Grades 2 and 3

2.2.e./2.2.f. - Flowering Plants in Our Changing Environment

"Flowering Plants in Our Changing Environment" examines the diverse life cycle of plants in different ecosystems and explores the common features of their life cycles, including their reproductive processes. Students identify and locate the habitats of different plant species on a map allowing them to evaluate how the physical features of different plants are influenced by the environment. The evidence they gather prepares them to discuss and analyze how the traits plants inherit are influenced by the environments in which certain plants live. The data they gather prepares them to construct explanations about the interdependence of these organisms on ecosystems, as well as how their environment affects their growth and development. They identify, draw, and label the reproductive parts of different plants and discuss why plant reproduction matters to humans and other animals.

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California Education and the Environment Initiative

The EEI Curriculum cohesively integrates science and engineering practices (SEPs), content (disciplinary core ideas/DCIs), and crosscutting concepts (CCs) within its lesson procedures. This preliminary analysis intentionally teases apart the individual SEPs, DCIs, and CCs as a means of correlating the EEI unit with specific performance expectations; however, the EEI lessons weave these components back together.

Next Generation Science Standards* Correlation with the California Education and the Environment Initiative (EEI) Curriculum

The EEI Curriculum is a great choice for transitioning to NGSS and contributes toward achievement of the performance expectations for the disciplinary core ideas reflected in the Summary Chart below: 2-LS2 Ecosystems: Interactions, Energy, Dynamics; 3-LS1 From Molecules to Organisms: Structures and Processes; and 3-LS3 Heredity: Inheritance and Variation of Traits. Each EEI unit highlights a small number of performance expectations, science and engineering practices, disciplinary core ideas, and crosscutting concepts. Therefore, the EEI units contribute to students' overall achievement of the performance expectations by the end of a school year, where they will have had multiple opportunities to engage in all appropriate science and engineering practices, disciplinary core ideas, and crosscutting concepts. While EEI was designed to teach the 1998 California science standards to mastery, it reflects the real world interconnections in science and already incorporates many of the paradigm shifts reflected in the NGSS. To learn more about how EEI supports NGSS, visit http://californiaeei.org/NGSSGuides/.

Correlation Chart Key

SEP (Science and Engineering Practices)
DCI (Disciplinary Core Ideas)
CC (Crosscutting Concepts)

	Next Generation Science Standards								
	2-LS2			3-LS1			3-LS3		
California Connection					✓	✓		✓	✓
Lesson 1 – Read about California's first orange tree to start learning about plant reproduction	✓			✓	✓	✓			
Lesson 2 – Examine the reproductive needs of plants that grown in California and discuss the importance to humans.					✓				
Lesson 3 – Investigate how natural systems support reproductive needs of blackberries and Joshua trees.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lesson 4 – Study and apply knowledge about how plants are affected by a variety of environmental changes.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lesson 5 – Lesson 5 – Analyze how human activities can stress plants and affect their growth and reproduction.			✓		✓	✓	✓	✓	✓
Traditional Unit Assessment		✓	✓		✓	✓		✓	✓
Alternative Unit Assessment		✓	✓		✓	✓	✓	✓	✓
	SEP	DCI	CC	SEP	DCI	CC	SEP	DCI	CC

DRAFT

EEI Unit 2.2.e./2.2.f. - Flowering Plants in our Changing Environment

Disciplinary Core Ideas Supported by this EEI Unit

2-LS2 Ecosystems: Interactions, Energy, Dynamics
3-LS1 From Molecules to Organisms: Structures and Processes
3-LS3 Heredity: Inheritance and Variation of Traits

Performance Expectations	Suggestions for Using the EEI Unit to Support NGSS
2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow.	Use the unit to have students observe the effects of diverse environmental conditions, including variations in sunlight and water, on the ability of plants to survive.
3-LS1-1: Develop models to describe that organisms have unique and diverse life cycles, but all have in common birth, growth, reproduction, and death.	Use this unit to have students study a variety of different flowering plants, and determine that unique environmental needs must be met in order for plants to reproduce and complete their life cycles.
3-LS3-2: Use evidence to support the explanation that traits can be influenced by the environment.	Use this unit to have students determine that plants reproduce in environments that meet their specific needs and that if there is a change to the environment, it may affect the overall health of the plant and any offspring.

Science and Engineering Practices (SEPs)	Suggestions for Using EEI to Support SEPs	Disciplinary Core Ideas (DCIs)	Suggestions for Using EEI to Support DCIs	Crosscutting Concepts (CCs)	Suggestions for Using EEI to Support CCs
Planning and Carrying out Investigations (2-LS2-1)	Use the unit to have students make specific observations about plants' flowers and fruits (Lesson 1). Have students observe photos that show how changes to the environment, such as no water and/or no sunlight, will affect plant growth and reproduction (Lessons 3 and 4). Have students plant seeds and subject them to various conditions and observe the effects on the seedlings (Unit Extension, page 34).	**LS2.A: Interdependent Relationships in Ecosystems:** Plants depend on water and light to grow. (2-LS2-1)	Use the unit to have students observe that plants depend on both water and light to grow and survive, and discover that when those conditions are not met, such as in a drought, certain plants may not survive (Lessons 3 and 4).	**Cause and Effect (2-LS2-1, 3-LS3-2)**	Use the unit to have students analyze the cause and effect relationship between weather extremes and plant survival (Lessons 3 and 4). Have them predict how different factors can cause changes to specific plant populations (Lesson 5).
Developing and using models (3-LS1-1)	Use the unit to have students use models to understand plant reproduction in oranges (Lesson 1). Have them use models that allow them to describe the effects environmental changes, such as drought or freezing temperatures, can have on plant health (Lessons 3 and 4).	**LS1.B: Growth and Development of Organisms:** Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)	Use the unit to have students examine the role of reproduction in the life cycle of flowering plants (Lesson 1 and 2). Have them determine that the growth and development of plants is directly affected by the environment and by human activity (Lessons 3, 4, and 5).	**Patterns (3-LS1-1)**	Use the unit to have students see the patterns in plant reproduction (Lessons 1 and 3). Have them examine how patterns of change can be used to make predictions about changes to natural systems, whether these changes occur naturally or as the result of human influences, and conclude that these changes can have a direct effect on a flowering plant's ability to survive and reproduce (Lessons 3, 4, and 5).
		LS3.A: Inheritance of Traits: Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. (3-LS3-2)	Use the unit to have students discover that specific characteristics are given from a parent to an offspring through the process of reproduction, and that a change to the environment can affect the overall health of offspring (Lessons 1, 3, and 4).		

Science and Engineering Practices (SEPs)	Suggestions for Using EEI to Support SEPs	Disciplinary Core Ideas (DCIs)	Suggestions for Using EEI to Support DCIs	Crosscutting Concepts (CCs)	Suggestions for Using EEI to Support CCs
Constructing Explanations and Designing Solutions (3-LS3-2)	Use the unit to have students explain how changes in a natural system can affect a flowering plant's ability to survive (Lessons 3 and 4). Ask students to explain how humans can cause changes in natural systems that directly affect plant development and plant survival (Lesson 5).	**LS3.B: Variation of Traits:** The environment also affects the traits that an organism develops. (3-LS3-2)	Use the unit to have students discover that a flowering plant's ability to survive depends on having its needs met through its environment, and that when the plant's needs are not met, some of its physical traits may be affected (Lessons 3, 4, and 5).		