

Unit 4**Essential Question: How are plants and animals in an ecosystem connected?****Major Understandings:**

- LE 7.1a A population consists of all individuals of a species that are found together at a given place and time. Populations living in one place form a community. The community and the physical factors with which it interacts compose an ecosystem
- LE 5.1d The methods for obtaining nutrients vary among organisms. Producers, such as green plants, use light energy to make their food. Consumers, such as animals, take in energy-rich foods.
- LE 6.2a Photosynthesis is carried on by green plants and other organisms containing chlorophyll. In this process, the Sun's energy is converted into and stored as chemical energy in the form of a sugar. The quantity of sugar molecules increases in green plants during photosynthesis in the presence of sunlight.
- LE 5.1c All organisms require energy to survive. The amount of energy needed and the method for obtaining this energy vary among cells. Some cells use oxygen to release the energy stored in food.
- LE 5.2a Food provides molecules that serve as fuel and building material for all organisms. All living things, including plants, must release energy from their food, using it to carry on their life processes.
- LE 5.1e Herbivores obtain energy from plants. Carnivores obtain energy from animals. Omnivores obtain energy from both plants and animals. Decomposers, such as bacteria and fungi, obtain energy by consuming wastes and/or dead organisms.
- LE 6.1a Energy flows through ecosystems in one direction, usually from the Sun, through producers to consumers and then to decomposers. This process may be visualized with food chains or energy pyramids.
- LE 6.1b Food webs identify feeding relationships among producers, consumers, and decomposers in an ecosystem. LE 3.2a In all environments, organisms with similar needs may compete with one another for resources.
- LE 7.2b. The environment may be altered through the activities of organisms. Alterations are sometimes abrupt. Some species may replace others over time, resulting in long-term gradual changes (ecological succession).
- LE 7.2c Overpopulation by any species impacts the environment due to the increased use of resources. Human activities can bring about environmental degradation through resource acquisition, urban growth, land-use decisions, waste disposal, etc.
- LE 7.2d Since the Industrial Revolution, human activities have resulted in major pollution of air, water, and soil. Pollution has cumulative ecological effects such as acid rain, global warming, or ozone depletion. The survival of living things on our planet depends on the conservation and protection of Earth's resources

Grade 5

Lesson 1 – Exploring Ecosystems (LE 7.2c, LE 7.2b)

Objective(s): To promote scientific inquiry. To use a scientific method to plan and conduct a long-term investigation. To design an experiment to discover how organisms interact with each other and with the physical environment.

Advanced Planning/ Notes to Teacher	Core Lesson	Differentiated Support/ Homework	Connections
Science Background TE 265A	Unit 4 Experiment TE 265a-265b	Lab Manual 52-55 Transparency 13-16	

Lesson 2 – How Do Plants Produce Food? (LE 5.1d, LE 6.2a, LE 5.1c, LE 5.2a)

Objective(s): To infer from observation that plants take in carbon dioxide. To define and describe photosynthesis. To identify producers and consumers.

Advanced Planning/ Notes to Teacher	Core Lesson	Differentiated Support/ Homework	Connections
Plan Ahead for Activities TE 266 B Science Background TE 268 Video Segment 5606 When Minutes Count TE 268	Unit 4 – 8.1 TE pages 268-269	Lab Manual pages 56-58	

Lesson 3 – How Do Plants Produce Food? (LE 5.1d, LE 6.2a, LE 5.1c, LE 5.2a)

Objective(s): To infer from observation that plants take in carbon dioxide. To define and describe photosynthesis. To identify producers and consumers.

Advanced Planning/ Notes to Teacher	Core Lesson	Differentiated Support/ Homework	Connections
Science Background TE 274	Unit 4 – 8.1 Reading in Science TE 270-275 Insta-Lab TE 271	Reaching All Learners • Reteach TE 272 • Challenge TE 273 • ESL TE 271 Reading Review TE 275 Reading Support & Homework 54-55	Curriculum Integration Writing – TE 275 Math – TE 275 Language Arts – TE 275 Science Up-Close – TE 273

Grade 5

Lesson 4 – How Is Energy Passed Through the Ecosystem? (LE 7.1a, LE 5.1d, LE 5.1e, LE 6.1a, LE 6.1b)

Objective(s): To understand food chains and food webs. To know the roles of producers, consumers, and decomposers in ecosystems. To identify energy flow in ecosystems.

Advanced Planning/ Notes to Teacher	Core Lesson	Differentiated Support/ Homework	Connections
Plan Ahead for Activities TE 266B Science Background TE 276 Video Segment 5607 When Minutes Count TE 276	Unit 4 – 8.2 Assess Prior Knowledge TE 276 Investigate TE 277	Investigate Further TE 277 Daily Inquiry TE 276, DI 5607 Inquiry Skill Mini-Lesson TE 277, IS 11	

Lesson 5 – How Is Energy Passed Through the Ecosystem? (LE 7.1a, LE 5.1d, LE 5.1e, LE 6.1a, LE 6.1b)

Objective(s): To understand food chains and food webs. To know the roles of producers, consumers, and decomposers in ecosystems. To identify energy flow in ecosystems.

