

# NYCDOE Magnet Program District 25 & 28

## JHS185 Magnet School Grade 6 - Interdependence

**Essential Question:** How do organisms and their environment interact?

**Suggested Time Frame:** 6 weeks

**Magnet Theme:** Architecture

Stage 1- Desired Results	
<b>Standards-Based Learning Goals:</b> PS 1.1i, 2.1b, 2.2j, r, LE 1.1h, 1.2e, 5.1a,d,f, g, 7.1a-d, 7.2 a-e7.21, b, d, 3.2a, ICT 1.2, 1.4,2.1 -2.3, 4.1, 5.1, 5.2, 6.1, 6.2, IPS 1.3	
Concepts	
<b>Big Ideas for this Unit:</b> The relationships between organisms and their environment.	<b>Magnet School Theme:</b> Architecture  <b>Relevant/Connected Big Idea:</b> The relationship between structure and function within an ecosystem
<b>Enduring Understandings:</b> <b>Students will understand:</b> <ul style="list-style-type: none"> <li>• How our actions and decisions impact organisms and the environment around us.</li> <li>• The role organisms play in different environments.</li> <li>• The role the environment plays in an organism’s life.</li> </ul>	<b>Overarching Essential Question(s):</b> <ul style="list-style-type: none"> <li>• How do organisms and their environments interact?</li> <li>• What are the parts of an ecosystem and how do they interact?</li> <li>• Is pollution vital to our standard of living?</li> <li>• How does where we live influence how we live? How do where organisms live influence how they live?</li> </ul>
Content and Skills	
<b>Content (nouns)</b> <b>Students will know...</b> Climate regions Biomes – Tundra, Tropical Rainforest, Temperate Forests, Grasslands, Desert Temperature Seasonal Variation Global Warming – Greenhouse effect Ecosystems, Population, species, communities, abiotic vs. biotic Nitrogen cycle, CO2 and O2 Population Growth Predator Prey relationships Beneficial and harmful organism relationships Environmental changes – the effect on humans and organisms Adaptations Energy flow in an ecosystem, photosynthesis, food energy, decomposer, consumer, producer, food chain, food web, food pyramid, carbon cycle, nitrogen cycle, obtaining nutrients, photosynthesis and oxygen, carbohydrates, protein, fats, water, vitamins, minerals, metabolism, calories	<b>Skills (verbs)</b> <b>Students will be able to...</b> <ul style="list-style-type: none"> <li>• Accurately use measuring tools such as a thermometer</li> <li>• Use appropriate units for measurement and calculations</li> <li>• Recognize and analyze patterns and trends</li> <li>• Identify cause and effect relationships</li> <li>• Use indicators and interpret results</li> <li>• Classify living things based on observable characteristics</li> <li>• Identify structure and function relationships in organisms</li> <li>• Given latitude and longitude of a location, indicate its position on a map</li> <li>• Determine the latitude and longitude of a given location on a map</li> <li>• Interpret food webs, pyramids and chains</li> </ul>

## Stage 2- Summative Assessment Evidence

**If students understand, know and are able to do the items in Stage 1, they should be able to show their understanding by completing an authentic task found in the world beyond the classroom.**

➤ Design the Culminating/Summative Project:

G- (goal)

To design a recovery plan for an ecosystem

R- (role)

Member of the Corps of Engineer

A- (audience)

Department of Environmental Services officials

S- (situation)

You have been asked to develop a recovery plan for an ecosystem that has been deviated by a natural or man created disaster. This plan will be put into action by the Department of Environmental Services.

P- (purpose and product)

You need to prepare a presentation using visuals (a poster) that outline the recovery plan so officials will know how proceed.

S- (standards for performance)

Your proposed plan must have a minimum of 8 native plants and 5 native animals that should be included in the redesign of the habitat. You must look at how these organisms will interact and discuss how to sustain the ecosystem into the future.

## Culminating Project

### **Ecosystem Restoration Plan Project**

Ecosystems are dynamic and interrelated complexes of plant and animal communities, including humans, and their associated non-living physical, chemical and biological support structures. The government has chosen 6 locations that have undergone harmful changes affecting the structure of the habitat. Restoration is aimed at achieving balance and resiliency regarding the structure and function of a habitat. Your job is to create a plan to rebuild an ecosystem. The ecosystem must be **diverse, balanced, and sustainable**. You will present your plan to the officers of the Department of Environmental Services.

First, consider the non-living portions of your ecosystem. What is the land like? How much sunlight and water does the area get? Is the amount of sunlight and water different in different places? What is the soil like? What are the rainfall patterns? How much space and shelter is there on land? How much pollution is there? Where is there evidence of human use and activity? **Every plant and animal you choose to include in your ecosystem must be able to live in these conditions.**

Start by selecting the plants you want to include. You will need to do your own research to decide whether the area provides the proper growing conditions for the plants you choose to include. **Create an index card for each plant** answering the following questions:

- Is there enough sunlight?
- Is there enough space?
- What type of soil is needed?
- Is there enough water?

Next, select the animals you want to introduce or attract. You will need to do your own research to decide whether the area with the plants you chose provides the proper habitat for the animals you wish to include. **Create an index card for each animal** answering the following questions:

- Is there enough food and water?
- Is there enough shelter?
- Is there enough space?
- How will the presence of humans and their pets affect the animal's life cycle?

Finally, present your plan on a large poster. Your poster must include:

- **A written description** of your ecosystem that clearly shows how it is diverse, balanced, and sustainable. In particular, discuss what people would need to do in order to sustain your plan into the future.
- **A food web** representing all the plants and animals in your ecosystem.
- **A map** of the area showing the places where each of the new plants and animals will be located. Label your map.

### Model of Culminating Project

(Create a model of the culminating project that you can share with your students)

