



URBAN ECOLOGY CURRICULUM FOR ENGLISH LEARNERS*

Module 2 :Patterns of Urban Land Use (2nd Edition)

OVERVIEW AND MODULE 2 AT A GLANCE

The Urban Ecology Curriculum for English Learners is an interdisciplinary, standards-based, upper elementary/middle school curriculum designed to bolster English language and literacy learning for Long Term English Learners (LTELs)¹, or students “at risk” of becoming LTELs by providing access to rigorous, STEM content. The curriculum emphasizes locally-relevant field studies focused on engaging students in scientific study through the “four ways of knowing science”: understanding science, talking science, doing science, and acting on science. English language skills and abilities are developed using a project-based learning approach that establishes content and inquiry as a vehicle for language and literacy development, with an emphasis on expository/informational writing and oral language development.

Urban ecology is a new branch of environmental science that seeks to understand the natural systems of urban areas and the threats that face them. Urban ecologists study the trees, rivers, wildlife and open spaces found in cities to understand the extent of those resources and the pressures they face from human development. Urban ecology is *the study of cities as the interactions among biological, chemical, physical and human social forces*.

The Urban Ecology Curriculum for English Learners is comprised of three modules, organized conceptually. These modules may be used sequentially or they may be used in any order. However, it should be noted that Module 1 provides foundational knowledge and experiences for students, as well as a through description of urban ecology as a science. All subsequent modules are explorations of the scientific method that deepen scientific knowledge and principles related to Urban Ecology. All modules are based on the high school level, Urban Ecolab Curriculum which includes a total of eight modules, and can be accessed at the following website: cures.lmu.edu/for-instructors/urban-ecolab-curriculum. The table below offers an overview of the three **Urban Ecology for English Learners Modules** adapted for grades four thru eight.

URBAN ECOLOGY FOR ENGLISH LEARNERS MODULE DEVELOPMENT

ORIGINAL URBAN ECO LAB MODULE	URBAN ECOLOGY FOR ENGLISH LEARNERS MODULE	BIG IDEA	ACTION-ORIENTED PROJECTS
Module 1: Introduction to Urban Ecology	Module 1(2 nd Ed.): Introduction to Urban Ecology	Cities are urban ecosystems.	Science Product: Animal habitat investigation Literacy Product: Communicate in a Public Service Announcement
Module 2: Patterns of Urban Land Use	Module 2 (2 nd Ed.): Patterns of Urban Land Use	Humans create and transform neighborhoods that can be studied as a system.	Science Product: 3D Neighborhood Land Use Map at present or over time and with or without the use of technology Literacy Product: Proposal for land use development in school or home community
Module 6: Biodiversity	Module 3: Biodiversity	Healthy urban communities have diverse natural systems.	Science Product: Field Data Collection to determine levels of biodiversity in community habitats Literacy Product: Biodiversity Science Report

¹ In California, Long-Term English Learners are defined as ELs in grades 6-12 who have (a) 6+ years of continuous enrollment in US schools; (b) remained at the same EL proficiency level for 2+ years; and (c) are not making normative progress on academic achievement tests. Students “at risk” of becoming LTELs are in upper elementary school and have (a) been enrolled in US schools since grade 1; (b) remained at the Intermediate (Expanding) level of English proficiency; and (c) are not making normative progress on academic achievement tests.



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MODULE 2 (2nd Ed.)

Purpose: This module focuses on land use as the way that society manages the growth and development of cities over time utilizing land as geographic resources.

BIG IDEA: Humans create and transform neighborhoods that can be studied as a system.

PROJECT: 3D Neighborhood Land Use Map at present or over time and with or without the use of technology

Literacy Application: Proposal for land use development in school or home community

Module 2
Patterns of Urban Land Use

6 units
Total 22 lessons
(approximately
90 - 110 minutes
per lesson)
+
presentation
(2 periods)

UNIT 1: Module 1 (2nd Ed.) Review

Lesson 1: Cities as Urban Ecosystems (from Module 1 (2nd Ed.), Unit 1, Lesson 3)
Lesson 2: Ecosystem Structure: Categories (from Module 1 (2nd Ed.), Unit 2, Lesson 1)
Lesson 3: Complex Urban Ecosystems (from Module 1 (2nd Ed.), Unit 4, Lesson 1)
Lesson 4: Microhabitats and Community Relationships (from Module 1 (2nd Ed.), Unit 5, Lesson 1 and 2)

