County Implementation Award Program (CIAP) Math and Science Lesson

Unit Title: Animal Adaptations
Lesson Title: Animal Teeth: These are not my parents' teeth!
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Grade Level: First Grade
Time Frame: 2 hours + (depending on how many video clips and books you include in your lesson)
Targeted Standard(s): **Next Generation Science Standards** **1-LS3-1.** Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents. **Common Core Math** **1.OA.1** Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. Note: Some students that create word problems may use numbers slightly larger than 20.
Short Description of Targeted Phenomenon: Share with students a video of a mother bald eagle caring for its young. **https://www.youtube.com/watch?v=Qv6zHS4zX7s** Ask students to share what they notice and wonder. **Main Phenomenon:** Young animals are similar to, but not exactly like, their parents. Baby animals often have a different number of teeth than their parents. Young animals usually have different size teeth than their parent. **We will also look at:** Animals have different types and amounts of teeth based on their diet and eating behaviors. **Exploration/Brainstorming of the Phenomenon:** Do you think different sizes, shapes, and number of teeth that animals have in various stages of life affect an animal's diet?
Three Dimensions of NGSS **Science & Engineering Practice/s (SEP):** **Constructing Explanations and Designing Solutions** Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1-LS3-1) **We will also practice:** Reading grade-appropriate texts and using media to obtain scientific information to determine patterns in the natural world. (1-LS1-2)

Crosscutting Concept/s (CCC):

Patterns

- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2), (1-LS3- 1)

We will also look at: Structure and Function

- The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1)

Disciplinary Core Idea/s (DCI):

LS3.B: Variation of Traits

- Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. (1-LS3-1)

We will also look at: LS1.A: Structure and Function

- All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. (1-LS1-1)

Language Supports: Words to make sure students understand:
- offspring, young
- similar, different, compare, contrast

Other words that come up in some of the linked videos that may need extra explanation:
- herbivore, carnivore, omnivore
- canine, incisor, molar

Sentence frames to consider providing for math stories:
- The parent (animal name) has ___ teeth.
- The young (animal name) has ___ teeth.
- The young (animal name) grew ___ more teeth.
- The young (animal name) lost ___ teeth.
- How many more/fewer teeth does the young/parent (animal name) have than the young/parent (animal name).

Materials Needed:
- crayons, pencils, and paper
- computer and document camera to show video clips
- iPad or computers and internet access (For an extension student can use "kiddle" to research animal.)

Choose one or more books from each category.
Books on animal parents and their young
- Born in the Wild: Baby Mammals and Their Parents by Lita Judge
- Animals and Their Young: How Animals Produce and Care for Their Babies by Pamela Hickman
- Mother Nature: Animal Parents and Their Young by Candace Savage
- Young Animals and Their Parents (Animals Up Close) by Renne

Books on animal teeth
- What If You Had Animal Teeth by Sandra Markle
- Whose Teeth Are These by Wayne Lynch
- Teeth by Sneed B. Collard III

Objective(s): Students will be able to:
- Listen to and discuss texts and video clips to learn about how animal parents and their young are similar but not identical.
- Listen to and discuss texts and video clips about animal traits and behaviors involving their teeth.
- Make a hypothesis about similarities and difference in an animal parent and its offspring's teeth.
- Draw to illustrate their hypothesis about similarities and differences of an animal parent and its offspring based on the shape, size, and number of an animal's teeth.
- Write and solve addition and subtraction word problems based on their drawings of animal teeth.

How Math and Science concepts/skills/practices were integrated in this lesson:

- Students use their knowledge about animal teeth to create a drawing to illustrate the similarities and differences of an animal parent and its offspring based on the shape, size, and number of an animal's teeth.

- Students use their knowledge of addition and subtraction (involving situations of adding to, taking from, putting together, taking apart, and comparing) to create math stories and solve word problems based on their animal's teeth.

Possible Challenges/Misconceptions:
- It is my hope that many of the students' word problems might be comparative due to the subject matter. Comparative word problems are often more difficult than adding to, taking from, putting together, taking apart. I would use this as an opportunity to practice this type of word problem.

Formative Assessment:
- Students' hypotheses about animal offspring's teeth.

