

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.