UNIT 2: Changes in Urban Areas Over Time

Lesson 1: What is Urban Sprawl and Densification? [Informational Text: Part 1: Urban Sprawl & Densification; Part 2: L.A. : The City Grows through Urban Sprawl & Densification]
Lesson 2: Increased Urbanization
Lesson 3: My City and Land Use Policy
Lesson 4: Field Experience- Site Evaluation; Project Development Time - Introducing the Project

UNIT 3: Urban Heat Islands

Lesson 1: Surface Temperature Variation and Color
Lesson 2: Field Experience - Surface Temperature Variation
Lesson 3: Urban Heat Island Effect
Lesson 4: Project Development Time - Land Use Proposal, Parts I and II

UNIT 4: Land Use in My Field

Lesson 1: Why Study Trees? [Informational Text: Why Study Trees?]
Lesson 2: Field Experience - Carbon Storage and Transpiration
Lesson 3: Assessing Tree Health and Growing Conditions of Study Site
Lesson 4: Project Development Time - Evaluation of types of Surfaces and Structures at The Study Site

UNIT 5: Planning for Positive Land Use

Lesson 1: Review of Biophysical and Social Drivers [Informational Text: Creating Healthier and More Livable Cities, Part 1]
Lesson 2: City [Informational Text- Creating Healthier and More Livable Cities, Part 2]
Lesson 3: What Would You Do?/Project Development Time - Reflecting on Potential Solutions: Critical Friends Reflection
Lesson 4: Project Development Time - Synthesize Information and Apply to Study Site Map

UNIT 6: Action in Urban Ecology - Planning for Positive Urban Land Use

Lesson 1: Land Use Proposal Drafting - Part III and Part IV
Lesson 2: Land Use and Proposal Mini-lessons - Revise, Edit Project--Critical Friends Review
Present Land Use Map and Proposal - Writing Post-Assessment



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MODULE 2 – DESIRED RESULTS, GRADES 4- 8

Understanding by Design: Stage 1

	Grades 4 & 5	Grade 6	Grade 7	Grade 8
BIG IDEAS	<p>Humans create and transform neighborhoods that can be studied as a system.</p> <p>Ecosystems are dynamic:</p> <ul style="list-style-type: none"> • Changes in habitats can affect the plants and animals living there. <p>People have the power to restore habitats.</p>	<p>Humans create and transform neighborhoods that can be studied as a system.</p> <p>Ecosystems are dynamic:</p> <ul style="list-style-type: none"> • Changes in habitats can affect the plants and animals living there. <p>People have the power to restore habitats.</p>	<p>Humans create and transform neighborhoods that can be studied as a system.</p> <p>Ecosystems are dynamic:</p> <ul style="list-style-type: none"> • Human-made changes to the natural environment can disrupt an ecosystem and threaten the survival of plants and animals. <p>People have the power to restore habitats.</p>	<p>Humans create and transform neighborhoods that can be studied as a system.</p> <p>Ecosystems are dynamic:</p> <ul style="list-style-type: none"> • Human-made changes to the natural environment can disrupt an ecosystem and threaten the survival of plants and animals <p>People have the power to restore habitats.</p>
GOALS	<p>Ecosystem Dynamics, Functioning, and Resilience</p> <p>Students will identify and analyze the factors that influence species survival and determine how people’s actions can affect land use and improve the ecosystem health of a community.</p>	<p>Ecosystem Dynamics, Functioning, and Resilience</p> <p>Students will identify and analyze the factors that influence species survival and determine how people’s actions can affect land use and improve the ecosystem health of a community.</p>	<p>Ecosystem Dynamics, Functioning, and Resilience</p> <p>Students will identify and analyze the factors that influence species survival and determine how people’s actions can affect land use and improve the ecosystem health of a community.</p>	<p>Ecosystem Dynamics, Functioning, and Resilience</p> <p>Students will identify and analyze the factors that influence species survival and determine how people’s actions can affect land use and improve the ecosystem health of a community.</p>



