TEACH COMMON CORE STANDARDS WITH THE EEI CURRICULUM

Created with your needs in mind, this document shows the correlation between the EEI Curriculum and the California Common Core State Standards. By teaching the EEI unit lessons in your classroom, you will be simultaneously addressing the Common Core standards depicted in this guide.

2.2.a. and 2.2.b.—Cycle of Life

In this unit, students learn that reproduction is what ensures the survival of species. They sequence the life cycles of insects, amphibians, reptiles, birds, and mammals. Then they discover that humans benefit from and depend on animal and plant reproduction to meet a variety of needs. Finally, they explain the consequences that occur when an animal's living and reproductive needs are not able to be met due to changes in the environment.

LESSONS	RI.2.1	RI.2.2	RI.2.3	RI.2.4	RI.2.6	RI.2.7	RI.2.10	W.2.2	W.2.8	W.2.10	SL.2.1	SL.2.2	SL.2.6	L.2.1	L.2.3	L.2.4	L.2.6
California Connections	✓	✓		✓	✓	✓	✓					✓		✓			✓
1	✓	✓	✓	✓	✓	✓	✓					✓	✓	✓		✓	✓
2									✓		✓		✓		✓	✓	✓
3						✓			✓				✓			✓	
4									✓		✓	✓	✓			✓	
5									✓		✓	✓	✓			✓	
Traditional Assessment			✓					✓	✓	✓							
Alternative Assessment	✓		✓					✓	✓	✓							

COMMON CORE STANDARDS

Note: *For your reference, the list of California Common Core State Standards abbreviations is on the following page.*

Using the EEI-Common Core Correlation Matrix

The matrix on the front page identifies a number of Common Core standards that are supported by this EEI unit. However, the check marks in the matrix do not necessarily signify that the Common Core standards checked will be taught to mastery by using this EEI unit alone. Teachers are encouraged to select which Common Core standards they wish to emphasize, rather than teaching to every indicated standard. By spending more time on selected standards, students will move toward greater Common Core proficiency in comprehension, critical thinking and making reasoned arguments from evidence. Teaching this EEI unit will provide opportunities for teachers to implement the shift in instructional practice necessary for full Common Core implementation.

California Common Core State Standards Abbreviations

- **CCCSS:** California Common Core State Standards
- **L:** Language Standards
- **RI:** Reading Standards for Informational Text
- **SL:** Speaking and Listening Standards
- **W:** Writing Standards

Note: *Since each Common Core standard includes a breadth of skills, in this correlation, the portion of the standard description that is featured in the Common Core standards and applications is cited, using "…" to indicate omitted phrases. For a list of the complete standard descriptions, please see the Common Core Reference Pages located on page 20 of this document.*

A Note about Common Core Speaking and Listening Standards

Many of the EEI units provide various learning structures, materials, and groupings that lead toward students working in pairs or small groups to discuss concepts and ideas. This supports the skill in Speaking and Listening Standard 1 "Participate effectively in a range of collaborative discussions (one-on-one, groups…) with diverse partners." With prior instruction in collaborative discussion techniques, students can be placed in pairs or small groups to discuss the lesson topics. To aid in teacher planning, the lessons are listed below along with their learning structures for whole class, pairs/partners, and/or small groups.

- **Lesson 1:** Whole class
- **Lesson 2:** Whole class, pairs
- **Lesson 3:** Whole class, 4 groups
- **Lesson 4:** Whole class
- **Lesson 5:** Whole class

National Geographic Resources

- **Habitats** wall map (Lessons 1, 4, and 5)

Unit Assessment Options

Assessments	Common Core Standards and Applications
Traditional Assessment	
Students answer multiple choice, short answer, fill-in-the-blank, and matching questions. ***Tip:*** *To increase student application of CCCSS* ***W.2.2,*** *add directions to the short answer questions that instruct students to write a paragraph that introduces the topic, uses facts and definitions to explain their points, and provides a concluding statement at the end.*	**RI.2.3:** Describe the connection between a series of…scientific ideas or concepts… **W.2.2:** Write informative/explanatory texts… **W.2.8:** Recall information from experiences or gather information from provided sources to answer a question. **W.2.10: Write routinely over…shorter time frames… for a range of discipline-specific tasks, purposes, and audiences. CA**
Alternative Assessment	
Students create an 8-page picture book depicting the life cycle of an animal studied during the unit. Below each student created drawing, they write an answer to the question posed at the top of each page, describing each life cycle stage and the animal's living and reproductive needs.	**RI.2.1:** Ask and answer such questions as *who, what, where, when, why,* and *how* to demonstrate understanding of key details in a text. **RI.2.3:** Describe the connection between…scientific… concepts… **W.2.2:** Write informative/explanatory texts… **W.2.8:** Recall information…to answer a question. **W.2.10: Write routinely…for a range of discipline-specific tasks… CA**

Lesson 1: Reproduction: An Essential Part of the Life Cycle

In this lesson, students read and discuss ***California Connections: The Tall Pine and the Big Eagle,*** identifying various stages of Monterey pine and bald eagle life cycles and defining reproduction and its importance to plants and animals.


Lesson 1

Reproduction: An Essential Part of the Life Cycle

National Geographic Resources

- **Habitats** wall map

Use this correlation in place of the **Procedures** on pages 42–43 of the Teacher's Edition.

Procedures	Common Core Standards and Applications
Vocabulary Development	
Use the **Dictionary Workbook** and the vocabulary **Word Wall Cards** to introduce new words to students as appropriate. Ask students to write their name in the space provided in the dictionary. These documents are provided separately. ***Tip:*** *If* ***Dictionary Workbooks*** *need to be reused, students should not write in them.*	**L.2.4e:** Use glossaries and beginning dictionaries…to determine or clarify the meaning of words and phrases **in all content areas. CA**
Step 1	
Ask students to raise their hands if they have a pet, or have ever had a pet. Have students with their hands up share with the class what kind of pet they have or had. Write the names of each of animals on the board. (*For example, if students say they have or had a pony, write "horse" on the board; for puppy, write "dog."*) Ask students that shared about their pets whether or not they got the pet when the pet was young or when it was an adult. As students clarify the life stage of the pet when they got it, write the stage next to the corresponding name of the animal (*For example, write "puppy" next to dog; write "kitten" next to cat.*) Ask students where each of these animals came from before they came to live with the students as pets. As students share answers like "pet store" or "farm," explain that each of these pets came from parent animals that were just like them; that the kittens came from another cat; that the pony came from another horse, and so on. Tell students that it is through reproduction that animals and plants make more animals and plants like themselves. Project **Reproduction 1** and **Reproduction 2** (Visual Aids #1–2). Explain that when a living thing reproduces, it makes more of its own kind. When the new animals grow up, they can also reproduce, making even more of that same kind of animal. Tell students that plants also reproduce. Explain that, just like animals, plants make more of their kind, and in time, those new plants will reproduce, making even more plants.	**RI.2.3:** Describe the connection between… scientific ideas or concepts…in a text. **RI.2.7:** Explain how specific images (e.g., a diagram…) contribute to and clarify a text. ***Suggestion:*** *After explaining the diagrams in the Visual Aids #1–2, ask students to explain what the diagrams represent. Later, after reading the* **California Connections** *selection, return to the diagrams and have students explain how the diagrams contribute to understanding and clarifying the text.* **SL.2.2:** Recount or describe key ideas or details from a text read aloud or information presented orally or through other media. **SL.2.6:** Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification… ***Suggestion:*** *Ask students to summarize the ideas presented about reproduction, using a sentence frame if needed:* ■ _____*Animals*_____ and _____*plants*_____ reproduce, which means they make _____*more of the same kind of animal*_____.

Procedures	Common Core Standards and Applications
Step 2	
Ask students to gather around the **Habitats** wall map. Explain to students that in all places where there are living things, reproduction helps make more living things. Explain to students that today they will read a story about two living things that are special to California's forests. Point out the forested areas of California using the "Natural Vegetation" key on the left-hand side of the **Habitats** wall map (Mixed Evergreen and Conifer Forest, and North Coastal [Redwoods]). Tell students that the story is about the bald eagle and the Monterey pine, which live in both of these habitats in California.	**RI.2.2:** Identify the main topic of a multiparagraph text… **RI.2.6:** Identify the main purpose of a text, including what the author wants to answer, explain, or describe. ***Suggestion:*** *Ask students to listen for how the author explains the "big idea" of reproduction for both of the living things in this story.*

Procedures	Common Core Standards and Applications
Step 3	
Distribute a ***California Connections: The Tall Pine and the Big Eagle*** reader to each student. Read the story aloud, having students follow along with you. After reading, use the following questions to check student understanding of the content: ■ How did life begin for the pine tree? (*Seeds from a pinecone went into the soil and then seedlings pushed out of the soil.*) ■ What did the sapling grow into? (*The tallest tree in the forest*) ■ How did the pine tree make more pine trees? (*By making pinecones that opened and seeds came out.*) ■ How did the bald eagle use the pine tree? (*As a place to build a nest*) ■ Why did the eagles need a nest? (*To have a place to put their eggs, keep them warm, and when they hatch, to have a place for the baby eagles to stay.*) ■ Where will the baby eagles go after they get their feathers? (*To find mates and places to build their own nests for their own families.*) ■ What will happen to the pine tree and the eagle parents after the young eagles fly away? *(They will reproduce again, the pine tree will make more pinecones and seeds, and the eagle will lay more eggs.*) Ask students, "What would happen if the pine tree could not reproduce, or the eagles could not reproduce?" (*There would be no more eagles or pine trees after they died.*)	**RI.2.1:** Ask and answer such questions as *who, what, where, when, why,* and *how* to demonstrate understanding of key details in a text. ***Suggestion:*** *In addition to the listed questions, turn to pages in the reader and encourage students to produce a question related to the ideas on the page(s).* **RI.2.2:** Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text. ***Suggestion:*** *Assist students to recognize and explain how the story progresses: Pages 2–5 focus on a pine tree's seeds and their growth; pages 6–14 focus on the bald eagle; pages 15–17 return to continue the story of the pine tree; and the last page connects the pine tree with the eagle. Help students map out this organization of the text by having them identify where the story changes. It may be useful to graphically represent the organization of the text on the board. This will help students see the overall structure of the text versus just the individual pieces of information.* **RI.2.4:** Determine the meaning of words and phrases in a text relevant to a *grade 2 topic or subject area…* ***Suggestion:*** *Ask students to identify the parts in the sentence that help them to figure out the meaning of these words:* ■ Pages 3 and 4: seedlings, saplings ■ Page 7: swoops ■ Page 10: hatchlings ■ Page 12: eaglets **RI.2.6:** Identify the main purpose of a text, including what the author wants to answer, explain, or describe. ***Suggestion:*** *Ask students to explain the overall purpose of the story.* *Ask students to imagine the author writing the story. Then have them explain what the author was trying to explain or describe (reproduction and growth in plants and animals).* *Ask students to identify what the author did in the story to make sure the reader understood the reproduction concepts:* ■ "Why did the author feature both a plant and an animal?" ■ "Why do you think the author connected them together on the last page?" **RI.2.10:** …read and comprehend informational texts, including…science…texts…proficiently… ***Suggestion:*** *Have students re-read the text with a partner, pausing to summarize each page.* **SL.2.2:** Recount or describe key ideas or details from a text read aloud…

Procedures	Common Core Standards and Applications
Step 4	
Tell students that in this story, a plant (the pine tree) and the eagles (parents and new eagles) all grew and changed over time. Explain that this growing and changing is very important to reproduction because plants and animals can only reproduce at certain times in their lives. Project **Life Cycle** (Visual Aid #3). Tell students that all living things have similar parts to their lives: Animals start out very small, then they grow to be young, then they become adults and can reproduce more living things like themselves. Explain that death comes at the end of every living thing's life, plant and animal. Use the diagram to show that plants also start out very small, and then grow to be young plants, and then become adults that can reproduce as well. Explain that both animals and plants must grow a certain amount to be able to reproduce. Very small animals cannot reproduce, nor can very young plants (saplings). Only when they are adults can they make more living things like themselves. Ask students, "Where do you think you are in the life cycle?" (*We are young, but not babies, and growing up to be adults.*)	**L.2.1e:** Use adjectives and adverbs… **L.2.6:** Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe… ***Suggestion:*** *If desired, the above standards can be supported by rereading the text, giving attention to adjectives and adverbs used in the text.* *Some examples: strongest seedlings; sharp eyes; shallow water; furry, grey hatchlings; strong shells.* **RI.2.7:** Explain how specific images (e.g., a diagram…) contribute to and clarify a text. ■ "How does this diagram help explain what happened in the story?" ***Suggestion:*** *As mentioned in Step 1 above, show* ***Reproduction 1*** *and* ***Reproduction 2*** *(Visual Aids #1–2) and ask students how the diagrams relate to the story and add to their understanding of the process of reproduction. Ask students to explain how the diagrams and the story work together to help them to learn the concept.*
Step 5	
Distribute a **Student Workbook** to each student. Tell students to turn to **Pine Trees and Bald Eagles** (Student Workbook, pages 2–3). Read the instructions to the class and have students use their copies of ***California Connections: The Tall Pine and the Big Eagle*** to complete the questions. Gather **readers**. Collect **Student Workbooks** and use **Pine Trees and Bald Eagles** for assessment.	**RI.2.1:** Ask and answer such questions as *who, what, where, when, why,* and *how* to demonstrate understanding of key details in a text. **RI.2.10:** …read and comprehend informational texts, including…science…texts…proficiently… ***Suggestion:*** *Before completing the workbook page, have students re-read the* ***California Connections*** *story with a partner.* *Ask students to come up with their own questions about what they have read and learned in this lesson.*

Lesson 2: Eggs and Seeds

In this lesson, students learn that some plants make seeds as part of their reproductive process and that some animals use eggs. Working together, pairs of students observe the parts of an egg and a seed, and compare their structures and functions. Then they identify living things that use eggs to reproduce, and finally they match photographs of specific animals to their corresponding clutch of eggs.


Lesson 2

Eggs and Seeds

Use this correlation in place of the **Procedures** on pages 54–55 of the Teacher's Edition.

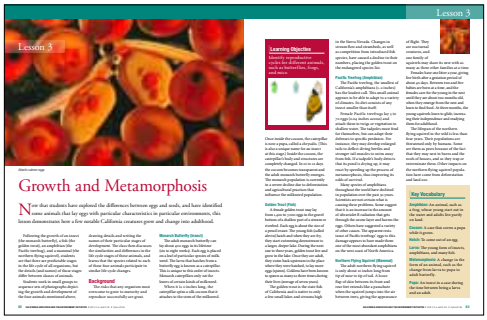
Procedures	Common Core Standards and Applications
Vocabulary Development	
Use the **Dictionary Workbook** and the vocabulary **Word Wall Cards** to introduce new words to students as appropriate.	**L.2.4e:** Use glossaries and beginning dictionaries…
Step 1	
Have each student choose a partner and direct each pair to sit together at an observation site. Tell students that they will work with their partner to learn about one of the most important parts of the reproduction process. Ask students: ■ What is reproduction? (*Reproduction is what makes more living things.*) ■ Why is reproduction important? (*So that there are more living things after the ones that are already living die.*) Project the top half of **Eggs vs. Seeds** (Visual Aid #4) so that just the pictures are showing. Ask students: ■ What do you see in the pictures? (*Students should be able to identify that one picture is showing eggs and the other is showing seeds.*) ■ How do these pictures connect to reproduction? (*Answers should include the idea that new animals, like bald eagles, come from eggs, and new plants, like pine trees, come from seeds.*) ■ How are eggs and seeds alike? (*Answers should include that they are both part of reproduction; new living things come from them.*) ■ How are eggs and seeds different from one another? (*Students may say that eggs come from animals and seeds come from plants.*) Uncover the bottom portion of **Eggs vs. Seeds** and write down some of the ideas students have about how eggs and seeds are alike and different. Tell students that eggs and seeds have a lot in common. (***Note:*** *An Answer Key and Sample Answers for* ***Eggs vs. Seeds*** *are provided on page 56.*)	**SL.2.1:** Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups. ***Suggestion:*** *Have students do "think, pair, share" or use discourse circles to answer selected questions, especially comparing and contrasting* ***Eggs vs. Seeds*** *(Visual Aid #4). Select students to share a characteristic their partner said, and then write it down on the chart. Encourage students to provide specific evidence for their answers from the pictures or what they learned in the previous lesson.* *Ask the students to think about what they notice and to ask questions, beginning with phrases such as "I wonder…".*

Procedures	Common Core Standards and Applications
Step 2	
Redistribute students' individual **Student Workbooks**. Tell them to turn to **Eggs and Seeds** (Student Workbook, pages 4–5). Explain to the class that they are going to look at an egg and a seed to see how similar and different they are. Place an egg in the bowl and a seed on the paper towel at each observation site. Tell students to use only their eyes to see how the egg and the seed are similar and different. Add students' responses to **Eggs vs. Seeds**, still being projected. Now ask students to use one finger to gently touch the seed to see how it feels. Tell the students not to touch the egg, but ask them how they think it feels. (*Smooth, cool*) Add students' responses to **Eggs vs. Seeds**. Now tell students that they will open the seed by placing the seed on its edge and pressing down. Caution students not to press down too hard, because they will break the part of the seed that is inside the shell. Once students have the seed open, ask them to describe what they see. (*The seed is inside; a shell was on the outside.*) Have students draw the parts of the seed that they see on their copy of **Eggs and Seeds**.	**L.2.6:** Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including adjectives and adverbs to describe… ***Suggestion:*** *If needed to guide language development with complete sentence structures, provide sentence frames to guide student responses:* ■ One difference I *see/feel* is _____. ■ Another difference I *see/feel* is _____. ■ One similarity I *see/feel* is _____. ■ Another similarity I *see/feel* is _____. ■ The parts of a seed I *see/observe* are _____. **SL.2.1:** Participate in collaborative conversations… **SL.2.6:** Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification…
Step 3	
While students are drawing the parts of the seed on their copies of **Eggs and Seeds**, circulate to each observation site, crack open the egg and empty it into the bowl, setting the shell carefully on the newsprint. Tell students not to touch the egg or the shell. When students are done drawing the parts of the seed, ask them to observe the egg and describe the parts they see. (*The egg is inside the shell. It has two parts, a yellow [yolk] and a white part [albumin].*) Tell students to draw the parts of the egg that they see on their copy of **Eggs and Seeds**. When students are finished drawing the parts of the egg that they see, ask them if there are other things about the seed and the egg that are the same. Add students' ideas to the "Same" column on **Eggs vs. Seeds.** (*They both have a shell and something inside.*) Ask them to share things that are different about the seed and the egg and add those to the "Different" column on **Eggs vs. Seeds.** (*The egg is watery, but the seed is dry; the egg has two colors to the parts inside, the seed does not.*) Have students label the parts of their seed and egg drawings with the words "shell" and "seed." While students are labeling their drawings, collect the bowls with the eggs from each observation site and place them out of the way of students.	**L.2.6:** Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including adjectives and adverbs to describe… ***Suggestion:*** *Have students share with partners, using sentence frames when needed. Explain the name of the white part so they can use it in their sentences.* ■ The egg has a *white* part called an *albumin*. ■ The egg has a *yellow* part called a *yolk*. ■ Eggs and seeds both have a *shell and something inside*. ■ An egg is/has *watery*, but the seed is/has *dry*. (*Encourage other comparisons.*) ■ An egg has *two colors to the parts inside* while the seed *does not*. **SL.2.1:** Participate in collaborative conversations with diverse partners… **SL.2.6:** Produce complete sentences…

Procedures	Common Core Standards and Applications
Step 4	
Return students' attention to the "Different" column on **Eggs vs. Seeds** on the visual aid and again read the statement about eggs coming from animals and seeds coming from plants. Explain to students that eggs and seeds are very important to the reproduction of living things, but that not all animals use eggs to reproduce. On the board, write "Insects," "Reptiles," "Mammals," "Fish," "Birds," and "Amphibians." Ask students which kinds of animals lay eggs to reproduce. Circle or underline the animals that lay eggs in reproduction. (*Insects, fish, amphibians, reptiles, birds*) Tell students that there are some reptiles and fish that do not lay eggs to reproduce. Explain that they reproduce the same way mammals do in that they do not lay eggs. Ask students, "Do humans lay eggs to reproduce?" (*No, we are mammals, and mammals do not lay eggs to reproduce; except for a few mammals in Australia that lay eggs, like the duck-billed platypus.*) ***Tip:*** *It may be helpful to use a graphic organizer to arrange the words on the board to organize the concepts for students.*	**SL.2.6:** Produce complete sentences… ***Suggestion:*** *Have students use complete sentences as they identify egg laying animals.*
One-by-one, hold up the cards showing adult animals from **Whose Eggs?** (Information Cards #1–20). Have students help you place each information card near the word on the board that describes the type of animal shown on the information card. When all animals have been placed on the board near the correct label, tell students that they are now going to see pictures of different clutches of eggs. Explain that they should use all the information they can from the photographs to tell them which animal the eggs belong to. Give each pair of students an "egg card" from **Whose Eggs?** Give them a moment to look carefully at the information card and get all the information they can from it. Call on each pair of students to come up to the board and place the information card they received near the animal that they think the eggs on the information card belong to. (*One pair will have the "No eggs" card and should know where to place that now—near the squirrel.*) Correct students in their placement of the information cards as you go.	**SL.2.6:** Produce complete sentences… ***Suggestion:*** *Have students use sentences as each photo is placed in a category:* ■ A _____*butterfly*_____ is a(n) _____*insect*_____, and it _____*lays eggs/doesn't lay eggs*_____.
Step 5	
When all the information cards from **Whose Eggs?** have been matched, have students answer the questions at the bottom of **Eggs and Seeds**. Gather the information cards. Collect **Student Workbooks** and use **Eggs and Seeds** for assessment.	**L.2.3:** Use knowledge of language and its conventions when writing, speaking, reading, or listening. **L.2.6:** Use words and phrases acquired through conversations, reading and being read to, and responding to texts… ***Suggestion:*** *In addition to writing answers, have students read their answers to a partner.* **W.2.8:** Recall information from experiences or gather information from provided sources to answer a question.

Lesson 3: Growth and Metamorphosis

In this lesson, students study how different classes of animals grow and change into adulthood. They work in teams to sequence a series of information cards depicting the growth stages of an insect, a fish, an amphibian, and a mammal. They learn terms related to metamorphosis, and discuss the similarities and differences in the life cycles stages of different types of animals.


Lesson 3

Growth and Metamorphosis

Use this correlation in place of the **Procedures** on pages 86–87 of the Teacher's Edition.

Procedures	Common Core Standards and Applications
Vocabulary Development	
Use the **Dictionary Workbook** and the vocabulary **Word Wall Cards** to introduce new words to students as appropriate.	**L.2.4e:** Use glossaries and beginning dictionaries…
Step 1	
Project **Life Cycle** (Visual Aid #3) and remind students that living things change over time as part of their life cycle. Hold up the photograph of you as a baby or young child and tell the class that this is a picture of you at a particular age. Ask students, "Do I look the same now as I did when I was a baby (or about your age)?" (*No*) Tell students that certain animals grow and change in ways that are different from other animals. Explain that today they will look at the ways different types of animals grow and change and learn the names for certain parts of their life cycles.	n/a
Project **Bird Growth** (Visual Aid #5). Remind students that they saw how a bald eagle grows and reproduces when they read about pine trees and bald eagles in Lesson 1. Walk students through the parts of a bald eagle's life cycle, using the images on **Bird Growth**, reading the captions for each stage aloud to students. Ask students to describe the differences in the eagle at each stage. (*Hatchling—the eagle is covered in grey, fuzzy down, and has a small, grey beak; Fledgling—the eagle has grey and white feathers all over and a bigger, grey beak; Adult—the eagle has white feathers on its head, brown feathers on its body, and a yellow, curved beak.*) Explain to students that all birds have these same parts to their life cycle (hatching, fledgling, and adult), and scientists use the same names to describe them, no matter what kind of bird they are talking about. Have students name some other birds they know. (*Answers may include: turkeys, chickens, songbirds, hawks, hummingbirds.*)	**SL.2.6:** Produce complete sentences… ***Suggestion:*** *Have students speak in complete sentences, using frames if needed.* ■ The life stages of a _bird_ include _hatchling_, _fledgling_, and _adult_. ■ When an eagle is a hatchling, it _____. ■ When an eagle is a fledgling, it _____. ■ When an eagle is an adult, it _____.

Procedures	Common Core Standards and Applications
Step 2	
Divide the class up into four equal groups and have the students in each group sit together. Redistribute students' individual **Student Workbooks**. Tell them to turn to **How Animals Grow and Change** (Student Workbook, pages 6–7). Read over the instructions and call attention to the layout of **How Animals Grow and Change** to prepare students for the group activity. Tell students that each group is going to be given an envelope with some photographs of animals inside. Mention that on these **Life Stages** (Information Cards, #21–28) are pictures of animals at different stages in their life cycles. Tell students they will look at the life cycle of four different animals: the Pacific treefrog, the monarch butterfly, the northern flying squirrel, and the golden trout. Give an envelope with information cards to each group of students. Give the groups five minutes to put the three information cards in order and for each student to fill in the section on **How Animals Grow and Change** for the animal their group received. After five minutes, ask one student in each group to mix up the information cards and return them to the envelope. Pass the envelopes among the groups until all groups have seen and recorded information about the life cycle stages of all four animals.	**RI.2.7:** Explain how specific images (e.g., a diagram…) contribute to and clarify a text. ***Suggestion:*** *After completing the activity, refer back to the* ***California Connections*** *Reader. Ask students how using the images from the Information Cards helps to add to the main idea of the text in the book.* **SL.2.6:** Produce complete sentences… ***Suggestion:*** *Have each group share their results in complete sentences showing the cards while speaking.* ■ The life stages of a *Pacific Treefrog* include *tadpole*, *froglet*, and *adult frog*. *Repeat for the other animals.* **W.2.8:** Recall information from experiences or gather information from provided sources to answer a question. ***Suggestion:*** *Students use information from the cards and prior lesson explanations to fill in the workbooks.*
Step 3	
Collect the envelopes with the four sets of information cards and review each set with students to show them the correct order of life cycle stages for each animal. Read aloud the names of each of the life cycle stages for each animal, and ask students to give a brief description of the animal at that stage. Allow students to correct and revise their work on **How Animals Grow and Change** during this time.	**SL.2.6:** Produce complete sentences… ***Suggestion:*** *Students could also write brief descriptions of each animal at each stage.*

Procedures	Common Core Standards and Applications
Step 4	
Project **Adult Animals** (Visual Aid #6) while asking students the following questions: ■ Which of these animals hatches from an egg? (*Bald eagle, Pacific treefrog, monarch butterfly, and golden trout*) ■ What is the same about the life cycle stages for these four animals? (*They have similar stages in their life cycles.*) ■ What is different about the life cycle stages for these four animals? (*They look different at the different stages; some of them change a lot over time compared to others.*) ■ Which of these animals completely changed how they looked from baby to adult? (*The frog and the butterfly changed completely. The other animals grew and got more hair or changed color, but their bodies did not change shape like the frog and the butterfly.*) Explain to students that insects, like the monarch butterfly, and amphibians, like the Pacific treefrog, go through a metamorphosis during their life, which means they change completely from babies to adults. Because of this, scientists have given their life cycle stages special names. Tell students that all insects and amphibians when they first come out of the egg are called larva. The caterpillar is a larva, and the tadpole is a larva. Tell students that the chrysalis of the butterfly is a pupa; so is the froglet stage of the frog.	**SL.2.6:** Produce complete sentences… ***Suggestion:*** *Have students use complete sentences to answer the questions and to summarize the lesson concepts, using sentence frames as needed.* ■ The *frog* and *butterfly* change completely from their baby stages to their adult stages. This is called *metamorphosis*. ■ *Insects* and *amphibians* go through a *metamorphosis* during life. This means they *change* completely from *babies* to *adults*. ■ The *caterpillar* is the *larva* stage of a frog. ■ The *chrysalis* is the *pupa* stage of a butterfly. ■ The *tadpole* is the *larva* stage of a frog. ■ The *froglet* is the *pupa* stage of a frog.
Step 5	
Read over the instructions for the questions on page 2 of **How Animals Grow and Change**. Give students time to complete each sentence. Gather information cards and envelopes. Collect **Student Workbooks** and use **How Animals Grow and Change** for assessment.	**W.2.8:** Recall information from experiences or gather information from provided sources to answer a question.

Lesson 4: Reproduction Needs: A Monarch's Story

In this lesson, students review a monarch's life cycle stages, and then view a presentation about the migration and reproduction needs of the monarch. Learning of monarchs' dependence on milkweed and milkweeds' dependence on monarchs, students consider what happens when migrating monarchs lose milkweed, are interrupted in their migration routes, or are prevented from migrating at all. They apply these ideas to what happens if other animals' reproductive needs are not met.

National Geographic Resources

- **Habitats** wall map

Use this correlation in place of the **Procedures** on pages 102–103 of the Teacher's Edition.

Procedures	Common Core Standards and Applications
Vocabulary Development	
Use the **Dictionary Workbook** and the vocabulary **Word Wall Cards** to introduce new words to students as appropriate.	**L.2.4e:** Use glossaries and beginning dictionaries…
Step 1	
Have students gather around or near the **Habitats** wall map. Ask students, "What is a habitat?" (*A place where an animal or plants lives; the place where an animal or plant meets its needs.*) Call students' attention to some of the animals in the insets that the class has been learning about (golden trout, northern flying squirrel, and desert tortoise) and have them name others. (*Answers should include: monarch butterfly, bald eagle, Pacific treefrog, Monterey pine, Anna's hummingbird, alligator lizard, hornshark, or carpenter ant.*) Ask students: ■ What must animals be able to find in their habitats in order to live and grow? (*They must find food, water, shelter, sunlight, and space.*) ■ What do you think they need in their habitats to be able to reproduce? (*A place to make a nest or den to lay their eggs or have their babies; food for the babies to eat and a safe place for them to be; space for them to grow; food for them to eat when they get bigger and places for them to go when they are adults so that they can make their own nests or dens for their own families.*)	**SL.2.1:** Participate in collaborative conversations with diverse partners… ***Suggestion:*** *Place students in pairs or groups of four to discuss answers to the questions, generating a list that they can then share out.* **SL.2.6:** Produce complete sentences…

Procedures	Common Core Standards and Applications
Step 2	
Hold up the egg and adult monarch butterfly **Whose Eggs?: Monarch Butterfly** (Information Cards #5–6). Then, hold up the caterpillar and chrysalis from **Life Stages: Monarch Butterfly** (Information Cards #23–24). Have the class help put the information cards in order, from egg to adult. Ask students, "What do these information cards show about what the monarch butterfly needs to live and reproduce? (*It needs a plant to lay eggs on, to feed the caterpillar, and to make a cocoon on*.) Tell students that the monarch butterfly cannot just use any plant in any habitat to reproduce. It needs a special plant that only grows in certain places. Explain to students that they are about to see a presentation about how the monarch butterfly grows and reproduces and the special things it needs to survive. ***Tip:*** *If students have individual whiteboards, they could indicate on their own whiteboards the order they think is correct and then check their own answers once the class has put them in order. After placing the cards in order, students can turn to partners and explain each stage using sequencing words.*	n/a
Step 3	
Project **A Monarch's Story** (Visual Aids #7–17), reading aloud the appropriate text from **A Monarch's Story Script** on pages 104–105 aloud to the class. At the end of **A Monarch's Story** presentation, ask students the following questions: ■ What does the monarch butterfly get from the milkweed plant to help it grow and reproduce? (*It gets a place to lay its eggs, leaves to feed the caterpillar with sap that make it taste bad so other animals will not eat it, a safe place for the caterpillar to make a chrysalis, leaves to shade the butterfly when it comes out of the chrysalis, and flowers with nectar to feed the adult butterfly as it migrates*.) ■ What does the milkweed get from the monarch butterfly? (*The butterfly spreads the milkweed pollen so that the milkweed can make seeds to reproduce*.) ■ What is happening to the milkweed in California? (*It is getting harder for monarch butterflies to find. People are getting rid of it, or the land for it to grow on is less and less*.) ■ What is happening to the monarch butterflies because there is less milkweed? (*There is no milkweed to lay eggs on, or to feed the caterpillars, which means there are less caterpillars and fewer monarch butterflies*.)	**SL.2.2:** Recount or describe key ideas or details from a text read aloud or information presented orally or through other media. ***Suggestion:*** *After each logical chunk of information, have students turn to partners and explain what is happening in that group of visual aids.* *Students could be divided into groups of 4 and asked to work together to orally and visually summarize the steps in the* ***Monarch's Story.*** *Encourage them to create pantomimes, gestures, and body motions to represent each stage. Have each group present their summary together, with each student demonstrating a part of the story. To do this, it would be helpful to print out the visual aids to hand to student groups.*

Procedures	Common Core Standards and Applications
Step 4	
Call students' attention to the five **Life Cycle Charts** on display. Tell them that they are now going to list the things they think these animals need to reproduce. Begin by listing the things the monarch butterfly needs, then move to the other four animals in any order. Write what students share about each animal's reproduction needs in the space around each animal's picture. Below are some sample student answers for each chart: ■ Monarch butterfly: *milkweed, space, trees or cliffs, nectar, flowers* ■ Pacific treefrog: *water (pond), grass or water plants, food, space, land (outside of pond)* ■ Bald eagle: *pine tree, nest materials (sticks, leaves, feathers), food, water, space* ■ Golden trout: *water (river or stream), gravel, food, space* ■ Northern flying squirrel: *trees (nest or den), food, water, space* When the basic needs are listed for each of the five animals, ask students, "What would happen if these things were not available in the habitat of each animal? (*The animal would not be able to reproduce, and over time there would be less of that animal in that place.*)	**SL.2.1:** Participate in collaborative conversations with diverse partners… ***Suggestion:*** *Have partners discuss the* ***Life Cycle Charts,*** *generating ideas for each animal's reproduction needs.*
Step 5	
Redistribute students' individual **Student Workbooks**. Tell them to turn to **Milkweed and Monarchs** (Student Workbook, pages 8–9). Read over the instructions and have students complete each sentence. Gather information cards. Collect **Student Workbooks** and use **Milkweed and Monarchs** for assessment.	**W.2.8:** Recall information from experiences or gather information from provided sources to answer a question.

Lesson 5: Human Uses of Plant and Animal Reproduction

In this lesson, students look at some familiar food products and identify that they are part of the reproductive process of animals and plants. They learn that humans depend on plant and animal reproduction for many resources they use, as well as the importance of ensuring the survival of species. The class discusses the purposes of farms and ranches in plant and animal growth to provide for human needs.


Lesson 5

Human Uses of Plant and Animal Reproduction

Learning Objectives

Background

Key Vocabulary

National Geographic Resources

- **Habitats** wall map

Use this correlation in place of the **Procedures** on pages 124–125 of the Teacher's Edition.

Procedures	Common Core Standards and Applications
Vocabulary Development	
Use the **Dictionary Workbook** and the vocabulary **Word Wall Cards** to introduce new words to students as appropriate.	**L.2.4e:** Use glossaries and beginning dictionaries…
Step 1	
Have students gather around the table containing the food items you have brought in. Ask students to name the items and think about where they come from. Clarify that you do not want to know where they were purchased, but how or where they were made. As students share where each item came from, write it on an index card and place the index card next to the item on the table. (*Depending on the items on the table, answers will vary.*) Students may be incorrect about where some of the items come from. Correct their misconceptions at this time. The list below shows sample answers for the items suggested in the lesson Toolbox: ■ Milk: *cow, goat, sheep* ■ Cheese: *cow, goat, sheep* ■ Eggs: *chickens, or other birds* ■ Apple: *apple tree* ■ Raisins: *grape vines* ■ Pumpkin or sunflower seeds: *pumpkin or sunflower plant* ■ Bread: *wheat plant*	**SL.2.6:** Produce complete sentences… ■ _____*Milk*_____ comes from a *a cow, goat, or sheep*. ■ I think that _____*cheese*_____ come(s) from *a cow, goat, or sheep*. ***Suggestion:*** *Continue sentence frames with each item.*

Procedures	Common Core Standards and Applications
Step 2	
Tell students that all of these items came from living things. Ask students, "What do these items have to do with plant and animal reproduction?" (*Students should say that the pumpkin or sunflower seeds are how those plants reproduce, and the egg is how a bird [chicken or other] reproduces*.) Explain to students that all of these things that we eat and use are used by these plants and animals in reproduction. Tell students, if they have not already said it, that the seeds and the eggs are what make new plants, birds, insects, amphibians, most reptiles, and fish. Explain that the milk is used by mother mammals to feed baby mammals before the babies are old enough to feed themselves. Tell students that the cheese is made from milk. Explain that the apple and the raisins (dried grapes) have seeds of the plant inside them. Like the shell on the pumpkin or sunflower seed, the flesh of the apple and grape protect the apple tree and grape seeds that are inside. Tell students that the wheat in the bread is made by grinding the seed that comes from a kind of grass. To make the flour used in bread, many wheat seeds, called "berries," are dried and then ground up into powder. Again, ask students, "What do these items have to do with plant and animal reproduction?" (*They are all made by, or are part of, plants and animals that are reproducing*.)	**SL.2.2:** Recount or describe key ideas or details from a text read aloud or information presented orally or through other media. ***Suggestion:*** *During and after the explanation about each item, have students summarize what each item has to do with plant and animal reproduction.* *Students could be divided into small groups and asked to generate questions raised by this discussion. Ask them, "What are you left wondering?"*
Step 3	
Ask students to return to their seats. Write "Farm" and "Ranch" on the board and draw a line between them. Ask students, "What do farms and ranches have to do with these items?" (*They are the places where people grow and raise the plants and animals that these items come from*.) Explain to students that farms are usually places where people grow and reproduce plants. Ask students to share what kinds of things come from farms. (*Answers will vary, but should include: fruit, grains [wheat, rice, oats], nuts, seeds, vegetables, and flowers*.) List all of these plant items under "Farm" written on the board. Tell students that people also farm trees and other plants, like cotton, which have parts that are used to make other things we use like paper and clothing material. Explain that there are also farms that just grow plants and trees that people want for their homes and yards. Ask students if they know what these "farms" are called. (*Nurseries*) Tell students that ranches are usually places where people raise and reproduce animals. Ask students to name some animals that are raised on ranches. (*Answers should include: chickens, turkeys, cows, sheep, goats*.) List all of these animals under "Ranch" written on the board. Tell students that people also raise bees, ladybugs, silkworms, dogs, cats, fish, and other birds too. Sometimes they call these places "ranches" and sometimes they are called farms, but they are all places where people are raising and reproducing animals for some reason.	**SL.2.2:** Recount or describe key ideas or details from a text read aloud or information presented orally or through other media. ***Suggestion:*** *During and after the explanation about each item, have students summarize what each item has to do with plant and animal reproduction.* *Students could be divided into small groups and asked to generate questions raised by this discussion. Ask them, "What are you left wondering?"*

Procedures	Common Core Standards and Applications
Step 4	
Project **Crops of California** (Visual Aid #18). Point out the list of plants that the farms in the state are growing every day. (*Almonds, rice, wheat, oats, all the fruits, potatoes, and tomatoes*) Remind students that many of these plants are being raised for what they make as part of their reproduction process. Ask students: ■ What happens if an animal or plant cannot reproduce? (*Over time, that animal or plant will die as part of its life cycle and there will be no more.*) ■ Why is it important to have farms and ranches? (*So that people have all the animals and plants they need and want to use.*) Have students look at the **Habitats** wall map and think about the animals and plants that they studied in the previous lessons. Ask students: ■ Are there farms and ranches for people to raise and reproduce these animals so that there will always be some? (*Yes and no. Zoos have some of these animals and plants, but not all.*) ■ Why is it important that these animals and plants reproduce? (*So that there will be animals and plants of those kind in the future for people to enjoy and for other living things to use to meet their basic needs.*) ■ How can people help make sure that these animals and plants can reproduce? (*By making sure that they can meet their needs and the needs of their offspring in the places they live [habitats]).*	**SL.2.1:** Participate in collaborative conversations with diverse partners… ***Suggestion:*** *While looking at the* ***Habitats*** *wall map, have students first discuss these questions with partners or groups of 4, then share what a partner said.* *If time, further develop the major implications resulting from the answers to the first bullet, "What happens if an animal or plant cannot reproduce?" Encourage students to think beyond the idea that that particular animal or plant will die, but to consider the impact on other living and non living things.* *For the last bullet, "How can people help make sure that these animals and plants can reproduce," ask students to give examples of specific actions they or others around them can take to ensure that animals have the habitat and other requirements to reproduce.*
Step 5	
Redistribute students' individual **Student Workbooks**. Tell them to turn to **Farms and Ranches** (Student Workbook, pages 10–11). Read over the instructions for both parts and have students complete **Farms and Ranches** during class. Collect **Student Workbooks** and use **Farms and Ranches** for assessment.	**W.2.8:** Recall information from experiences or gather information from provided sources to answer a question.

Unit Assessment

Refer to the introduction pages at the front of this document for information regarding the Traditional and Alternative Assessments for this unit and their Common Core correlations.

California Common Core State Standards Descriptions

Language Standards

- **L.2.1:** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
  - e) Use adjectives and adverbs, and choose between them depending on what is to be modified.
- **L.2.3:** Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- **L.2.4:** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 2 reading and content*, choosing flexibly from an array of strategies.
  - e) Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases **in all content areas**. **CA**
- **L.2.6:** Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

Reading Standards for Informational Text

- **RI.2.1:** Ask and answer such questions as *who, what, where, when, why,* and *how* to demonstrate understanding of key details in a text.
- **RI.2.2:** Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.
- **RI.2.3:** Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
- **RI.2.4:** Determine the meaning of words and phrases in a text relevant to a *grade 2 topic or subject area*. **(See grade 2 Language standards 4–6 for additional expectations.) CA**
- **RI.2.6:** Identify the main purpose of a text, including what the author wants to answer, explain, or describe.
- **RI.2.7:** Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
- **RI.2.10:** By the end of year, read and comprehend informational texts, including history-social studies, science, and technical texts, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Speaking and Listening Standards

- **SL.2.1:** Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups.
- **SL.2.2:** Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
- **SL.2.6:** Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 2 Language standards 1 and 3 for specific expectations.)

Writing Standards

- **W.2.2:** Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.
- **W.2.8:** Recall information from experiences or gather information from provided sources to answer a question.
- **W.2.10: Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. CA**