Ecosystem Connections: Interactive Learning Journey

Ecosystem Explorer: Initial Investigation (15 minutes)

Begin your ecosystem journey by observing and recording what you discover in your local environment.

Part 1: Biodiversity Observation

Find a comfortable spot near a window or in the schoolyard and record your discoveries:

Type of Organism	Name/Description	Quantity Observed	Behavior/Activity
Plants			
Insects			
Birds			
Other Animals			

Ecosystem Connections Web (20 minutes)

Using your observations, create an ecosystem web showing how different organisms interact.

Part 2: Connection Mapping

Draw your ecosystem web here. Use arrows to show connections between organisms.

Analysis Questions:

1. Which organism has the most connections to others? Why do you think this is important?

2. Identify one producer and explain its role in your ecosystem:

3. Identify one consumer and explain how it depends on other organisms:

Biodiversity Challenge: Ecosystem Investigation (25 minutes)

Complete these engaging activities to deepen your understanding of ecosystem relationships.

Part 3: Biodiversity Bingo

Flying Insect	Spider Web	Bird's Nest	Flower	Ant Trail
Tree Leaves	Butterfly	Plant Seeds	Soil Creatures	Bird

Biodiversity Analysis:

1. Which ecosystem components were easiest to find? Why?

2. Which were most difficult to locate? What might this tell us about our ecosystem?

3. How do these different components work together to create a healthy ecosystem?

Food Web Dynamics: Energy Flow Investigation (30 minutes)

Explore how energy moves through your local ecosystem by creating and analyzing food webs.

Part 4: Energy Flow Diagram

Apex Predators

Secondary Consumers

Primary Consumers

Producers

Trophic Level	Examples from Your Ecosystem	Energy Available (%)
Apex Predators		0.01%
Secondary Consumers		1%
Primary Consumers		10%
Producers		100%

Energy Transfer Analysis

Calculate Energy Transfer

If a producer has 1000 units of energy:

1. How much energy reaches the primary consumers?
2. How much energy reaches the secondary consumers?
3. How much energy reaches the apex predators?

Ecosystem Disruption Scenario Analysis (40 minutes)

Investigate how changes in ecosystem populations affect the entire community.

Part 5: Population Impact Studies

Scenario 1: Pollinator Decline

The bee population in your ecosystem has decreased by 75%.

Predict the impacts on:

1. Flowering Plants:
2. Fruit-eating Animals:
3. Local Agriculture:

Scenario 2: Invasive Species

A new plant species has rapidly spread through the ecosystem.

Analyze the effects on:

1. Native Plant Species:
2. Local Herbivores:
3. Soil Composition:

Ecosystem Restoration Project (45 minutes)

Design a plan to improve biodiversity in your local ecosystem.

Part 6: Habitat Enhancement Plan

Project Blueprint

Enhancement Feature	Purpose	Benefits to Ecosystem

Timeline and Resources

Phase 1 (Month 1-2):

Phase 2 (Month 3-4):

Phase 3 (Month 5-6):

Final Assessment: Ecosystem Understanding

Part 7: Knowledge Application

Create a Comprehensive Ecosystem Concept Map

Use this space to create a detailed concept map showing all major ecosystem components and their relationships. Include:

- Energy flow
- Nutrient cycles
- Species interactions
- Human impacts
- Conservation strategies

Final Reflection

1. What is the most important thing you learned about ecosystems?

2. How can you apply this knowledge to protect local ecosystems?

3. What questions do you still have about ecosystem dynamics?

Final Reflection and Learning Summary

What I Learned About Ecosystems

The most important things I learned about ecosystems are:

1. _____
2. _____
3. _____

Key Vocabulary Review

Term	My Definition
Ecosystem	
Biodiversity	
Food Web	

Activity Completion Checklist

- □ I completed the Ecosystem Explorer activity
- □ I created my Ecosystem Connections Web
- □ I finished the Biodiversity Challenge
- □ I reviewed and understood all key vocabulary
- □ I can explain how different organisms depend on each other