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	Grades 4 & 5	Grade 6	Grade 7	Grade 8
GUIDING QUESTIONS	<p>How do human activities affect plant and animal habitats?</p> <p>How do human activities affect the climate of urban areas?</p> <p>What happens to plants and animals when their habitats change?</p> <p>How can we impact land use in our neighborhood/schoolyard?</p>	<p>How do human activities affect plant and animal habitats?</p> <p>How do human activities affect the climate of urban areas?</p> <p>What happens to plants and animals when their habitats change?</p> <p>How can we impact land use in our neighborhood/schoolyard?</p>	<p>How do human activities affect Earth systems?</p> <p>How do environmental factors affect the growth of organisms?</p> <p>How do plants and animals interact with their native environment, and what are the effects when their native environment changes?</p> <p>How has our city changed over time? What are the effects of those changes on people, plants and animals in our city?</p> <p>How can we impact land use in our neighborhood/schoolyard?</p>	<p>How do human activities affect Earth systems?</p> <p>How do environmental factors affect the growth of organisms?</p> <p>How do plants and animals interact with their native environment, and what are the effects when their native environment changes?</p> <p>How has our city changed over time? What are the effects of those changes on people, plants and animals in our city?</p> <p>How can we impact land use in our neighborhood/schoolyard?</p>
UNDERSTANDINGS	<p>An individual's actions can affect land use and improve the ecosystem health of a community.</p> <p>A community's actions can affect land use and improve the health of an ecosystem.</p> <p>People create and transform neighborhoods.</p> <p>People's actions can contribute to healthy and sustainable ecosystems.</p> <p>People can reverse changes to plant and animal habitats and restore the health of an ecosystem.</p> <p>When the environment changes in temperature and/or availability of resources, some organisms survive, some relocate to other habitats, and some die.</p>	<p>An individual's actions can affect land use and improve the ecosystem health of a community.</p> <p>A community's actions can affect land use and improve the health of an ecosystem.</p> <p>People create and transform neighborhoods.</p> <p>People's actions can contribute to healthy and sustainable ecosystems.</p> <p>People can reverse changes to plant and animal habitats and restore the health of an ecosystem.</p> <p>A healthy ecosystem contains multiple species of different types that are able to meet their needs through a stable food chain.</p>	<p>An individual's actions can affect land use and improve the ecosystem health of a community.</p> <p>A community's actions can affect land use and improve the health of an ecosystem.</p> <p>People create and transform neighborhoods.</p> <p>Habitat destruction, pollution, introduction of invasive plant or animal species, and climate change can disrupt an ecosystem and threaten the survival of some species.</p>	<p>An individual's actions can affect land use and improve the ecosystem health of a community.</p> <p>A community's actions can affect land use and improve the health of an ecosystem.</p> <p>People create and transform neighborhoods.</p> <p>Habitat destruction, pollution, introduction of invasive plant or animal species, and climate change can disrupt an ecosystem and threaten the survival of some species.</p>



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STANDARDS ALIGNMENT BY GRADE LEVEL AND CONTENT AREA

The Urban Ecology Curriculum for English Learners presents an opportunity to deliver cross-disciplinary instruction and thus has been aligned to the following content area standards in grades 4-8:

- Common Core State Standards, English Language Arts (2010)
- California English Language Development Standards (2012)
- Next Generation Science Standards – California (2013)

In addition to the standards for each content area listed above, the environmental literacy strand described in the California History/Social Science Framework (adopted by the CA State Board of Education, July 2016) includes an expectation that students develop geographic reasoning skills with the understanding that *“An environmental perspective views people as living in interdependent relationships within diverse environments. Thinking geographically requires knowing that the world is a set of complex ecosystems interacting at multiple scales that structure the spatial patterns and processes that influence our daily lives.”* (CA History/Social Science Framework, 2016, p. 12).

Overall, the curriculum development team examined grade level content as well as cross-grade level articulation to identify ELA, ELD, and NGSS standards that are relevant to this curriculum. Each classroom teacher can determine which standards are “essential standards” for his/her classroom context. “Essential standards” are defined as those covered in-depth. Teachers may also target “complementary standards”, defined as standards that may have been covered prior to this module, or that may be presented during the module at an introductory level.

A complete list of standards organized by grade level can be found in the “Grade Level Standards” Tab.