Inquiry Project Design Plan

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Teacher/Designer Names: Michele Morello	
Name of Project: The relationship of plants and animals in ecosystems	**Grade Level: 4**
Est Launch Date: Mid October	**Est Duration (in weeks):** 2-3
Disciplines Involved: Science, ELA and Computer and digital fluency	
Problem Statement: **Humans are impacting the symbiotic relationships in ecosystems**	

STAGE 1: DESIRED RESULTS

Big Idea: Symbiosis

Enduring Understandings:	**Essential Question(s):**
1. The roles plants and animals play in an ecosystem benefit survival 2. Animals and plants are interdependent in an ecosystem 3. Humans play a role in the demise or success of an ecosystem	How do the interactions of various organisms affect an ecosystem? **Driving Questions** 1. How do organisms in an environment depend on each other for survival? 2. What types of relationships do some organisms form with each other and how does this affect the ecosystem? 3. What types of relationships are found within an ecosystem? 4. Why are symbiotic relationships important to an ecosystem

Established Goals (Standards, Performance Indicators, Learning Goals):
*choose relevant standards to unit/project plan timing and learning goals; do not need to use all disciplines below.
** unpack into SWK and SWBAT under identified standards as this will lead to aligned assessment design

Science Standards:

4-LS1-1Construct an argument plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.
internal and external structures that function to support survival, growth, behavior, and reproduction.

SWK

Inquiry Project Design Plan

1. How animals depend on each other for survival in an ecosystem
2. How animal behaviors directly affect the ecosystem

SWBAT

1. Describe how animals and plants depend on each other for survival in their ecosystems
2. Conduct research using technology to identify how an animals basic functions help them survive in their ecosystem

Social Studies Standards:

Mathematics Standards:

ELA Standards:

4R5: In literary texts, identify and analyze structural elements, using terms such as verse, rhythm,
meter, characters, settings, dialogue, stage directions. (RL)
In informational texts, identify the overall structure using terms such as sequence, comparison,
cause/effect, and problem/solution. (RI)

- SWK the effects of symbiosis on the ecosystem
- SWK the importance of the interdependence of animals in an ecosystem

- SWBAT identify what would happen to an animal or a plant if their symbiotic relationship was damaged in the ecosystem
- SWBAT evaluate the need for symbiosis in the ecosystem

Technology Standards:

1. **NYS Computer Science and Digital Fluency: 4-6.DL.3**

   Conduct and refine advanced multi criteria digital searches to locate content relevant to varied learning goals.

   SWK

1. **How to identify a variety of websites to use for their research**

Inquiry Project Design Plan

2. **The relevance of using a variety of websites to help them locate pertinent information for their project**

SWBAT

2. **Use several research sources online to find information on how animals and plants depend on each other in a variety of ecosystems.**

3. **Use a variety of digital tools and resources to create and revise digital artifacts.**

Clarifying Statement the focus is on understanding the editing process when creating digital artifacts on multiple platforms. 4-6.DL.4

SWK

1. **How to incorporate 3D printing, websites and apps into their project**

SWBAT

4. **Create a hand on project to show understanding of the symbiotic relationship of animals in an ecosystem**

ISTE:

1. **1.3 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

2. **How to use technology to do research**
3. **How to create artifacts using the knowledge they learned from research**
4. **How to work together to produce an artifact on symbiosis**

SWBAT

5. **Integrate websites to research for their projects**
6. **Engage in group work to produce an artifact that represents their symbiotic relationship**

Social Justice Standards:
Action 20 AC.3-5.20

1. **I will work with my friends and family**

to make our school and community fair
for everyone, and we will work hard and

Inquiry Project Design Plan

cooperate in order to achieve our goals.
Other (Art, SEL, etc):
Links to Standards/Reference Frameworks: **NGSS**, **NGSS by DCI** **Nat'l C3 SS Framework**, **NYS K-8 SS Standards**, **Common Core**, **ISTE**, **Learning for Justice Social Justice Standards**, **CASEL SEL Framework**, **NYS CS and Digital Fluency**

Students will know (SWK):	**Students will be able to do (SWBAT):**

STAGE 2: EVIDENCE & ASSESSMENTS:

Performance Task Narrative:

Goal: The goal is for children to understand how plants and animals depend on each other for survival in their ecosystem and how humans can impact their survival.

Role: scientists, researchers, writers, web designers, ecosystem 3D print designers, presenters

Audience: classes, parents and faculty

Situation: We will begin a 2-3week unit on learning about how animals and plants depend on each other in different ecosystems for survival. We will be researching, using different

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forms of technology, working cooperatively and creating presentations using technology and group work.

