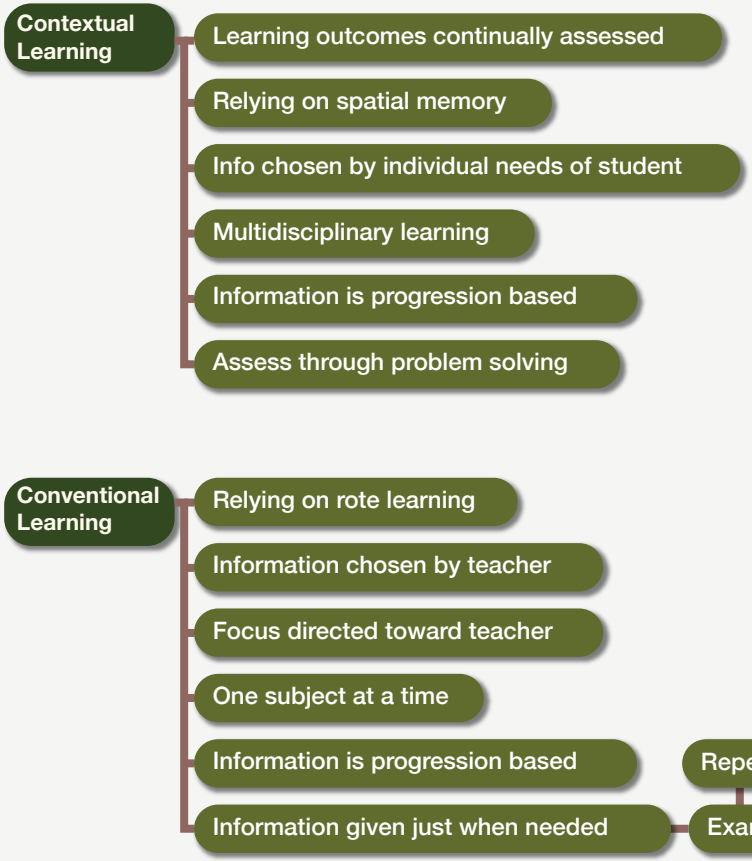
Importance of Contextualization

Plato's Allegory of the Cave

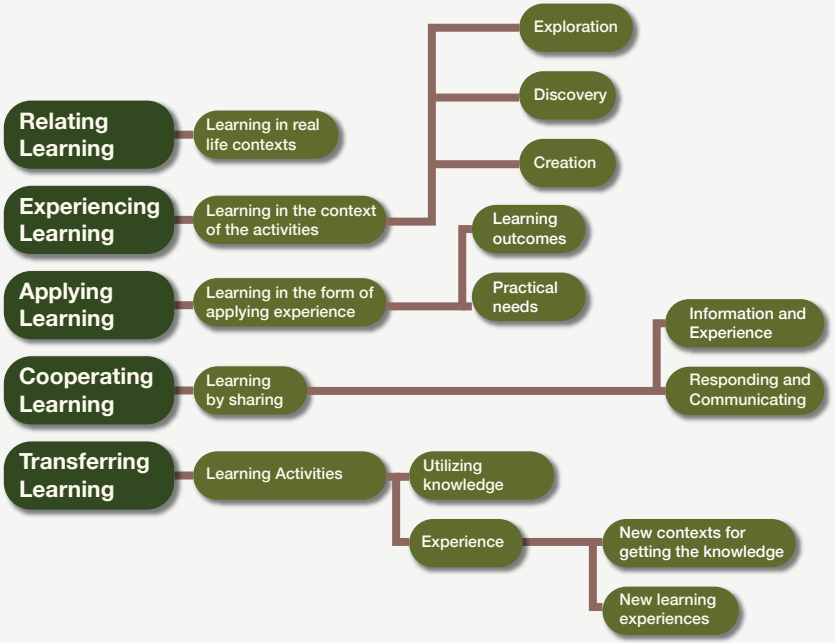
The way in which we learn and process information is highly influenced by how we relate that information into our past experiences and the context in which we live.

Plato's Allegory of the Cave is a perfect explanation for the way in which our learning environments can have an impact on the way we perceive the world. If we were to forever live in a cave facing a wall, only to see the shadows of people walking by, then our concept of "real" objects is skewed to the information made available to us.

Contextual vs. Conventional Learning



Contextual Learning Forms



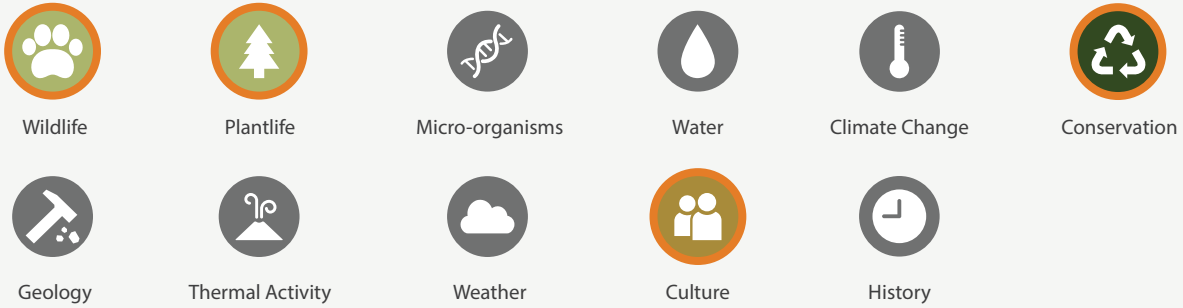
The main difference between contextual and conventional learning is the way in which you interact with the subjects content. By approaching a subject from multiple perspectives and disciplines, students develop a deeper understanding of that subject and can relate the material to more experiences.

Contextual learning methods all focus on building connection to material based on past experience and multidisciplinary applications. By allowing students to learn about a specific topic while processing the content through various activities, students will build stronger connections than if they were simply reading about said subject.

Contextual Learning

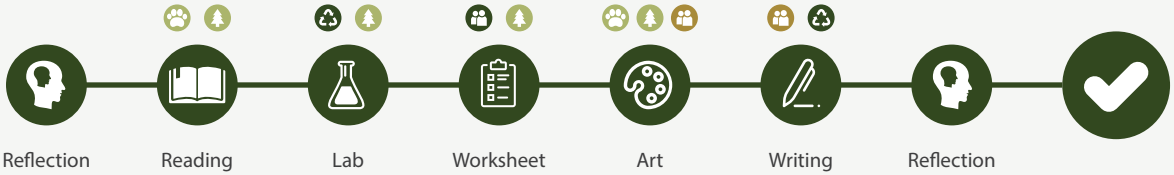
Student Interests

Content Tags



Students' selected interests will dictate which activities are chosen for each stage in their Yellowstone learning journey. This will improve student engagement and connection to material given that they are already acknowledging things they like within natural environments.

Activities



Alternate Activities

Since each student has different preferences and interests, the initial selection of preferred topics will dictate which activities are presented to the specific student. This helps create unique, curated course material sets for students which will lead to better student engagement. However, students will still be able to browse through all activities through their student dashboard.

Environmental Design Thinking

1. Empathize

Push students to define nature and what they see in it. This will act as the foundation for their contextual learning.

This should be what students constantly reference when learning new material, values, and perspectives.

2. Empathize + Define

Define what nature is and how it works.

Define our place within nature.

Define how humans have viewed nature.

3. Define

Learn how humans physically affect the environment. Especially in regards to cities and nature adapting itself into them.

Learn about urban environments and adaptive lifeforms.

4. Define + Ideate

Learn about YS and their values.

Relate students contexts to YS.

Compare and contrast both contexts and how YS values can be implemented into every environment.

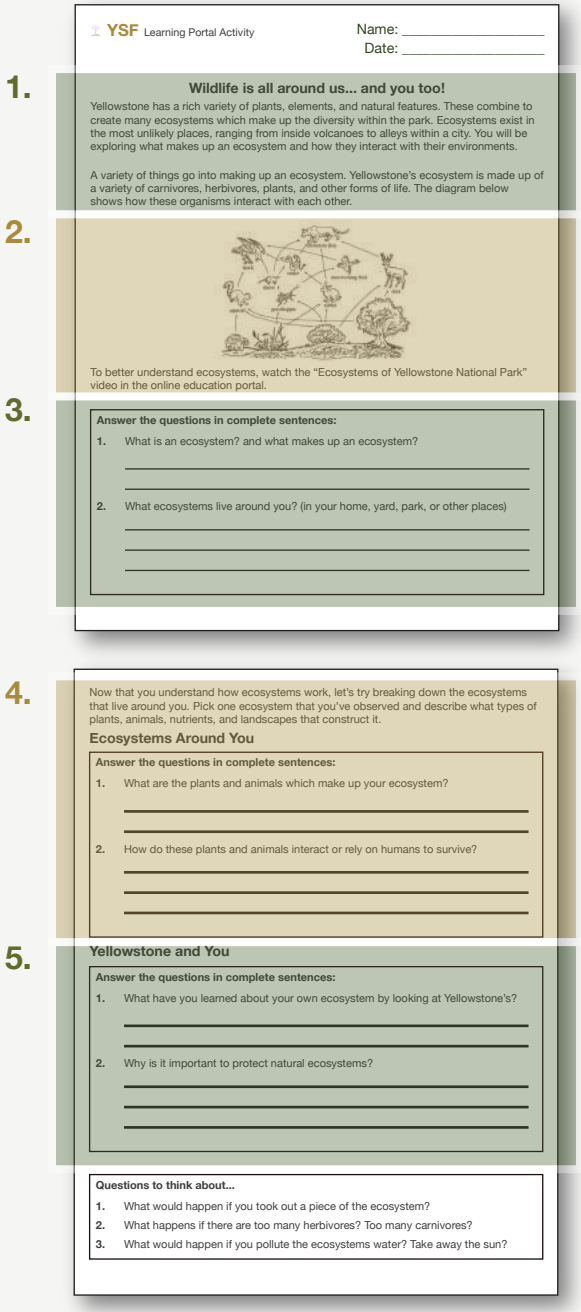
Natural vs. students social structures, food systems, geography, etc.

5. Prototype +Test

Self expressive assignments to help students interests drive value changes.

Generative learning and expression

Essays, Poems, Arts, etc.



YSF Learning Portal Activity

Name: _____
Date: _____

1.

Wildlife is all around us... and you too!

Yellowstone has a rich variety of plants, elements, and natural features. These combine to create many ecosystems which make up the diversity within the park. Ecosystems exist in the most unlikely places, ranging from inside volcanoes to alleys within a city. You will be exploring what makes up an ecosystem and how they interact with their environments.

A variety of things go into making up an ecosystem. Yellowstone's ecosystem is made up of a variety of carnivores, herbivores, plants, and other forms of life. The diagram below shows how these organisms interact with each other.

2.

To better understand ecosystems, watch the "Ecosystems of Yellowstone National Park" video in the online education portal.

3.

Answer the questions in complete sentences:

1. What is an ecosystem? and what makes up an ecosystem?

2. What ecosystems live around you? (in your home, yard, park, or other places)

4.

Now that you understand how ecosystems work, let's try breaking down the ecosystems that live around you. Pick one ecosystem that you've observed and describe what types of plants, animals, nutrients, and landscapes that construct it.

Ecosystems Around You

Answer the questions in complete sentences:

1. What are the plants and animals which make up your ecosystem?

2. How do these plants and animals interact or rely on humans to survive?

5.

Yellowstone and You

Answer the questions in complete sentences:

1. What have you learned about your own ecosystem by looking at Yellowstone's?

2. Why is it important to protect natural ecosystems?

Questions to think about...

1. What would happen if you took out a piece of the ecosystem?
2. What happens if there are too many herbivores? Too many carnivores?
3. What would happen if you pollute the ecosystems water? Take away the sun?

Environmental Design Thinking

Contextualizing Nature Through Design Thinking

Adapted from Nielson Norman Group's Design Thinking Methodology

Self Evaluation	Intro to Nature	Learning Nature	Learning About YS	Self Reflection
How do you define nature? Where have you experienced it? How does nature feel? **What are values you see in nature?** How did you come up with these? **What values does nature provide?** Animals? Plants? People? **How would you describe nature to a toddler** **What nature lives around you?** How did it get there? **How long has nature lived around you?**	**Define nature within:** Science Social Studies Culture History Your family Etc. Learn about ecosystems Natural cycles Biomes Animal classifications Life Cycles	**Climate Degradation** Climate Change Animal Adaptations Physical Environments **Conservation** Politics Cultural history of nature Parks and Forests Micro-ecosystems **Ability to recognize ecosystems within one's own context.**	Biology Geology Thermal things Culture History Conservation	Similar questions to help students **recognize potential changes in values or views** **Self expression** of what nature means to individual students
1. Empathize Push students to **define nature and what they see in it.** This will act as the **foundation** for their contextual learning. This should be what **students constantly reference** when learning new material, values, and perspectives.	**2. Empathize + Define** Define **what nature is** and how it works. Define our place within nature. Define how humans have viewed nature.	**3. Define** Learn how humans physically **affect the environment**. Especially in regards to cities and nature adapting itself into them. Learn about urban environments and adaptive lifeforms.	**4. Define + Ideate** Learn about **YS and their values.** Relate students contexts to YS. Compare and contrast both contexts and how YS values can be implemented into every environment. **Natural vs. students social structures, food systems, geography, etc.**	**5. Prototype +Test** **Self expressive** assignments to help students interests drive value changes. Generative learning and expression. i.e. Essays, Poems, Arts, etc. **6. Implement** Explain how this education has **affected students view on nature.**

YSF + Elementary Curriculum Overlap

Elementary + Yellowstone Curriculum

Overall patterns observed through national curriculum requirements

Subject	4th Grade	5th Grade	6th Grade
Reading	Vocabulary **Relating stories to own life** New Genres: folk, lore, myths, etc. Non-fiction: biographies, etc.	Chapter books Back up opinions through citing readings Independent reading Identifying author's intent	Poetry Plays Biographies **Scientific readings** **Social studies**
Writing	**Daily writings** Relating to readings + genres **Self reflection** Basic reports	**Self expression** Daily writings Editing / grammar Punctuation Writing process	**Persuasive essays** Autobiographies Letters Complex sentence structures Grammar / word types
Science	**Scientific Observation** **Classification / Grouping** Measurements **Asking many questions**	**Scientific process** **Measuring + proving hypothesis** Physical world science	**Life sciences** Reproduction **Physical sciences** Power / kinetics **Earth sciences**
Social Studies	Local history Famous figures **Influential people / movements**	Citizenship National history **Culture and conflicts** **State history + geography**	Government types **Election processes** Religions **Cultures and conflicts**
Math	Adding fractions Multiplication + Division Equivalent / Non equations Multiples	Add / Sub / Mult / Div all in one problem PEMDAS Simple geometry Converting fractions	Negative + rational numbers Ratios + percentages Pre algebra **Statistical thinking / analysis** Geometry

Contextualize + understand Yellowstone wildlife, history, culture, and people in a storytelling perspective

Reflection on learning and develop personal connection to the values and knowledge which the park provides.

Main framework of learning. Allows the values and feelings to be grounded into the places and creatures which were the reason for preservation.

Contextualize information into the historical and human perspectives of the park and its history.

Understanding the scale and influence of YS as a icon and as a precedent for the world at large.

Profiles

Target Demographic

Age

4th - 6th Grade (9-12 years old)

- Elementary School Students
- Platform structure will be compatible with most ages and reading levels

Location

Lacking Access to Wilderness or Natural Spaces

- Metropolitan areas, Inner City
- Grey zones (lacking access to parks etc.)
- Far from Yellowstone (or any other NPS park)

Profile Types

Students

View / Edit Own:

- View and interact with student activities
- Share with students/parents/instructors
- Download/upload activities materials

Instructors

View / Edit All:

- View class progress and submissions
- Create custom paths
- Change all profiles and preferences
- Access instructor resources

Parents

View Child's:

- View child's progress and submissions
- Contact instructors for more info
- Download/upload activity materials

