

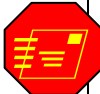
Unit 4—Interdependence

Essential Question: How is interdependence essential in maintaining life on Earth?

Major Understandings: **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. **6.1b:** Food webs identify feeding relationships among producers, consumers, and decomposers in an ecosystem. **6.1c:** Matter is transferred from one organism to another and between organisms and their physical environment. Water, nitrogen, carbon dioxide, and oxygen are examples of substances cycled between the living and nonliving environment. **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. **7.1b:** Given adequate resources and no disease or predators, populations (including humans) increase. Lack of resources, habitat destruction, and other factors such as predation and climate limit the growth of certain populations in the ecosystem. **7.1c:** In all environments, organisms interact with one another in many ways. Relationships among organisms may be competitive, harmful, or beneficial. Some species have adapted to be dependent upon each other with the result that neither could survive without the other. **7.2a:** In ecosystems, balance is the result of interactions between community members and their environment. **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). **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 decision, waste disposal, etc. **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. **PS 2.1j:** Water circulated through the atmosphere, lithosphere, and hydrosphere in what is known as the water cycle.

CHAPTER 10: The Nonliving Environment, pp. 282-309

Major Understandings: **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. **6.1b:** Food webs identify feeding relationships among producers, consumers, and decomposers in an ecosystem. **6.1c:** Matter is transferred from one organism to another and between organisms and their physical environment. Water, nitrogen, carbon dioxide, and oxygen are examples of substances cycled between the living and nonliving environment. **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. **7.1b:** Given adequate resources and no disease or predators, populations (including humans) increase. Lack of resources, habitat destruction, and other factors such as predation and climate limit the growth of certain populations in the ecosystem. **PS 2.1j:** Water circulated through the atmosphere, lithosphere, and hydrosphere in what is known as the water cycle.

Week 22	Section 1 Abiotic Factors pp. 284-290 Objectives: <ul style="list-style-type: none"> ▪ Identify common abiotic factors in most ecosystems. ▪ List the components of air that are needed for life. ▪ Explain how climate influences life in an ecosystem. 	Alignment with NYS Core Curriculum: 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. Also covered: 7.1b	
	Lesson 1 (45 min) Advanced Planning/Notes to Teachers Last Chance—Place your order for houseplants (geraniums) for Unit 4 Lesson 13.	Investigation/Activity Chapter Opener Journal Activity, p. 282 Launch Lab: <i>Earth Has Many Ecosystems</i> , p. 283 Foldable: p. 283 (Foldable worksheet available in the FastFile, p. 17)	Homework/Extra Practice
	Lesson 2 (45 min) Advanced Planning/Notes to Teachers	Investigation/Activity Transparency: <i>All Aglow</i> Text: pp. 284-288	Homework/Extra Practice Fast File: Trans Activity <i>All Aglow</i> , p. 44 NY Living Environment box, p. 285 Reading Essentials: Section 1, pp. 157-159

Week 22 (con't)	Lesson 3 (45 min) Advanced Planning/Notes to Teachers <p style="text-align: center; color: red;">Lab setup</p>	Investigation/Activity MiniLAB: <i>Determining Soil Makeup</i> , p. 286 (Lab worksheet available in the Chapter Fast File, p. 3.) <p style="color: red;">Suggested Time: 10-15 minutes</p> Lab Demonstration: <i>Determining the Percent of Humus</i> , Teacher Edition, p. 286 <p style="color: red;">Suggested Time: 10-15 minutes</p>	Homework/Extra Practice Take Home Science Notebook, pp. 113-114 FastFile: Reinforcement <i>Abiotic Factors</i> , p. 27 Virtual Lab CD-ROM: <i>Abiotic Factors</i>	
	Lesson 4 (45 min) Advanced Planning/Notes to Teachers	Investigation/Activity Observe sand, silt, and clay from previous MiniLAB Applying Math, <i>Temperature Changes</i> , p. 288 Text: pp. 288-290	Homework/Extra Practice Reading Essentials: Section 1, pp. 159-161	
	Lesson 5 (45 min) Advanced Planning/Notes to Teachers <p style="text-align: center; color: red;">Lab setup</p>	Investigation/Activity Lab: <i>Humus Farm</i> , p. 291 (Lab worksheet available in the Chapter Fast File, pp. 5-6.) <p style="color: red;">Suggested Time: 1 class period</p>	Homework/Extra Practice Take Home Science Notebook, pp. 115-116 Section 1 Review, p. 290 FastFile: Enrichment <i>Desert Plants</i> , p. 30	
Week 23	Section 2 Cycles in Nature , pp. 292-297 Objectives: <ul style="list-style-type: none"> ▪ Explain the importance of Earth's water cycle. ▪ Diagram the carbon cycle. ▪ Recognize the role of nitrogen in life on Earth. 		Alignment with NYS Core Curriculum: LE 6.1c: Matter is transferred from one organism to another and between organisms and their physical environment. Water, nitrogen, carbon dioxide, and oxygen are examples of substances cycled between the living and nonliving environment. Also covered: PS: 2.1j	
	Lesson 6 (45 min) Advanced Planning/Notes to Teachers <p style="color: red;">Last Chance—Place your order for pond culture for Unit 4 Lesson 21.</p>	Investigation/Activity Transparency: <i>A Vital Job</i> Text: pp. 292-297	Homework/Extra Practice NY Living Environment box, p. 294 Reading Essentials: Section 2, pp. 162-166	
	Lesson 7 (45 min) Advanced Planning/Notes to Teachers <p style="text-align: center; color: red;">Lab setup</p>	Investigation/Activity MiniLAB: <i>Comparing Fertilizers</i> , p. 295 (Lab worksheet available in the Chapter Fast File, p. 4.) <p style="color: red;">Suggested Time: 10-15 minutes</p> National Geographic: <i>Visualizing the Carbon Cycle</i> , p. 296	Homework/Extra Practice Take Home Science Notebook, pp. 117-119 Section 2 Review, p. 297	
	Section 3 Energy Flow , pp. 298-301 Objectives: <ul style="list-style-type: none"> ▪ Explain how organisms produce energy-rich compounds. ▪ Describe how energy flows through ecosystems. ▪ Recognize how much energy is available at different levels in a food chain. 		Alignment with NYS Core Curriculum: 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. Also covered: 6.1b	
	Lesson 8 (45 min) Advanced Planning/Notes to Teachers	Investigation/Activity Transparency: <i>What's for dinner?</i> Text: pp. 298-301	Homework/Extra Practice NY Living Environment box, p. 300 Reading Essentials: Section 3, pp. 167-170	



	Lesson 9 (45 min) Advanced Planning/Notes to Teachers Activity supplies and setup	Investigation/Activity Teaching Transparency, <i>Food Web</i> Quick Demo: <i>Food Energy</i> , Teacher Edition, p. 300 Suggested Time: 10-15 minutes Make a Model: <i>Insect Food</i> , Teacher Edition, p. 300 Suggested Time: 10-15 minutes	Homework/Extra Practice FastFile: Teaching Transparency Activity, pp. 47-48 Take Home Science Notebook, pp. 120-124 Section 3 Review, p. 301
Week 23 (con't)	Lesson 10 (45 min) Advanced Planning/Notes to Teachers Lab setup	Investigation/Activity Assessment Transparency, <i>The Nonliving Environment</i> Lab: <i>Where does the mass of a plant come from?</i> , p. 302-303 (Lab worksheet available in the Chapter Fast File, pp. 7-8.) Suggested Time: 1 class period	Homework/Extra Practice Chapter Study Guide, p. 305 Chapter Review, pp. 306-307 Text: Intermediate-Level Science Examination Practice, pp. 308-309 FastFile: Enrichment <i>Life on the Ocean Floor</i> p. 32
Week 24	Lesson 11 (45 min) Chapter Review Advanced Planning/Notes to Teachers	Investigation/Activity Fast File: Note-Taking Worksheet, pp. 33-34	Homework/Extra Practice Fast File: Chapter Review, pp. 35-36 Foldable: Students complete Visit glencoe.com for Self Check Quiz Chapter Review
	Lesson 12 (45 min) Chapter Assessment Advanced Planning/Notes to Teachers	Investigation/Activity Chapter Assessment Options: Intermediate-Level Science Examination Practice ExamView CD-ROM, Chapter 10 Chapter Review at glencoe.com For additional assessment options, refer to <i>Performance Assessment in the Science Classroom</i> for rubrics and task lists.	Homework/Extra Practice