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

1. Students will create a webpage
2. Students will create a 3D printing version of the animals and ecosystem they are researching.
3. Students will use a variety of materials to create their cosystems

S**tandards (criteria for success):** *Provide students with a clear picture of success. Identify specific standards for success.*

1. Reflection form daily
2. Rubric for webpage
3. Webpage
4. Weekly group feedback forms
5. 3D ecosystem

Other Evidence/Assessments:

Website displays
Ecosystem models
3D printing models
Student presentations

STAGE 3: THE LEARNING PLAN:

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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

Learning Goals:
Introduce topic of symbiosis and ecosystems (the situation) class discussion in groups
Review and discuss essential questions
Introduce vocabulary related to symbiosis graphic organizer

- Ecosystem
- Symbiosis
- Commensalism
- Mutualism
- Parasitism

Watch You tube video on symbiosis

Learning Events:

1. Create a list of ecosystems on chart paper
2. Have a discussion of how animals depend on each other or plants for survival- create a web
3. Review vocabulary
4. Symbiosis video

https://youtu.be/NBqLktQKw98

Formative Assessments:

Graphic organizer
Exit ticket on what they have learned
Questioning

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Notes/Resources:

Week 2

Learning Goals:

- Read Melamut and the Crocodile (Benchmark Unit 2)
- Discuss how the plover bird and Melamut have a symbiotic relationship
- Talk about research and group expectations
- Group children and begin research of assigned ecosystem and symbiotic relationship
- Symbiotic match
- SymbiosisOrganismInteractionsCutandPasteActivity-1.pdf

Learning Events:

1. Read Benchmark and annotate text and turn and talk about the relationship between Melamut and the Crocodile

2. Question- Do you know of any other animals that have a symbiotic relationship? (padlet)

3. Worksheet on symbiotic animals
file:///C:/Users/mmorello/Desktop/symbiosis/SymbiosisInteractiveNotebookActivitySymbiosisFanFoldable-1.pdf

4. Children will use the symbiotic relationship cards to match plants and animals that are symbiotic through commensalism, mutualism and parasitism

5. Assign groups and have children begin researching their ecosystem and animals using graphic organizer to organize information for presentation of webpage

EcosystemResearchOrganizer-1%20(1).pdf

Formative Assessments

- Rubric
- Exit slips

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Notes/Resources:

Weeks 3 and 4

Learning Goals:
Assign symbiotic animals to groups according to their ecosystem
Symbiotic animal skit
Split each group in half and assign Canva and 3D printing
Create ecosystem out of materials
Create website for each ecosystem
Create 3D animals that are symbiotic
Put all designs together for presentation

Learning Events:

1. Children will present skit in their groups
2. Groups will be split in half and one half will work on 3D printing and the other half will work on creating webpage

*****Formative Assessment- Reflection form**

3. Groups will come back together and create their ecosystem out of materials like cardboard (ex. Dioramas)
4. Groups will put all parts of their research and project together
5. Groups will present their projects

Formative Assessments:

- Checklist of project points
- Exit tickets
- Charts
- Red, Green, Yellow check in
- KWL
- Padlet
- Group reflection forms
- questioning

Notes/Resources:

Inquiry Project Design Plan

https://youtu.be/IWAA75k-UWI

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Inquiry Project Design Plan

Big Idea: Symbiosis

Enduring Understandings:

- The roles plants and animals play in an ecosystem benefit survival
- Animals and plants are interdependent in an ecosystem
- Humans play a role in the demise or success of an ecosystem

Essential Question(s):
(MEANT TO BE SHARED WITH STUDENTS)

- How do organisms in an environment depend on each other for survival?
- What are some advantages and disadvantages of human impact an ecosystem?
- What types of relationships do some organisms form with each other and how does this affect the ecosystem?
- How do the interactions of various organisms affect an ecosystem?
- What types of relationships are found within an ecosystem?
- Why are symbiotic relationships important to an ecosystem

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Inquiry Project Design Plan

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Inquiry Project Design Plan

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Inquiry Project Design Plan

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Formative Assessments:

Notes/Resources:

Week 2

Learning Goals:

Inquiry Project Design Plan

Learning Events:
Formative Assessments:
Notes/Resources:
Week 3
Learning Goals:
Learning Events:
Formative Assessments:
Notes/Resources:
Week 4
Learning Goals:
Learning Events:

Inquiry Project Design Plan

Formative Assessments: