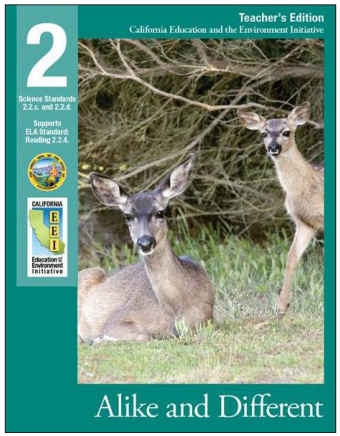
California Education and the Environment Initiative
Increasing Environmental Literacy for K–12 Students…
Because the Future is in Their Hands

Grades 2 and 3

2.2.c. and 2.2.d. — Alike and Different

"Alike and Different" examines the inherited traits of several animals in and out of their usual habitats and discusses how human activity changes habitats and can influence an organism's survival. Students explore several survival traits including camouflage, the care of offspring, and why animals can look different, even with the same parents. They look at variations in eye color and height among themselves. The students participate in a hands-on activity that models how traits may be passed from a parent to its offspring. They analyze quantitative data to predict which traits will be passed on to puppies from their parents.



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

By teaching this unit, students work towards mastery of the performance expectations for the second and third grade standards reflected in the summary chart below: 2-LS4 Biological Evolution: Unity and Diversity and 3-LS3 Heredity: Inheritance and Variation of Traits.

	Next Generation Science Standards					
	2-LS4			3-LS3		
California Connection	✓	✓	✓	✓	✓	✓
Lesson 1 – Examine traits of three species and how environmental change influences survival.	✓	✓				
Lesson 2 – Identify inherited survival traits of mule deer.	✓	✓		✓	✓	
Lesson 3 – Explore how camouflage can influence an animal's survival depending on its habitat.	✓	✓		✓	✓	✓
Lesson 4 – Analyze a breed of dogs to determine why animals with the same parents can look different.	✓		✓	✓		
Lesson 5 – Study how animals' traits help them survive.	✓	✓	✓	✓	✓	✓
Traditional Unit Assessment	✓	✓	✓	✓	✓	✓
Alternative Unit Assessment	✓	✓	✓	✓	✓	✓
	SEP	DCI	CC	SEP	DCI	CC

Correlation Chart Key

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

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2.2.c. and 2.2.d. - Alike and Different

Performance Expectations

2-LS4: Biological Evolution: Unity and Diversity – strong correlation

PE 1: Make observations of plants and animals to compare the diversity of life in different habitats. Suggestion: Use this unit to have students learn there are many types of animals that live in different habitats throughout California.

3-LS3: Heredity: Inheritance and Variation of Traits – strong correlation

PE 1: Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. Suggestion: Use this unit to have students closely examine seven animals and birds and the specific traits that they receive from their parents that help them survive in their habitats.

PE 2: Use evidence to support the explanation that traits can be influenced by the environment. Suggestion: Use this unit to have students learn about cowbirds, how their traits are affected by the environment, and how this can affect the survival rate of its offspring.

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Planning and carrying out investigations. Suggestion: Use this unit to have students gain experience in making simple observations and comparisons to help them answer questions about three different animals and their offspring (Lessons 1, 2 and 3). Have students complete a test in which they draw different beans from a bag to model how traits may be passed from a parent to its offspring (Lesson 4). **Analyzing and interpreting data.** Suggestion: Use this unit to have students reason that the traits inherited from parents help them survive in their environment (Lessons 1, 2 and 3). Have students use quantitative data to predict which traits will be passed on to puppies from their parents (Lesson 4). **Constructing explanations and designing solutions.** Suggestion: Use this unit to have students evaluate information that helps them explain how a trait inherited by some red-wing blackbirds helps more of their offspring survive (Lesson 5).	**2-LS4D: Biodiversity and Humans.** Suggestion: Use this unit to have students examine a variety of animals and determine that there are many different animals living in the same area (Lessons 1, 3 and 4). **3-LS3.A: Inheritance of Traits.** Suggestion: Use this unit to engage students in a bean counting game to help them learn that individuals of the same animal are not exactly like their parents (Lesson 3). Have students learn that the inherited traits of the cowbird to lay eggs in other birds' nests help the species to survive (Lessons 1 and 5).	**Patterns.** Suggestion: Use this unit to have students learn about how patterns in inherited traits can help animals survive and grow (Lessons 1 and 2). Have students observe that patterns of a similar type, such as bird eggs and antlers, may vary between individuals within a given species (Lesson 4). **Cause and effect.** Suggestion: Use this unit to have students understand that through environmental changes, a species may inherit a trait that helps it to reproduce and raise its own offspring (Lesson 5).

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
	3-LS3.B: Variation of Traits: Suggestion: Use this unit to have students understand that the cowbird lays its eggs in other birds' nests (Lesson 1). Have students discuss that due to riparian habitat loss, there is more competition for nesting space, and that some species of birds that care for the cowbird eggs and hatchlings raise fewer of their own species (Lessons 1 and 5). Have students learn that with the change in environment, some individuals of blackbirds have inherited a trait where they do not care for the cowbird's eggs and are able to raise more of their own kind (Lesson 5).	

Note: *Each EEI unit highlights a small number of performance expectations, science and engineering practices, disciplinary core ideas, and crosscutting concepts. It is assumed that by the end of a school year, students will have had multiple opportunities to engage in all appropriate science and engineering practices, disciplinary core ideas, and crosscutting concepts and to achieve the performance expectations.*