CHAPTER 11: Ecosystems, pp. 310-339

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. **7.1c:** In all environments, organisms interact with one another in many ways. Relationships among organisms may be competitive, harmful, or beneficial. Some species have adapted to be dependent upon each other with the result that neither could survive without the other. **7.2a:** In ecosystems, balance is the result of interactions between community members and their environment. **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). **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 decision, waste disposal, etc. **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.

Week 24 (con't)	Section I How Ecosystems Change , pp. 312-315 Objectives:		Alignment with NYS Core Curriculum: 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). Also covered: 7.1c, 7.2a
	<ul style="list-style-type: none"> ▪ Explain how ecosystems change over time. ▪ Describe how new communities begin in areas without life. ▪ Compare pioneer species and climax communities. 		
	Lesson 13 (45 min) Advanced Planning/Notes to Teachers	Investigation/Activity Chapter Opener Journal Activity, p. 310 Launch Lab: <i>What environment do houseplants need?</i> , p. 311 (Use the house plants for this lab.) Foldable: p. 311 (Foldable worksheet available in the FastFile, p. 17)	Homework/Extra Practice
Week 24 (con't)	Lesson 14 (45 min) Advanced Planning/Notes to Teachers	Investigation/Activity Transparency: <i>New Land, New Life</i> Text: pp. 312-315	Homework/Extra Practice NY Living Environment boxes, pp. 313 and 315 Reading Essentials: Section 1, pp. 171-173
	Lesson 15 (45 min) Advanced Planning/Notes to Teachers Activity setup	Investigation/Activity Essential Question: <i>How is interdependence essential in maintaining life on Earth?</i> Interview— <i>Bug's Life</i> , Teacher Edition, p. 310A	Homework/Extra Practice Take Home Science Notebook, pp. 123-128 Section 1 Review, p. 315 FastFile: <i>Enrichment Succession</i> , p. 28
Week 25	Lesson 16 (45 min) Advanced Planning/Notes to Teachers	Investigation/Activity National Geographic: <i>Visualizing Secondary Succession</i> , p. 314 Discussion: <i>Wildfires</i> , Teacher Edition, p. 313	Homework/Extra Practice FastFile: Reinforcement <i>How Ecosystems Change</i> , p. 25

	<p>Section 2 Biomes, pp. 316-323</p> <p>Objectives:</p> <ul style="list-style-type: none"> ▪ Explain how climate influences land environments. ▪ Identify seven biomes of Earth. ▪ Describe the adaptations of organisms found in each biome. 	<p>Alignment with NYS Core Curriculum: 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. Also covered: 7.2c, 7.2d</p>	
	<p>Lesson 17 (45 min) Advanced Planning/Notes to Teachers</p>	<p>Investigation/Activity Transparency: <i>Sentinel</i> Text: pp. 316-323</p>	<p>Homework/Extra Practice NY Living Environment box, p. 320 Reading Essentials: Section 2, pp. 174-180</p>
	<p>Lesson 18 (45 min) Advanced Planning/Notes to Teachers</p> <p style="text-align: center;">Lab setup</p>	<p>Investigation/Activity MiniLAB: <i>Modeling Rain Forest Leaves</i>, p. 320 (Lab worksheet available in the Chapter Fast File, p. 4.) Suggested Time: 10-15 minutes</p>	<p>Homework/Extra Practice Take Home Science Notebook, pp. 129-131 Section 2 Review, p. 323 Virtual Lab CD-ROM: <i>Environment</i></p>
	<p>Lesson 19 (45 min) Advanced Planning/Notes to Teachers</p> <p style="text-align: center;">Lab setup</p>	<p>Investigation/Activity FastFile: Teaching Transparency <i>Biomes</i>, pp. 45-46 Lab: <i>Studying a Land Ecosystem</i>, p. 324 (Lab worksheet available in the Chapter Fast File, pp. 5-6.) Record observations of ecosystems. Suggested Time: 1 class period</p>	<p>Homework/Extra Practice FastFile: Teaching Transparency Activity, pp. 45-46</p>
	<p>Section 3 Aquatic Ecosystems, pp. 325-331</p> <p>Objectives:</p> <ul style="list-style-type: none"> ▪ Compare flowing freshwater and standing freshwater ecosystems. ▪ Identify and describe important saltwater ecosystems. ▪ Identify problems that affect aquatic ecosystems. 	<p>Alignment with NYS Core Curriculum: 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. Also covered: 7.2c, 7.2d</p>	
	<p>Lesson 20 (45 min) Advanced Planning/Notes to Teachers</p>	<p>Investigation/Activity Transparency: <i>Is there a Great Happy Swamp?</i> Text: pp. 325-331</p>	<p>Homework/Extra Practice NY Living Environment box, p. 330 Reading Essentials: Section 3, pp. 181-184</p>
Week 26	<p>Lesson 21 (45 min) Advanced Planning/Notes to Teachers</p> <p style="text-align: center;">Lab setup</p>	<p>Investigation/Activity MiniLAB: <i>Modeling Freshwater Environments</i>, p. 326 [Use the mixed pond culture and Aquaria set for this lab.] (Lab worksheet available in the Chapter Fast File, p.4.) Suggested Time: 10-15 minutes Applying Math: <i>Temperature</i>, p. 328</p>	<p>Homework/Extra Practice Take Home Science Notebook, pp. 132-136 Section 3 Review, p. 331</p>
	<p>Lesson 22 (45 min) Advanced Planning/Notes to Teachers</p>	<p>Investigation/Activity Assessment Transparency <i>Energy and Energy Transformations</i> Essential Question: <i>Interview—Bug’s Life</i>, Teacher Edition, p. 326</p>	<p>Homework/Extra Practice FastFile: Teaching Transparency <i>Energy Transformations</i>, pp. 45-46 Text: Intermediate-Level Science Examination Practice, pp. 338-339</p>

	Lesson 23 (45 min) Advanced Planning/Notes to Teachers Lab setup	Investigation/Activity Lab: <i>Exploring Wetlands</i> , pp. 332-333 (Lab worksheet available in the Chapter Fast File, pp.7-8.) Suggested Time: 3-5 class periods	Homework/Extra Practice Chapter Study Guide, p. 335 Chapter Review, pp. 336-337 Text: Intermediate-Level Science Examination Practice, pp. 338-339
	Lesson 24 (45 min) Advanced Planning/Notes to Teachers	Investigation/Activity Essential Question: <i>Interview—Bug’s Life</i> , Teacher Edition, p. 335	Homework/Extra Practice Fast File: Chapter Review, pp. 35-36 Foldable: Students complete Visit glencoe.com for Self Check Quiz Chapter Review
	Lesson 25 (45 min) Chapter Review Advanced Planning/Notes to Teachers	Investigation/Activity Fast File: Note-Taking Worksheet, pp. 31-33	Homework/Extra Practice
Week 27	Lesson 26 (45 min) Chapter Assessment Advanced Planning/Notes to Teachers	Investigation/Activity Chapter Assessment Options: Intermediate-Level Science Examination Practice ExamView CD-ROM, Chapter 11 Chapter Review at glencoe.com For additional assessment options, refer to <i>Performance Assessment in the Science Classroom</i> for rubrics and task lists.	Homework/Extra Practice
	Lesson 27 (45 min) Chapter Assessment Advanced Planning/Notes to Teachers	Investigation/Activity Class clean up Radish Lab Suggested Time: 1 class period	Homework/Extra Practice