Inquiry Project Design Plan

Teacher/Designer Names: Susan Lashley & Tamara Bayon-Jimenez **School:** Gorton High School	
Name of Project: Gorton's Magic Garden	**Grade Level:** 9-12
Est Launch Date: Start on Sept. 25, 2023 Resume on March 4, 2024	**Est Duration (in weeks):** 4
Disciplines Involved: Art, Science, Computers, Computer graphics	
Problem Statement: Most students do not understand the huge impact that humans can have on the environment. Thus, it is important for them to understand that they can make a difference for the better in the Earth's environment.	

STAGE 1: DESIRED RESULTS

Big Idea: Human Impact

Enduring Understandings:	**Essential Question(s):**
∉ Humans can affect the environment in positive and negative ways. ∉ Urbanization is shrinking the natural habitats of many animals and insects. ∉ There are certain trees, shrubs, and plants that attract birds and beneficial insects such as butterflies. ∉ Young people have innovative ideas that contribute to the betterment of their community.	∉ How can we together impact our environment in a positive way? ∉ How can we enhance Gorton's bare courtyard so that it looks more welcoming?

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

Science Standards

HS-LS2-6 Evaluate claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem
HS-LS2-7 Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

SWK:

- ∉ An ecosystem is the interaction of all living organisms with the physical environment in an area.
- ∉ Understand the difference between stable conditions and changing conditions
- ∉ A garden is an example of a small ecosystem.
- ∉ Humans can choose what plants to grow in a garden, thus causing a change in the ecosystem's diversity of species
- ∉ Understand the difference between cause and effect

SWBAT:

- ∉ Construct an explanation and design a garden that will enhance our school's appearance as well as attract birds and beneficial insects
- ∉ Evaluate a range of constraints including cost, safety, reliability, aesthetics, and environmental impact

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- Identify plants that Wcan thrive in our ecosystem

Visual Art Standards /Graphic Design Standards

Creating-Anchor Standard 1 Generate and conceptualize artistic ideas and work.
2.1- Organize and develop artistic ideas and work -Develop a proposal and create sketches or a model for an installation, artwork, or space design that transforms the perception and experience of a particular place.
Connecting-Relating artistic ideas and work with personal meaning and external context
10.1 - Anchor Standard 10 Relate and synthesize knowledge and personal experiences to inspire and inform artistic work

SWK:

- The method of creating a design for garden, videos, wed research, interview expert,
- The method of generating artistic ideas for work and how to brainstorm, and sketch different ideas for the project
- How to meaure and organize designs to build and create Garden

SWBAT:

- Research different types of plants and gardens to get background information for project
- Brainstorm and sketch different ideas for the garden project based on their research
- Create a proposal to present to the Adminstration and Buildings and Grounds to get permission to create the Garden using facts and infomation

Mathematics Standards (list if using, unpack under each standard into SWK and SWBAT)**:**
Measurement and Data NY3.MD.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

SWK:

- Understanding ruler and measuring tape

SWBAT:

- Use ruler and measuring tape to measure garden dimensions

ELA Standards

ELA/Literacy - 11-12.RST.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

ELA/Writing - W.2 Write informative/explanatory text to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

SWK:

- The kinds of sources available
- Different ways to synthesize research
- Organization takes time and planning
- The purpose of informational text
- The format for putting together a proposal for a project

SWBAT:

- Differentiate between different kinds of sources
- Synthesize research
- Incorporate and organize useful ideas
- Write informative content

Technology Standards:

- **NYS Computer Science and Digital Fluency:**

9-12.DL.5 Transfer knowledge of technology in order to use new and emerging technologies on multiple platforms.

- **ISTE:**

Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions
1.4b Students select and use digital tools to plan and manage a design process that considers design

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constraints and calculated risks.

1.3c Knowledge Constructor
Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others**.**

SWK:

- New technologies to incorporate ideas into different platforms
- How to use the different tools to create, design, and manage, different media platforms
- The way to use a 360 camera to create a digital prototype as a model for creating VR design to visualize an end result of project
- Through video how to create a Canva Wed Site for project

SWBAT:

- Use cospaces to develop a VR prototype of a garden that will avoid harmful species while attrating native birds and butterflies
- Use Canva to create a Web Site that introdues thier artifacts, information, and designs they make for the project

Social Justice Standards:
Diversity 6 DI.9-12.6 I interact comfortably and respectfully with all people, whether they are similar to or different from me.

SWK:

- Accountable talk stems to disagree respectfully with classmates
- Diversity is the practice or quality of including or involving people from a range of different social and ethnic backgrounds and of different sexual orientations, etc.

SWBAT:

- Apply respectful ways of expression, especially when disagreeing
- Develop interpersonal relationships with classmates
- Respond to diversity by showing empathy and respect

Links to Standards/Reference Frameworks:
NYS Visual Arts & Media Arts https://www.nysed.gov/curriculum-instruction/arts-standards-implementation-resources, NYS NYS NextGen ELA and Math, NGSS, NGSS by DCI Nat'l C3 SS Framework, NYS K-8 SS Standards, ISTE, Social Justice Standards, CASEL SEL Framework, NYS CS and Digital Fluency

Teaching/Learning Goal Notes for Stage 1:

The goal of this unit is to show that humans can positively impact their immediate environment by designing and developing a garden that will attract certain species.

STAGE 2: EVIDENCE & ASSESSMENTS:

Performance Task Narrative

Goal: *Provide a statement of the task. Establish the goal, problem, challenge, or obstacle in the task.*
Most students do not understand the huge impact that humans can have on the environment. By designing a garden that will attract specific species, students will understand that they can make a difference for the better in the Earth's environment.

Role: *Define the role of the students in the task. State the job of the students for the task.*
Researcher, garden designer, botanist, web designer, graphic designer, artist, propsal writer, gardner

Audience: *Identify the target audience within the context of the scenario.*
Classmates, teachers, Smart Start faculty, Gorton Adminstration, Buildings and Grounds, Custodians (expert for feedback: McDermott) (expert feedback from Untermyer Park

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Gardner)

Situation: *Set the context of the scenario. Define the narrative.*

Since Gorton High School is turning 100 years old, we are going to contribute to the sustainability of our school grounds by creating a garden. Through the manipulation of nature in our garden, we can attract certain species and avoid others. Thus, what we plant in the garden will not only change the appearance of our courtyard, but will also directly impact other living organisms. For that reason, it is important to plan our garden very carefully, keeping in mind certain factors, such as sustainability and the origin of plants.

Product(s): *Clarify what the students will create and why they will create it.*

- Sway - plant/flower research
- Canva - flashcards summary
- Art- Student groups- Brainstorm sketch graden idea
- Cospaces - 2D garden prototype
- Art 3D garden prototype sample paper/cardboard
- Students write Proposal for Gorton Garden
- An actual garden in Gorton High School's yard

Criteria for Success): *Provide students with a clear picture of success. Identify specific standards for success such as rubrics, checklists, quizzes, etc.*

- O Rubrics
- O Group sketch checklist evaluation
- O A 2D prototype of a garden showing a minimum of five flowers/plants , a bird, and a beneficial insect. each labeled with important information
- O Completed graphic organizers
- O Group student evaluations

Other Evidence/Assessments:

Observation
Checks for understanding
Student Qs & As
Student surveys

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STAGE 3: THE LEARNING PLAN:

Learning Activities

(potential layout below. Can be daily, divided by periods, or even using the Engineering Design Process to divide into stages such as Ask, Imagine, Plan, Create, Improve)

Week 1: Ask

Learning Goals:

Day 1:

-Predict big idea by participating in a gallery walk.

-Use accountable talk stems to discuss and comment on various pictures related to the big idea

Lashley Class

Tearcher Introduction- "A picture is worth a thousand words. Your job is to walk around the room look at the different pictures and underneath write a comment bellow that tell me what you think of the picture, how it makes you feel, tell me what is going on in the picture."

The students will be able to have a group discussions as they walk around the room and look at the different pictures and write comments about the pictures.

Bayon-Jimenez Class

https://np1.nearpod.com/sharePresentation.php?code=e9dd28ec22f8bb091fa16337bdba4b16-1&oc=user-created&utm_source=link

Day 2:

-List examples of human impact on the environment and pair the causes with their effects

-Read and answer questions about the benefits of gardens and their impact on the environment

Lashley Class-

Teacher Introduction- " Last class, we had discussions about our impacts, or carbon foot prints on the world and how we affect spaces positively or negatively. Today we are going to do a Nearpod that will take us through some exercises that will help us think about how we can create a garden that positively impacts Gorotn High School space. As you do the Nearpod, consider and research the different plants and flowers that you can utilize in the garden. As you research, you will create a Plant Flash Card, with image of the Plant or Flower.

https://np1.nearpod.com/sharePresentation.php?code=bb1d59bfc3906d701a4575b8a3bcd9ec-1&oc=user-created&utm_source=link

Days 3-4:

-Read about the six steps to writing a successful proposal

-Complete graphic organizer before drafting a proposal for our school garden

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Day 5:

-Virtually explore the history and development of Untermyer Gardens

-Formulate questions for the gardener and staff of Untermyer Gardens

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Learning Events:
Gallery walk
virtual tour
proposal writing