Advanced Planning/ Notes to Teacher	Core Lesson	Differentiated Support/ Homework	Connections
Science Background TE 281	Unit 4 – 8.2 Reading in Science TE 278-285 Insta-Lab TE 283	Reaching All Learners • Enrichment TE 279, 280 • Reteach TE 283 • ESL TE 284 Reading Review TE 285 Reading Support & Homework 56-57	Curriculum Integration Writing – TE 285 Math – TE 282, 285 Social Studies – TE 285

Grade 5

Lesson 6 – How Do Organisms Compete and Survive in an Ecosystem? (LE 7.1a, LE 6.1b, LE 3.2a)

Objective(s): To demonstrate how body color helps insects survive. To explain how populations interact. To describe plant and animal adaptations.

Advanced Planning/ Notes to Teacher	Core Lesson	Differentiated Support/ Homework	Connections
Plan Ahead for Activities TE 292B Science Background TE 292, 294 Video Segment 5608 When Minutes Count TE 294	Unit 4 – 9.1 Assess Prior Knowledge TE 294 Investigate TE 295	Investigate Further TE 295, LM 64 Daily Inquiry TE 294, DI 12 Inquiry Skill Mini-Lesson TE 295, IS 12	

Lesson 7 – How Do Organisms Compete and Survive in an Ecosystem? (LE 7.1a, LE 6.1b, LE 3.2a)

Objective(s): To demonstrate how body color helps insects survive. To explain how populations interact. To describe plant and animal adaptations.

Advanced Planning/ Notes to Teacher	Core Lesson	Differentiated Support/ Homework	Connections
Science Background TE 300	Unit 4 9.1 Reading in Science TE 296-301 Insta-Lab TE 299	Reaching All Learners • Challenge TE 299 • Reteach TE 297 • ESL/ESOL TE 298 Reading Review TE 301 Quick Study TE 301 Reading Support & Homework 59-60	Curriculum Integration Health – TE 301 Writing – TE 301 Math – TE 301

Grade 5

Lesson 8 – How Do Ecosystems Change Over Time? (LE 7.2b, LE 7.2c)

Objective(s): To observe the changes in a model pond. To describe how changing ecosystems affect the organisms living there. To explain how changes can cause extinction.

Advanced Planning/ Notes to Teacher	Core Lesson	Differentiated Support/ Homework	Connections
Plan Ahead for Activities TE 292B Science Background TE 302 Video Segment 5609 When Minutes Count TE 302	Unit 4 – 9.2 Assess Prior Knowledge TE 302 Vocabulary TE 293 Investigate TE 303	Investigate Further TE 303, LM 67 Daily Inquiry TE 302, DI 13 Inquiry Skill Mini-Lesson TE 303, IS 13	

Lesson 9 – How Do Ecosystems Change Over Time? (LE 7.2b, LE 7.2c)

Objective(s): To observe the changes in a model pond. To describe how changing ecosystems affect the organisms living there. To explain how changes can cause extinction.

Advanced Planning/ Notes to Teacher	Core Lesson	Differentiated Support/ Homework	Connections
Science Background TE 308	Unit 4 – 9.2 Reading in Science TE 304-309 Insta-Lab TE 307	Reaching All Learners • ESL/ESOL TE 306 Reading Review TE 309 Quick Study TE 309 Reading Support & Homework 61-62	Curriculum Integration Math – TE 309 Writing – TE 309 Social Studies – TE 307 Art – TE 309

Grade 5

Lesson 10 – How Do People Affect Ecosystems? (LE 7.2d)

Objective(s): To observe how fertilizer affects plants. To explain how people’s actions can affect the environment. To describe ways to protect the environment.

Advanced Planning/ Notes to Teacher	Core Lesson	Differentiated Support/ Homework	Connections
Plan Ahead for Activities TE 292B Science Background TE 310 Video Segment 5610 When Minutes Count TE 310	Unit 4 – 9.3 Assess Prior Knowledge TE 310 Vocabulary TE 293 Investigate TE 311	Investigate Further TE 311, LM 70 Daily Inquiry TE 311, DI 14 Inquiry Skill Mini-Lesson TE 311, IS 14	

Lesson 11 – How Do People Affect Ecosystems? (LE 7.2d)

Objective(s): To observe how fertilizer affects plants. To explain how people’s actions can affect the environment. To describe ways to protect the environment.

Advanced Planning/ Notes to Teacher	Core Lesson	Differentiated Support/ Homework	Connections
	Unit 4 – 9.3 Reading in Science TE 312-317 Insta-Lab TE 313	Reaching All Learners • ESL/ESOL TE 316 • Reteach TE 314 • Enrichment TE 313 Reading Review TE 317 Quick Study TE 317 Reading Support & Homework 63-64	Curriculum Integration Literature – TE 317 Writing – TE 317 Math – TE 315, 317