

# Ecosystems Concept Storyline

## Unifying Concept

Interactions within and among living systems cause changes in matter and energy.

## Unit Concept

Organisms are linked to each other and to their environments in a web of relationships.

## Grade-Level Concept

An ecosystem is a community of organisms that interact with each other and the environment. Humans may affect ecosystems in many ways.

### Subconcept 1

**Model ecosystems may be used to learn more about the relationships that exist on earth.**

Lesson 1: Pre-Unit Assessment: Thinking about Ecosystems  
*Students discuss an illustration of a riverbank environment.*

Lesson 2: Setting Up the Terrarium  
*Students construct a model terrarium, observe it, and record their observations.*

Lesson 3: Setting Up the Aquarium  
*Students construct a model aquarium, observe it, and record their observations.*

### Subconcept 2

**Organisms in ecosystems have dependent and independent relationships.**

Lesson 4: Adding Animals to the Aquarium  
*Students build a model aquatic ecosystem and observe the relationships between plants and algae.*

Lesson 5: Observing the Completed Aquarium  
*Students create a class web to summarize their observations of the aquaria.*

Lesson 6: Adding Animals to the Terrarium  
*Students create a model ecosystem and observe the relationships between crickets, isopods, and plants.*

Lesson 7: Joining the Terrarium and Aquarium  
*Students link their aquaria and terraria. They predict how one ecosystem will affect the other.*

### Subconcept 3

**Nature and human activity may affect an ecosystem in beneficial or harmful ways.**

Lesson 8: Upsetting the Stability  
*Students identify stable and disturbed ecosystems. They read about how humans can affect ecosystems.*

Lesson 9: Reporting on Pollutants  
*Students learn about human-made pollutants and environmental trade-offs.*

Lesson 10: Planning Pollution Experiments  
*Student teams plan controlled experiments to study the effects of pollution.*

Lesson 11: Setting Up Our Pollution Experiments  
*Students carry out their controlled experiments.*

Lesson 12: Observing Early Effects of Pollution  
*Students observe, record, and evaluate the effects of the pollutants.*

Lesson 13: Where Do the Pollutants Go?  
*Students complete their experiments.*

### Subconcept 4

**People can develop solutions to mitigate the effects of pollutants.**

Lesson 14: Drawing Conclusions about Our Experiment  
*Students pool and analyze their data.*

Lesson 15: Examining a Real Environmental Problem  
*Students read about pollution in the Chesapeake Bay from various perspectives and discuss possible solutions.*

Lesson 16: Holding the Mini-Conference: A Look at Trade-offs  
*Students present solutions to reducing pollution in the Chesapeake Bay.*

Lesson 17: Post-Unit Assessment: Sharing What We Know about Ecosystems  
*Students reflect on and discuss what they have learned.*