Ecosystems Conceptual Story

Science &Technology for Children - Grade 4

K-12 Unifying Concept: Living things are organized into systems that are interconnected. Interactions within and among living systems cause changes in matter and energy.

Fourth Grade Level Concept: An ecosystem is a community of organisms and its interaction with its environment.

Sub-concept: Model ecosystems can be used to learn more about the complex relationships that exist on Earth.

Lesson 1 Thinking about Ecosystems

Students share what they know and what questions they have about ecosystems.

Lesson 2 Setting Up the Terrarium

Students construct a model terrarium. They consider and record the components.

Lesson 3 Setting Up the Aquarium

Students construct a model aquarium. They consider and record the components.

Lesson 4 Adding Animals to the Aquarium

Students complete the aquaria by adding animals. They observe, and record the interdependent relationships.

Lesson 5 Observing the Completed Aquarium

Students create a class web to synthesize what they have read and observed about aquatic ecosystems.

Lesson 6 Adding Animals to the Terrarium

Students complete the terraria by adding animals. They observe and record the interdependent relationships.

Lesson 7 Joining the Terrarium and Aquarium

Students make ecocolumns and compare to earth systems. They further explore the food chain, dependence, and interdependence.

Sub-concept: Natural and human-made events can "disturb" an ecosystem.

Lesson 8 Upsetting the Stability

Students identify stable and disturbed ecosystems and read about disturbances caused by human activity.

Lesson 9 Reporting on Pollutants

Students learn about human-made pollutants through class presentations.

Lesson 10 Planning Pollution Experiments

Students plan experiments to study the effects of pollution. Students determine controls and variables.

Lesson 11 Setting Up Our Pollution Experiments

Students test pH of their ecosystems, implement pollution experiments, and begin a recordkeeping system.

Lesson 12 Observing Early Effects of Pollution

Students observe, record, and evaluate the early effects of the pollutants. Students observe how one system affects the other.

Lesson 13 Where Do the Pollutants Go?

Students make final observations, collect, and review data. They use data to draw and support conclusions.

Lesson 14 Drawing Conclusions about Our Experiment

Class pools and analyzes data, examines them for discrepancies, and draws conclusions. Students read about Puget Sound ecosystem.

Lessons 15-16 An Environmental Problem: A Look at Trade-offs

Students define a problem from different points of view, identify solutions, and trade-offs. They relate this to their own lives.