Formative Assessments:
Prediction of big idea
Questions
Proposal
Observation
Group Evaluation

Notes/Resources:
Laptops
Internet
Pictures
Article
Chart paper
Nearpod

Week 2: Research

Learning Goals:

Day 6:
Field trip to Untermyer Gardens

Days 7-8:
-Select and research a flowering plant
-Organize and synthesize research using Sway

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Days 7-8

Days 9-10
-Develop a checklist with most important criteria, based on research and goals of the garden
-Design a flashcard with the checklist and the picture & name of each plant

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Learning Events:

- Exploration through research

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- Creativity through Sway presentation
- Activation of prior knowledge to organize ideas
- Presentation of content

Formative Assessments:
Sway presentation
Goals for Our Garden
Criteria Checklist
Canva summary flashcard

Notes/Resources:
Laptops
Internet
Pictures
Article
Chart paper
Nearpod
Rubrics

Week 3: Imagine, Plan, Create

Day 11
Learning Goals:

Learning Goal 6

- Using accountable talk student will leaarn all about measuring with a ruler- Nearpod on Measuring
- Student will use skills learned and take measurements of the Gorton courtyard
- Inquiry expedition- using the internet, student will explore various virtual tours of other Gardens to brainstorm ideas for their garden (Choose your favorite Garden image and save it)
- Introduction to rough draft sketches using what you learned about proportions, measuring
- https://np1.nearpod.com/sharePresentation.php?code=3ae30119a06c17d47a5bba7c3e9c0970-1&oc=lesson-library&utm_source=link

Day 12

Learning Goal 7

- Proportions and Sketches
- Discussion and Viewing of Sway Intro. To Smart Technology- https://sway.office.com/jpj9VZfkmuLEoslD?ref=Link

Day 13 & 14

a. Design Protype using Cospace and Sketches- (continue)
b. Discussion and Viewing of Sway Intro. To Smart Technology- https://sway.office.com/jpj9VZfkmuLEoslD?ref=Link

(Day 15 & 16 (This part of lesson happens in Spring due to weather)

1) **Learning Goal- Canva Wedsite Design-** Smart Start Technology, Cospace, Canva, 360 degree camera, Nikkon digital camera

c. Creating a wedsite that showcases all the students' work
Flash Cards, Sway Research, Virtural Garden Protype(CoSpace), School

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Garden Proposal, School Garden Sketches and Ideas, School Garden

Day 11

Learning Events:

Learning Events 6- Inquiry Events- Nearpod lesson – All About the Measuring

- Using the Yard Stick- how do we measure that? Nearpod https://app.nearpod.com/?pin=694AF5EC631EBED2AE3EA231A893F54B-1&&utm_source=link
- Inquiry Expeditions into different Gardens-Class Discussion on how to brainstorm sketch garden ideas
- Exit Ticket and Student Sketches

Day12

Learning Events7- Inquiry Events-

- Discussion on how to design a garden and use measurements and porportions.
- Students create a Protype Sketch using Porportions (discuss Poroprtions-Exit Ticket on Poroprtions)
- Introduction to CoSpace- CoSpace introduction- https://sway.office.com/jpj9VZfkmuLEoslD?ref=Link

Day 13 & 14

Learning Events 8 - CoSpace Design

- Use the CoSpace program students will create a virtual Gorton Garden from previous sketches and designs- https://sway.office.com/jpj9VZfkmuLEoslD?ref=Link
- Rubric

(Day 15 & 16 (This part of lesson happens in Spring due to weather)

Learning Events 9- With the assistance of Ground Works, Students will build using wood and various materials donated to the project and create a real Gorton Garden using the Prototype Garden, Virtual, and paper sketches.

Formative Assessments:
Quiz,Sketches, Digital and Paper Exit Tickets, Checking for understanding

Notes/Resources:
Nearpod
Wedsites images of gardens
Sway Presentations
Student survey
Group Student Evaluations

Week 4: Test, Improve, Reflect

Learning Goals: Learning Goal- Canva Wedsite Design

Day 16

Learning Goal- Canva Wedsite Design- Smart Start Technology, Cospace, Canva, 360 degree camera, Nikkon digital camera

- Creating a wedsite that showcases all the students work:

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- Flash Cards, Sway Research, Virtural Garden Protype(CoSpace), School Garden Proposal, School Garden Sketches and Ideas, School Garden site pictures Real Gorton Garden

Day17 (Spring Section- March date to be announced)
Learning Goal- Create the actual Gorton Garden

- Actual garden-
- Reflection

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Learning Events:

Formative Assessments:

Notes: