

5 E framework NGSS & CCSS Unit Plan

1st Grade: From Molecules to Organisms/ Heredity

Engage

Explore

Explain

Elaborate

Evaluate

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5 E Framework: Next Generation Science Lesson Plans for 1st Grade (NGSS & CCSS Aligned)

NGSS:

- 1-LS1-1: Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.*
- 1-LS1-2: Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
- 1-LS3-1: Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

CCSS: (Writing, Reading Informational Texts, Mathematics, and Mathematical Practices)

- W.1.7: Participate in shared research and writing projects (1-LS1-1) & W.1.8: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question (1-LS3-1).
- RI.1.1: Ask and answer questions about key details in a text (1-LS1-2); RI.1.2: Identify the main topic and retell key details of a text (1-LS1-2).
- Mathematical Practice 2: Reason abstractly and quantitatively (1-LS3-1) & MP 5: Use appropriate tools strategically (1-LS3-1).
- Mathematics:1. MD.1.A: order three objects by length; compare the lengths of two objects indirectly by using a third object (1-LS3-1).

Visual Arts California 1st Grade Standard:

Creative Expression: 1.CE.2.1 Use texture in two-dimensional and three-dimensional works of art.

Overview of 6 Day Lesson Plans:

Day	Time	Student Objective	Materials needed
1	30-45 min.	SWBT tell how animals and their young are alike and different. SWBT tell how parents protect their young.	Nonfiction text: animal parents and young; Storyboard; picture cards
2	30-45 min.	SWBT tell how animals and their young are alike and different. SWBT tell how parents protect their young.	See day 1 + Slideshow (teacher prepped)
3	35 min.	SWBT tell how animals and their young are alike and different. SWBT tell how parents protect their young.	See day 1
4	45 min.	SWBT describe an animals' need external parts and how they use them to survive.	Non-fiction text: external animal features; Storyboard; Markers; Glue sticks; 3-d materials, Build a Verse handout, External Features song by Kathryn Yablonski + YouTube access.
5	45 min.	SWBT describe an animals' need external parts and how they use them to survive.	
6	60 min.	SWBT solve a human problem by studying animal external features.	Misc. materials to build "tools"; Glue; tape;

	<p>Specific learning Outcomes:</p> <ul style="list-style-type: none"> • SWBT tell how animals and their young are alike and different • SWBT tell how parents protect their young. 	
<p>Day 1: Practices</p>	<p>ENGAGE: Opening Activity- Access Prior Learning/Stimulate Interest/ Generate Questions Use Know, Want to Know, Learned, Wonder (15 min)</p> <p>EXPLORE: Lesson Description – Materials Needed / Probing or Clarifying Questions (20 min)</p>	<p>Invite students to share out the type of animals they see as the following video plays: https://www.youtube.com/watch?v=PRog0Kv4ixI</p> <p>Allow students to share their personal experiences with animals (pets, zoo, etc.). Ask students if they ever had a baby animal and watched it grow up. Did it change over time? How? (Incorporate TPS Strategy)</p> <p>Inform students they are going to play a matching game. They are to match baby animals with the parent animal. Ask them to notice how the babies are just like their parent and how the babies are different. (reference prior learning of compare and contrast)</p> <p>Give each small group a set of 24 cards (12 sets) to sort and match. Facilitate a discussion about which animals look most like their parent and which ones do not.</p> <p>Assign each group a different animal. Allow students to collaborate to determine how that animal pair is the same and how they are different. Share aloud.</p> <p>*****<i>(Teams will be assigned based on students randomly numbered 1-4; all 1's are a team; all 2's are a team; 3's a team; 4's team. Students will be provided 5 min. to create a team name, decide on team encouragement of choice. Students will be assigned role based upon alphabetical order in group). Teacher will model process once before students engage in role assignment (Cooperation).</i></p>

<p>Day 2: Practices</p>	<p>Explain: Concepts explained and vocabulary defined (40 min)</p>	<p>Circle Time: Read non-fiction book about animal parents and their babies (young). <i>Born in the Wild: Baby Mammals and Their Parents</i> by Lita Judge</p> <p>After the story, have students recall facts from the story and write on story board. (Cooperation again based upon Day 1 groups; Student roles remain constant from Day 1).</p> <p>Present Parents and Offspring PowerPoint presentation. With each slide, invite students to TPS within numbered groups from day 1 to highlight how the parent and the young (child) are alike and different. Reference how students are using their prior learning of comparing and contrasting.</p>
<p>Day 3: Practices</p>	<p>Elaborate & Evaluate: (35 min)</p>	<p>(Elaborate) Provide visual of one set of parent/offspring FROM DAY 2's READING). Example: Deer + calf. Within their cooperative learning groups, have students think, pair, and share their observations of what they see in the picture. State the animal, how they are similar, different, and how the parent cares for this animal. Explain HOW they know.</p> <p>(Evaluate): Read aloud to students nonfiction text: <i>Parents and Their Offspring</i> by Amanda Prater and then answer the comprehension check questions.</p> <p>Students using interactive writing notebooks will answer: (Support: provide sentence stems; TPS verbal sentences before writing) Writing Prompt # 1: Provide students with a set of pictures (parent/offspring). Example: Elephant + young calf. Have students write sentences about these pictures. Students must name the animal, state how they are the same, state how they are different, state how the parent cares for this animal.</p> <p>Checking Self-Assessment: Students use Writing Checklist #1 to self-monitor.</p> <ul style="list-style-type: none"> • Name animal • How offspring is different • How offspring is similar • How the parent takes care of their young (baby) • Capital letter for each sentence. • End with proper punctuation

Lesson Plan Part 2

Specific learning Outcomes:

- SWBT tell describe an animal's needed external parts.