YSF Learning Portal

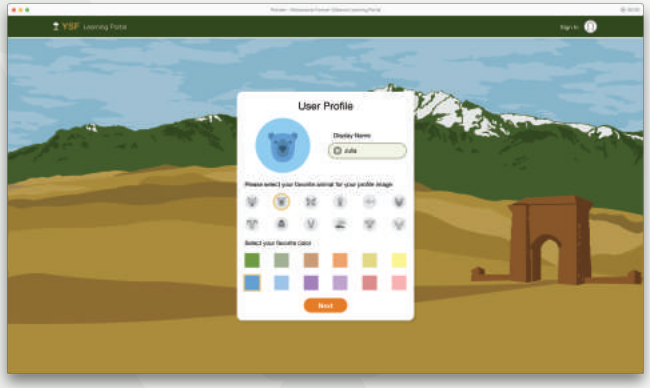

YSF Learning Portal
Yellow Stone Forever
My Dashboard
My Class
Ecosystems Path
Path Description
Resources
Activities
Select a path above to narrow to specific subjects
Ecosystems and You
Conservation's Impact
How Thirsty Are The Plants?
Water Where Are You Video
Life Under Cold Water
Ecosystems and You
Overview
1 / 7
Activities Completed
1 / 5
Videos Completed
Activity Tags
Lab Work
Math
Writing
Videos
Reading

YSF Learning Portal

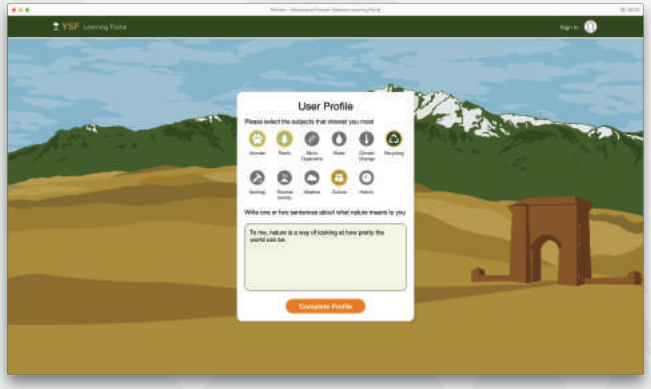
Students begin their journey by selecting their Yellowstone wildlife profile picture. They go on to select the topics within the park that seem most appealing to them. This helps the learning portal create the most personalized experience for each student which will lead to better comprehension and retention of material.

YSF Learning Portal

Onboarding



Graphics of native wildlife are chosen along with the students favorite color for their profile image.



Topic interests are selected in order to cater to student preferences:

- Encourages interaction with content
- Caters material to individual students

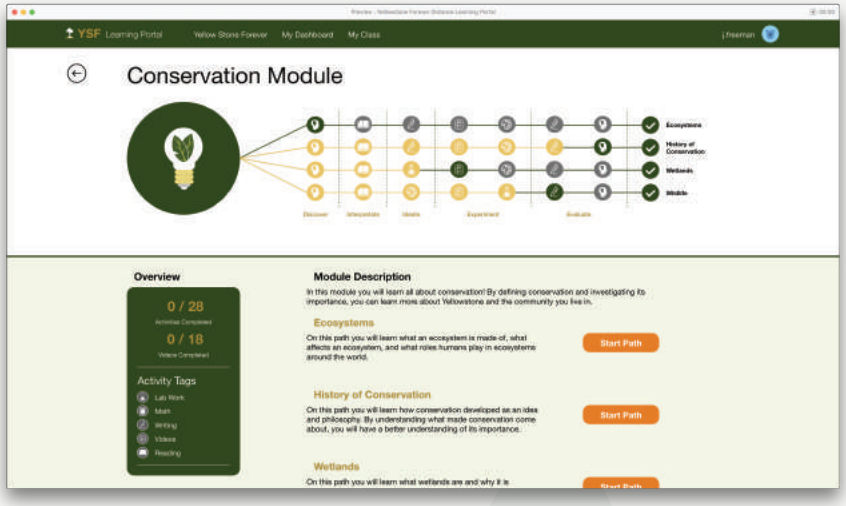
Students reply to the question “What does nature mean to you?” to create a baseline of values to compare as students learn more about nature.

YSF Learning Portal

Dashboard

The student dashboard acts as the main progress tracking page for activities and subjects. Students are able to view all activities within the learning portal and search and filter through them.

Modules



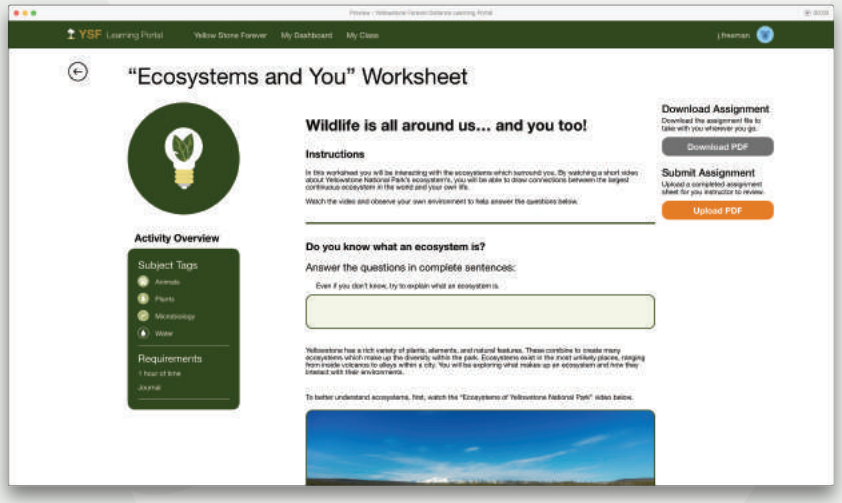
Each subject module is made up of several different paths. This also allows students to learn content in a focused way, while still interacting through multiple mediums of learning.

YSF Learning Portal

Paths

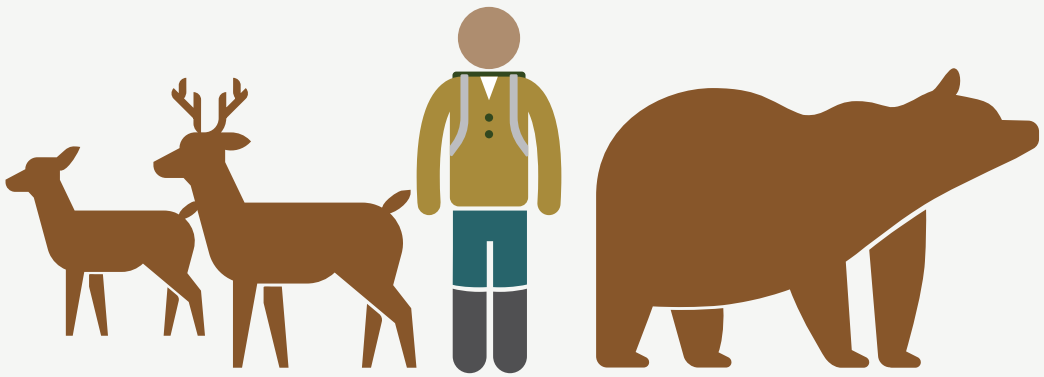
Each path page breaks down the path into individual activities. The arrangement of activities is chosen based off the initial interests that the students select. Alternate activities can always be reached from the dashboard.

Activities



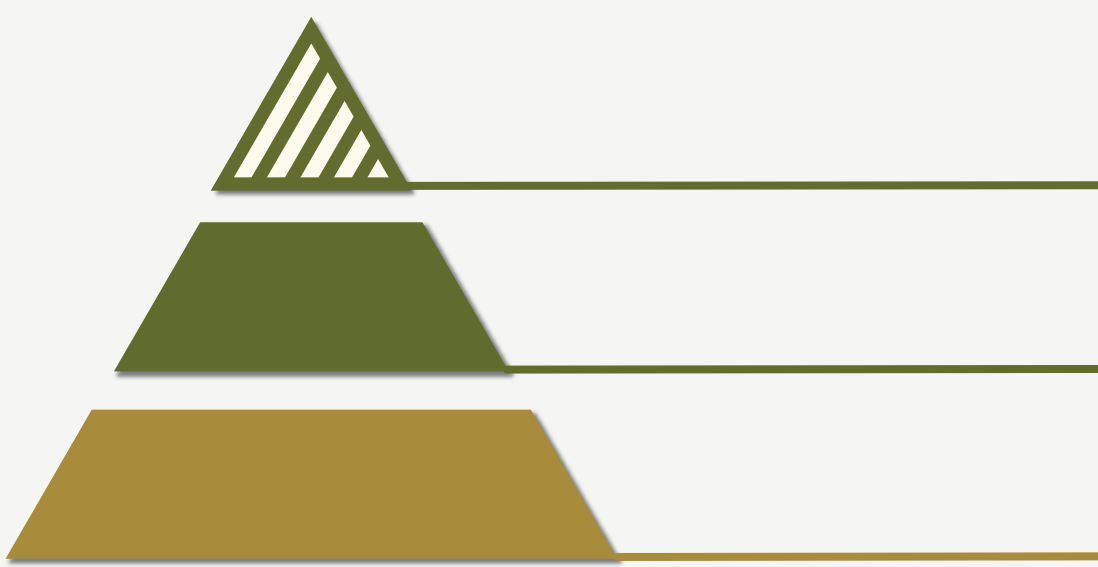
Each activity follows the same flow in terms of information processing. Students are introduced to each topic, relate it back to their lives, learn about Yellowstone, then draw connections between the two worlds.

Target Demographic Justification



Since distance education is focused on providing learning material for those without access, and to promote the park's values beyond its physical reach, this platform will be built with a variety of students perspectives taken into consideration. Making sure the content is easily graspable and relatable is a priority, especially when considering the students' limited access to nature.

Bruner's Phases of Intellectual Development in Children



Formal Operations
Using intellect to operate based on hypothetical ideas.

Concrete Operations
Gathering data about the real world, then transform, organize and internalize it to solve problems.

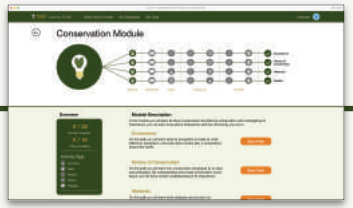
Active Operations
Building relationships between action and experience but not easily able to understand cause and effect or solve problems.

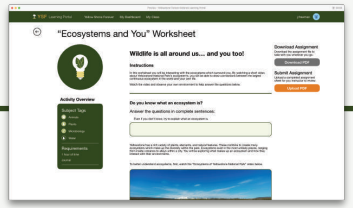
Benefits

Benefits to Students

Student Flow

Dashboard | Modules | Paths | Assignments



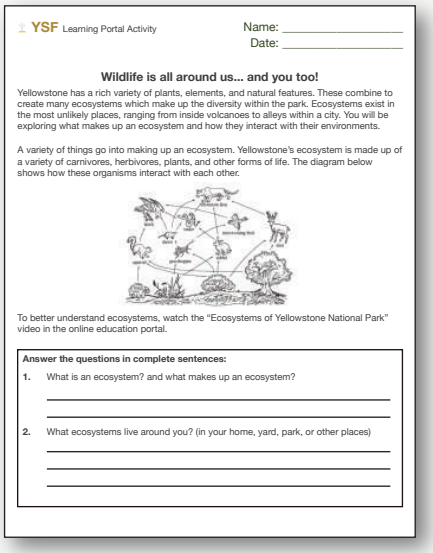


OR

Students will navigate from the “student dashboard” into individual “subject modules”. These modules include multiple “paths” which break down the subject into specific topics.

Students can track their progress throughout the entire Learning Portal with varying levels of granularity. This allows students to see how much their have been learning about specific topics. By looking at their submissions within their profile, they can track how their idea of what nature is has changed over time.

Since students will be completing activities both on the computer and within spaces in their own ecosystems, assignments can be exported to PDF in order to take the activity instructions on the go.



YSF Learning Portal Activity

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Date: _____

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Benefits to Teachers

Instructor View

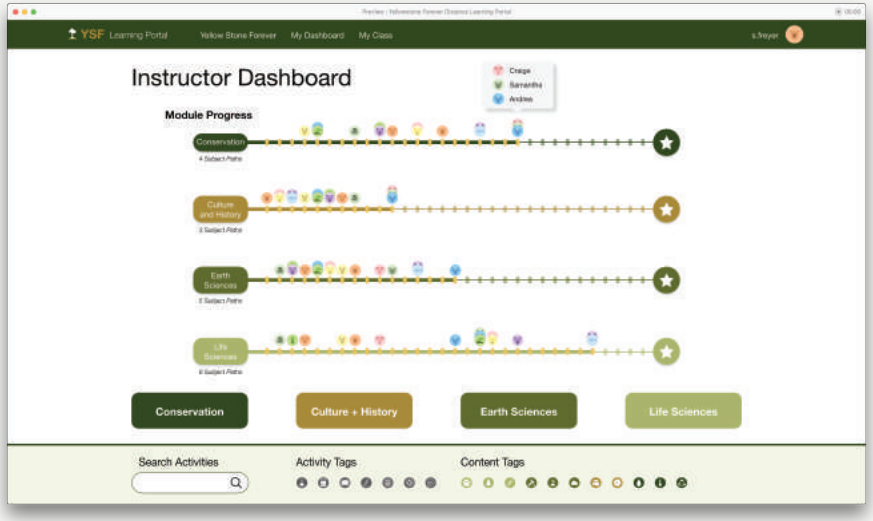
Dashboard

Track Student Progress

Create Custom Paths

The instructor dashboard focuses on student progress through the Learning Portal. Instructors can view all student submissions, profiles and progress through each module.

Instructors are also able to design their own custom paths for students. This allows instructors to develop lessons that match with their classes' curriculum.

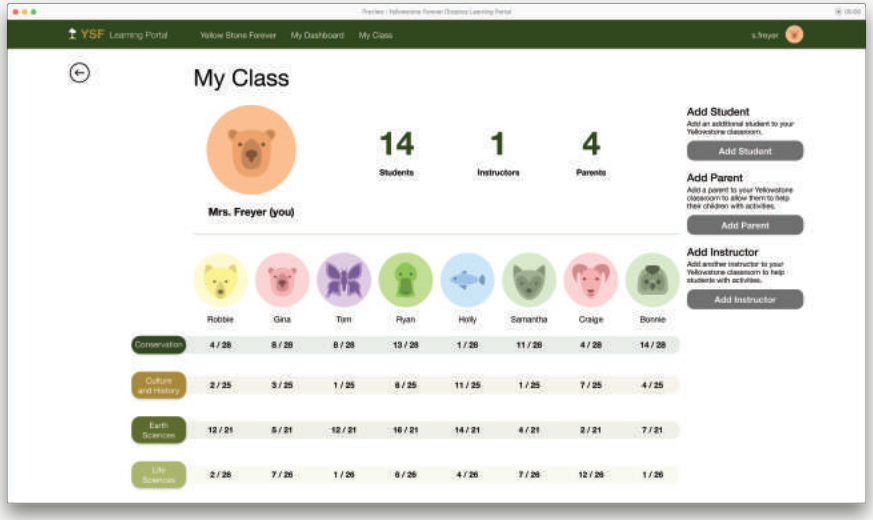


My Class

Detailed Student Progress

Add Other Profiles

The instructor side of the class page is oriented around viewing student progress. Additionally, instructors can add additional teachers, students, or parents. Parents would be able to view their child's progress and each completed activity submission.



Benefits to YSF

Yellowstone As a Platform

Focus Of Content

Wider Educational Reach

Yellowstone Forever will be able to reach a wide range of students by introducing the YSF Learning portal. With Yellowstone National Park as the focus of the content, students will explore their own definitions of nature, while learning about the park and its significance. Students navigate different topics surrounding Yellowstone, and then can introduce these topics to the natural spaces closest to them.

Spreading YSF Values

Self Discovered Appreciation of Nature

Introspective Interactions

Yellowstone Forever can spread their values surrounding the appreciation and conservation of nature by allowing interaction between students, the park, and their home lives. By encouraging students to think about these important topics outside the context of the park, students can then have a greater impact on the environments surrounding them.

Conclusion

The Yellowstone Forever Learning Portal allows students to learn about nature and conservation through the frame of Yellowstone National Park.

Students investigate their definitions of nature and engage in customized topic modules that help contextualize content so students can better understand and relate new information.

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Fall 2018

Questions?

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