Lesson Opening	
Teacher Actions (5 min.) ● Lead a brief discussion about the similarities and differences between students' teeth and their own parents' teeth.	**Student Actions** ● Students ponder and discuss how their teeth are similar to and different from their parents' teeth. ● Students share prior knowledge of teeth. "I (think) I know…" & "I wonder…."

Lesson Introduction	
Teacher Actions (20 + min.) **Introductory Actions** Tell students that they will be learning about animals and their babies with a focus on their teeth. Tell students that	**Student Actions** **Introductory Actions**

they will be making a drawing of and writing a math story that compares an animal parent and its young based on their teeth. Tell students to be thinking about what animal they would like to choose.	
Read a book(s) or show a video clip about animal parents and their young.	Students listen to the story (or watch the video clip).
● Born in the Wild: Baby Mammals and Their Parents by Lita Judge ● Animals and Their Young: How Animals Produce and Care for Their Babies by Pamela Hickman ● Mother Nature: Animal Parents and Their Young by Candace Savage ● Young Animals and Their Parents (Animals Up Close) by Renne ● https://youtu.be/PRog0Kv4ixI - Animals and their babies: just pictures set to music (3 min video)	
Lead a discussion about similarities and differences in animal parents and their young.	
Read a book(s) or show a video clip about animal teeth for base knowledge about animal teeth.	Students participate in the discussion about similarities and differences in animal parents and their young. Students listen to the story (or watch the video clip).
● What If You Had Animal Teeth by Sandra Markle ● Whose Teeth Are These by Wayne Lynch ● Teeth by Sneed B. Collard III ● https://youtu.be/TG3fyVOWqJY SciShow kids: Weird animal teeth (3.5-minute video) ● https://youtu.be/VejLXTsJrJc Teeth: Carnivores, Herbivores, Omnivores (stop video at 2.5 min) ● https://youtu.be/HdOj1-GiEfk Do animals have different types of teeth? (2 min.) ● https://youtu.be/5T1aVHYqUl4 Animal Atlas, Teeth Tales (Stop video at 11 min or 20 min, depending on if you want to show section on animals that don't needs teeth.)	
(Discuss the Language Supports if necessary.)	
Lead a discussion about different types of animal teeth. Ask students to make a hypothesis about how animal parents and offspring teeth might be similar or different.	
Name an animal parent. Tell students to "think, turn, tell" their shoulder partner their hypothesis about the	Students participate in the discussion about animal teeth.

offspring's teeth. Do this for several animals learned about in books and videos. **Explanatory Actions** Tell students that they will be drawing an animal parent (that we have learned about) and its offspring and writing a math story that compares an animal parent and its young, based on its their teeth.	Students tell their shoulder partner their hypothesis about the offspring's teeth of several different animals using "think, turn, tell". **Explanatory Actions** ● Students listen and ask clarifying question.

Body of Lesson	
Teacher Actions (30-35 min.) Teacher circulates the room as students draw and write. **Teacher asks questions:** ● What kind of teeth does your animal have? ● What does your animal parent eat? ● What does your animal offspring eat? ● How many teeth does the parent have? ● How many teeth does the baby have?	**Student Actions** ● Students draw their animal parent and offspring. ● Students draw or label information about their animal's teeth. ● Students write a math story about their animal's teeth. ● Students write a word problem about their animals' teeth. ● Students solve their word problem.

Lesson Closure	
Teacher Actions (5-10 min.) ● Facilitate discussion on what students learned about animal teeth of parents and their young. ● Facilitate pairs/groups sharing their math stories and word problems.	**Student Actions** ● Students discuss what they learned "I learned…." ● Students share their math stories and word problems. ● Students solve the word problems.

Summative Assessment:
- Students draw pictures of their hypotheses of an animal parent and their offspring and their teeth.
- Students write math stories and solve self-created word problems based on their drawings.

Other Teaching Resources:
Students can draw and write their math story in a math or science journal or on regular paper if your class doesn't use math and/or science journals.

Lab Safety: NA

Extensions (if any):
- Students can use "kiddle" to research animals, after making their hypothesis, before drawing their picture.
- Write an expository piece about your animal.
- Write a narrative about your animal.
- Write more advanced word problems.