

Inquiry Project Design Plan

Teacher/Designer Names: Victoria Butler, Doreena Fava-Rodrigues, Mara Kennedy	
Untermeyer Gardens	Grade Level: 6th
Est Launch Date: September 18, 2023	Est Duration: 6 weeks
Disciplines Involved: English Language Arts, Science - Ecology, Social Studies - Greek Mythology, and Technology	
Problem Statement: A number of invasive species can be found at Untermeyer Gardens. They are having a negative impact on the ecosystem.	

STAGE 1: DESIRED RESULTS

Big Idea: Community/Cause and Effect

Enduring Understandings:

- ⊘ Invasive species have an environmental effect on a local ecosystem.
- ⊘ The Spotted Lanternfly is an invasive species native to China and spreading worldwide.
- ⊘ Provide other examples of invasive species, such as, the Norway Maple and the Asian jumping worm.
- ⊘ There is a belief that mythological creatures have protected the world and provided wisdom about how people should live.
- ⊘ Untermeyer Gardens was created to showcase plant life (both native and exotic) as well as statues of mythological creatures.

Essential Question(s):

(MEANT TO BE SHARED WITH STUDENTS)

- ⊘ Why is biodiversity so important?
- ⊘ What three intertwined features create strong biodiversity?
 - How can invasive species affect the biodiversity of an ecosystem?
 - What are the best ways to fight an invasion?
- ⊘ How do the Greek myths help explain our world including things like the origin of seasons, trees, plants?

Established Goals (Standards, Performance Indicators, Learning Goals):

Links to Standards/Reference Frameworks:

[NGSS](#), [NGSS by DCI](#), [Nat'l C3 SS Framework](#), [NYS K-8 SS Standards](#), [ISTE](#), [Learning for Justice Social Justice Standards](#), [CASEL SEL Framework](#), [NYS CS and Digital Fluency](#)

Science Standards:

MS-LS2-2 Ecosystems: Interactions, Energy, and Dynamics

[LS2.A: Interdependent Relationships in Ecosystems](#)

Social Studies Standards:

Standard 2 World History

Backward Stages: 1. Identify desired results. 2. Determine acceptable evidence. 3. Plan learning experiences and instruction.

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<ol style="list-style-type: none">1. Understanding World Cultures and Civilizations2. Establishing Time Frames3. Study of the major social, political, cultural, and religious developments in world history
<p>ELA Standards:</p> <p>ELA/Literacy - , RST.6-8.1, Cite specific textual evidence to support analysis of science and technical texts. (MS-LS2-2) WHST.6-8.2, Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. (MS-LS2-2) WHST.6-8.9, Draw evidence from literary or informational texts to support analysis, reflection, and research. (MS-LS2-2) SL.6.1, Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly. (MS-LS2-2) SL.6.4, Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation. (MS-LS2-2)</p>
<p>Technology Standards:</p> <p>NYS Computer Science:</p> <p>4-6.IC.1, 4.6.IC.5, 4-6.IC.6, 4-6.DL.4,</p> <p>ISTE:</p> <p>1.3c, 1.4a, 1.5b, 1.6b, 1.6d</p>
<p>Social Justice Standards:</p> <p>Identity 5 ID.6-8.5, Diversity 8 DI.6-8.8</p>
<p>Other (Art, SEL, etc):</p> <p>Visual Arts:</p> <p>VA:Cr2.3.5: Document, describe, and represent constructed environments of regional or historical significance.</p>
<p>Links to Standards/Reference Frameworks:</p> <p>NGSS, NGSS by DCI, Nat'l C3 SS Framework, NYS K-8 SS Standards, ISTE, Learning for Justice Social Justice Standards, CASEL SEL Framework, NYS CS and Digital Fluency</p>

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STAGE 2: EVIDENCE & ASSESSMENTS:

Performance Task Narrative:

Goal:

Students will develop an understanding of mythological creatures and their connection to nature. Students will learn environmental effects of several invasive species within a local ecosystem, Untermyer Park.

Roles:

Scientists/Horticulturists- Identify invasive species and plants found at Untermyer Park.

Researchers- Identify problems and solutions of an invasive species on an ecosystem.

Readers, Writers, Storytellers - Learn about various Greek Gods and Mythology. Write a myth creating gods/goddesses that protect the gardens.

Engineers- Design a statue for the garden.

Technicians- View plants/invasive species under digital microscopes. Design a webpage.

Audience: Untermyer Park and Gardens, School Community

Situation: Teacher will say, “Imagine you visit a local park filled with stunning gardens, mythical statues, greek architecture, waterfalls, and with a history highlighting the diversity of the community. I want you to close your eyes, using all five of your senses, begin to experience the magic and beauty of this garden. Now, picture there is a threat that will destroy all that surrounds you.”

Product(s): Students will be given a Choice Board:

- Write a myth referencing Science knowledge and background
- Make a 3D model of a statue of a God/Goddess
- Create a Thinglink on Untermyer Gardens
- Create a web page about their new Gods/Goddesses who will protect the garden
- Make a Gameboard
- Free Choice

Standards (criteria for success):

- Identify a cause and effect relationship
- Identify the problem and solution
- Understand the interactions in an ecosystem
- Use technology to create 3D models and webpages
- Understand the connection of mythological creatures and nature

Other Evidence/Assessments:

- Formative assessments on invasive species – partners choose an invasive species to research, and explore how that species has disrupted an ecosystem
- Group work on creating a myth about Untermyer Garden
- Groups will evaluate solutions to address the problem of invasive species – create gods/goddesses with powers to rid the garden of invasive species. What can the Gods/Goddesses do? How will they solve the problem?

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STAGE 3: THE LEARNING PLAN:

Learning Activities

Week 1

Learning Goals:

- Students will be introduced to Greek myths and compare and contrast the problem and solution in each myth.
- Students will learn what happens to an ecosystem when introduced to an invasive species.
- Introduction to Untermyer Park and Gardens.

Social Studies:

What is Mythology?

Teacher will introduce the subject of Mythology to the students.

The students will watch a video <https://youtu.be/wTxW7sa2rtg>

Science:

Discussion on invasive species

[Invasive Species 101 | National Geographic - Bing video](#)

[slfposter2.pdf](#)

Learning Events:

- Model lesson on comparing and contrasting the problem and solution of two myths
- Watch the invasive species video and do a “Turn and Talk”
- Students will see 3D images of Untermyer Park and Gardens

Formative Assessments:

- Students will be provided with task cards, pictures, digital sites to complete graphic organizers.
- [321 Graphic organizer.pdf](#)

Notes/Resources:

Science-

- <https://www.brainpop.com/science/ecologyandbehavior/ecosystems/>
- <https://www.brainpop.com/science/ecologyandbehavior/invasivespecies/>

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Social/ELA

- <https://www.historyforkids.net/ancient-greek-gods.html>
- <https://www.brainpop.com/socialstudies/ancientcultures/greekgods/>
- <https://youtu.be/wTxW7sa2rtg>

Week 2

Learning Goals:

- Compare and contrast character traits of certain gods and goddesses.
- Discuss and describe some of the plants and trees on the Untermyer Garden website
- Explain the need for ecosystems.

Learning Events:

- Read the myths related to Perseus, Medusa, and the Cyclops and model the character traits graphic organizer - [perseus myth for young kids - Bing video](#)
- Watch the video on ecosystems - [Ecosystems for Kids - Bing video](#) - Turn and Talk

Formative Assessments:

- Create a “Bio Poster” of an existing god/goddess

Notes/Resources:

- [God,Godesses, Plants-2.pdf](#)
- [Greek Gods - History for kids](#)
- [Greek Mythology for Kids \(ducksters.com\)](#)
- <https://www.untermyergardens.org/whats-in-bloom.html>
- https://yonkerspublicschools-my.sharepoint.com/:w:/g/personal/vbutler_yonkerspublicschools_org/EVh2hPbV Kp5GjUFcJlCoXFIBcGle05tqECFfiggGwHpzhA?e=mDNkmD

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Week 3
Learning Goals: <ul style="list-style-type: none">• Students will learn about invasive species in Untermyer Gardens such as the Spotted Lanternfly, Asian Jumping Worm, and the Norway Maple.
Learning Events: <ul style="list-style-type: none"><input type="checkbox"/> Students will learn about Producers, Consumers, Scavengers, Decomposers, food chains and food webs<input type="checkbox"/> Students will explore Ecosystems and their organisms<input type="checkbox"/> Read the myths related to Poseidon, Zeus and Hades
Formative Assessments: <ul style="list-style-type: none">• Students will create their own ecosystem using a diorama, a poster, or a digital model.
Notes/Resources: <ul style="list-style-type: none">• https://cals.cornell.edu/new-york-state-integrated-pest-management/outreach-education/whats-bugging-you/spotted-lanternfly/spotted-lanternfly-biology-and-lifecycle#lifecycle• ENVIRONMENTENTOMOLOGYTHELANTERNFLYANINTERNETRESEARCHASSIGNMENT-1(1).pdf• https://www.biologycorner.com/2021/07/12/data-analysis-invasion-of-the-jumping-worms/• https://cipwg.uconn.edu/wp-content/uploads/sites/244/2013/10/final-Norway-Maple-factsheet.pdf• https://www.invasivespeciesinfo.gov/
Week 4
Learning Goals: <ul style="list-style-type: none">• Students will make inferences about organisms and how they survive if their habitat is destroyed.• Read the Greek myths related to Demeter and Persephone and learn how the four seasons came to be.
Learning Events:

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- Students will learn the following terms: Biosphere, competition, environment, population**
- Describe how organisms interact with nonliving and living parts in their environment**
- Explain what happens if an organism's needs are not met**

Formative Assessments:

- Invasive Species Science and Stem Connections Activity
- Students will design a trap to capture an invasive species that would not hurt an animal.

Notes/Resources:

Class Trip to Untermyer Gardens:

- Collect specimen samples to observe in the classroom using digital microscopes

Resources:

- https://yonkerspublicschools-my.sharepoint.com/:w:/g/person/mkennedy_yonkerspublicschools_org/ETajbuVpkXdOqpezaMeECQ0BT33iCw-UyRg7tHDEXbawzg
- [Demeter Play.pdf](#)
- [Ancient Greek Myth for Kids: Persephone & Demeter - Ancient Greek Myth for Kids \(mrdonn.org\)](#)

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Week 5
Learning Goals: <ul style="list-style-type: none">• Students will learn about invasive species (plants and animals) and how they can affect an ecosystem• Read the greek myths related to Artemis and Hera
Learning Events: <ul style="list-style-type: none"><input type="checkbox"/> Students will learn how to restore balance within an ecosystem
Formative Assessments: <ul style="list-style-type: none">• Students will compare and contrast how invasive plant and animal species affect native species in ecosystems
Notes/Resources: <ul style="list-style-type: none">• https://www.brainpop.com/science/ecologyandbehavior/ecosystems/• Artemis, Goddess of the Hunt: Greek Mythology Introductions for Kids! - YouTube• Greek Goddess Hera Lesson for Kids: Facts, Myths, & Symbol - Video & Lesson Transcript Study.com• Ancient Greek Myths for Kids - Artemis and the Deer Hunter - Ancient Greek & Roman Gods for Kids (mrdonn.org)
Week 6
Learning Goals: <ul style="list-style-type: none">• Read the Greek myths related to Oedipus and the Sphinx
Learning Events: <ul style="list-style-type: none"><input type="checkbox"/> Culminating Projects

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Class Presentations

Formative Assessments:

- **Final Project Choice Board-**
https://www.canva.com/design/DAFp77NVjJU/IXPXLkoK6aXp159qwjVyQ/view?utm_content=DAFp77NVjJU&utm_campaign=designshare&utm_medium=link&utm_source=publishsharelink

Notes/Resources:

[Oedipus and the Riddle of the Sphinx - YouTube](#)