Day 4: Crosscutting	<p>ENGAGE: Opening Activity – Access Prior Learning / Stimulate Interest / Generate Questions (15 min)</p>	<p>Present <i>External Features Plants and Animals</i> PowerPoint Slideshow and provide student questions provided on each slide. Q's are put into place to help students identify the animal/plant external parts that help it to survive. (Ex: A visual of a giraffe reaching with long neck to get food from a tree; Provided student question: "How does the giraffe's external features help him to eat?") (Promotes ways to represent learning: musically & kinesthetically) Read lyrics to <i>External Features Song</i> with students. Then present Present <i>External Features Song</i> on YouTube. Perform the song a few times with students. https://www.youtube.com/watch?v=ZXBciDZmyvw</p>
	<p>EXPLORE: Lesson Description – Materials Needed / Probing or Clarifying Questions (15 min)</p>	<p>(review term: verse, tune) Have students line up in hallway by asking students to <u>form</u> line based upon their perceived creativity (I believe I am very creative ---- I struggle with creativity.) break the lineup and pair students into groups of 5. Have students within their new groups, decide a team name, team encourager, and assign roles based upon starting with student with the soonest birthday. Then assign roles by having students line up from tallest to shortest. Explore: provide student copies of <i>External Features Song</i> lyrics written by Kathryn Yablonski to the tune of Frere Jacques. Then have groups write their own <u>Verse-verse</u> selecting any animal about its external features. (Student copies of Build a Verse) Groups present by singing their song verse.</p>
	<p>EXPLAIN (15 min)</p>	<p>Read aloud the non-fiction book <i>Creature Features: Twenty-Five Animals Explain Why They Look the Way They Do</i> by Steve Jenkins (all about external features). Call on students as reading to list external features of each plant/animal (need chart paper handy). Examples include: thorns, claws, scales.</p>

**Day 5:
Crosscutting**

Elaborate:
(30 min)

(ART INTEGRATION INCLUDED: 2.1 Use texture in two-dimensional and three-dimensional works of art.)

Evaluate:
(10 min)

Invite students to draw an illustration of an animal they have heard or seen a visual of within the past 4 days. Students will determine what external feature of that animal helps it survive. Provide students many objects to glue onto their picture to make their selected external feature three dimensional and stand out. Examples of objects include construction paper for students to make claws, cotton balls for fur, pipe cleaners for spikes.

Writing Prompt 2: Invite students to write 5+ sentences about the picture they drew. Students must name the animal, name the external feature, and tell how the animal uses the external feature, and what material they used to represent the external feature and why. Have students use Writing Checklist to self-monitor.

Commented [SFB1]: Individual? I assume in this lesson they do not move into their groups.

Lesson Plan Part 3

Specific Learning Outcomes:

- SWBT solve a human problem by studying animal external features.

Day 6: Core Ideas	Engage: (4 min)	Present PowerPoint: External Features - Humans Learn from Animals and Plants. During each slide, ask students: <ol style="list-style-type: none"> 1. What are the external features of this plant/animal? 2. How does the plant/animal use this feature? Click to next slide to show the human invention copying animal/plant external feature.(Human to animal connection) <ol style="list-style-type: none"> 3. How is the human design invention similar to the animal/plant external feature? 4. How do humans use this design? Is it the same purpose as the animal/plant? <i>Designed to make connections between external animal/plant parts and human creations that perform similar purpose</i>
	Explore: (20 min)	6 Student Rotations. Have students line up based upon preference of birds (favorable→ not favorable). Divide line into two; Group students so there are 6 groups. Have students go to one station. 6 Bird Images and Notetaking Handout (each student is responsible for individual notes) All group members are to list external features of the bird in the image. Provide observation, discussion and writing time. Groups then rotate and repeat until all 6 groups have rotated through all 6 stations spread across classroom.
	Explain (5 min)	Transition from groups to desks (whole group setting). Project images of all 6 birds on the whiteboard (visual for whole class). Facilitate whole class discussion about what students recorded at each station. Provide students sentence stem for EL's (support). "I observed bird 1 to have the external features ____, ____ and ____." Then probe student thinking to make comparisons about the bird beaks. "Bird ____, and Bird ____ are different because the bird beak ____." Provide student TPS time and ask: What they think each different bird beak can help the bird do.
	Evaluate (30 min)	Tell students they are going to be engineers. They are to create something that will help clean the Porter Ranch Community School lunch area. Ask students to name some of the messiest things that might have to be cleaned up in the lunch benches. (gum, spilled applesauce, pretzel pieces, dropped bread, etc.) As students provide messy scenarios, have the class discuss which bird beak would best pick up the mess. Have students vote as to which mess is the mess they want as the focus scene. Then, in same rotation groups, have students work together to discuss, draw a model of a tool of some kind that looks like one of the bird beaks that could clean the mess the best, and then design the beak shape using limited materials. Present. Students will provide group evaluations for participation, effort, and encouragement. Scores on 3 point scale (1=struggled to participate as a team player, 2=sometimes, 3=always)

Commented [SFB2]: OK good. I see that they are working in their groups again on day 6.

Commented [SFB3]: I am going to ask you to provide two kinds of assessments for progress along this unit of study. One, formative assessment of the products or performances; Two assessment of their engagement as team members.