

Easthampton Public Schools

1st Grade Integrated Science Unit

Unit: The Structure and Function of Plants and Animals

Duration: 4 weeks, (To accompany/parallel Units of Study: Grade 1, Unit 2 Nonfiction Chapter Books)

Essential Questions:

- How can we use observation to learn about plants?
- How do plants and animals use their different parts?
- What do baby animals and their parents do to help them survive?
- What do people do to help them survive?
- How do you know a book or magazine is nonfiction?

Enduring Understandings:

- People use what they know about the natural world when they design clothing and other products.
- Scientists look for patterns when making observations about the world.
- Patterns can be scientific evidence.
- People are animals and have patterns of behavior to help their children survive.
- Writers of nonfiction use pictures to add details to a book.

Summative Performance Assessment/Task:

- Show three pictures to the students using a prepared PowerPoint or document camera. After each picture student answer the following questions:
 - Picture 1 (Porcupine or other spikey animal) How do you think this animal uses its body to survive?
 - Picture 2 (Mother Lion carrying her baby in her mouth) What is this mother doing to help her offspring survive?
 - Picture 3 (Picture of maple sapling left and mature maple leaf or a baby animal and adult animal of the same species) Name one way these plants/animals are the alike. Name one way they are different.
- Research paper written following lessons taught in Units of Study: Grade 1, Unit 2 Nonfiction Chapter Books – Lessons 1-14. Lesson 15 launches “Writing Chapter Books with Greater Independence.” Assess according to Easthampton First Grade Information Writing Rubric.

Learning Objectives – Knowledge /Skills

Students will understand...

- People are animals.
- Closing looking at an animal or plant is a scientific way to gather information.
- Baby animals help themselves to survive and some also need their parents to live.
- Young animals and plants are like, but not exactly like their parents.

Students will be able to...

- Draw from observation a young leaf and a mature leaf, using labels to show how the two are similar and how they are different. (e.g. a maple tree sapling or a young sprout)

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- Make observations to prove or disprove that a young animal or plant is related to another adult animal or plant.
- Name the patterns of behavior parents and their offspring use to help the offspring survive
- Identify the ways various animals and plants have for protecting themselves and surviving (e.g. rose thorns, large ears, wide feet, blubber, etc.)
- Compare human designs to animal solutions (e.g. bike helmet is like a turtle shell; sunscreen is like mud; Scotch Guard is like duck feathers, etc.)
- Write a report about an animal of their choosing.

Vocabulary:

- **adult, alike, animals, designed, different, disprove, natural world, nonfiction, observation, offspring, order, patterns, plants, problems, product, protect, prove, related, scientific evidence, solution, solve, survive,**

Massachusetts Curriculum Frameworks (all first grade unless otherwise noted) and Next Generation Science Standards

Science

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.* [Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and, detecting intruders by mimicking eyes and ears.]

1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. [Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).]

1-LS3-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents. [Clarification Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and, a particular breed of dog looks like its parents but is not exactly the same.] [Assessment Boundary: Assessment does not include inheritance or animals that undergo metamorphosis or hybrids.]

Reading Literature / Reading Informational Text

RL 1 – Ask and answer questions about key details in a text.

RL5 – Explain major differences between books that tell stories and books that give information, drawing on a wide range of text types.

RIT 1 -Ask and answer questions about key details in a text.

RIT 2 - Identify the main topic and retell key details of a text.

RIT 3 - Describe the connection between two individuals, events, ideas, or pieces of information in a text.

RIT 4 - Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.

RIT 5 - Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.

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RIT 6 - Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.

RIT 7 - Use the illustrations and details in a text to describe its key ideas.

RIT 9 - Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).

RIT 10 - With prompting and support, read informational texts appropriately complex for grade 1.

Writing

W2 - Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.

W6 - With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.

W7 - Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions).

Speaking & Listening

SL1a – Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).

SL2 – Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

SL1.5 - Add drawings or other visual displays to descriptions when appropriate to clarify ideas and feelings clearly.

Language

L5a – Sort words into categories (e.g., colors, clothing) to gain a sense of the concepts the categories represent.

L5b – Define words by category and by one or more key attributes (e.g., a *duck* is a bird that swims; a *tiger* is a large cat with stripes).

L5c – Identify real-life connections between words and their use (e.g., note places at home that are *cozy*).

L6 - Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., because).

Instructional Activities

Routine Writing

- Morning Message with cloze writing features to reinforce vocabulary (e.g. Yesterday, we learned that _____ cry in order to _____)
- Journal Writing about their learning from the lessons, using the sentence starters – Yesterday in science I learned _____. This was interesting to me because _____.

Analytical Writing

- Student-made books based on photographs found online and student writings about a single species showing the offspring and parent. Each student chooses an animal and shows it as baby and as an adult. Pictures are captioned to show similarities and differences of the two animals. One picture names an external part of the animal that helps the animal survive. (Publish through readwritethink.org’s free publishing software)
- Student-made books based on drawings and writings about how they are alike and different from their parents. I am like my (mom/dad) because we both have _____ and _____. I am different from my (mom/dad) because my _____ is _____ and my _____ is _____. When I was a baby my (mom/dad) took care of me by _____. (Note: Be sensitive to the family situations in your class before doing this activity. It might not make sense for children who are adopted or in foster care.)

Research

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- Student-made chapter books on an animal of their choosing (following the framework established in Units of Study: Grade 1, Unit 2 Nonfiction Chapter Books)

Opinion Writing

- Students choose the topic and answer the question “I think _(choose animal)_s are interesting because _____. One special way _____s use their bodies to meet their needs is by _____. (e.g. I think elephants are interesting because they are very large. One special way elephants use their bodies to meet their needs is by spraying water out through their noses to give themselves a bath.)

Other

- Using photographs of various animals (offspring and parent) to play a matching game (alternatively play online).
- Draw from observation a young leaf and a mature leaf, using labels to show how the two are similar and how they are different.
- Act out animals caring for their young.
- Act out animals using their external parts to solve problems.
- Read The New Baby by Mercer Mayer or a like book to provide background knowledge about baby care. Make a T-chart labeled “Patterns of Behavior to Help Off spring Survive.” Left side of T-chart says “Human Baby Patterns” and right side says “Human Parent Patterns” Record behaviors that each does in order to survive. Continue activity another day with animal books.
- Create class chart or *word bank* of the following words:
- Ask and answer questions during discussions about key details in books read aloud or other information presented orally or through other media.
- Create a chart of non-fiction text characteristics

Formative Assessments

- Think of a problem that you have.(examples could be: It takes a long time to get to school; your brother is always taking your toys; you get cold when you play in the snow) Design a piece of clothing or a vehicle that solves this problem by copying a plant or animal solution you know about. Use labels to make your design clear. After designing the solution, write a description of what animal solution you used and why.
- Quiz to name 3 patterns of behavior you saw mother animals (after watching Video on Mother Animals caring for their babies) (suggested viewing <http://www.youtube.com/watch?v=Rjlxqb8Qk5M> but you can find many videos by searching for “baby and mother animals.”)
- Exit ticket to name 3 patterns of behavior a child or parent has to help the child survive.
- Accountable talk managed by teacher during class discussions.
- Observation of students during Turn and Talk discussion format.
- Student participation in creation of T-charts.

Reading Selections (longer text)

- Osborne, Mary Pope. *Polar Bears Past Their Bedtime*. New York. Random House, 1998. (Note: this chapter book address LS1-1 and 2)

Reading Selections (shorter text)

Other Resources (websites, media, technology)

- *March of the Penguins*. Dir. Luc Jacquet. Perf. Jones, James Earl. Warner Home Video, 2005. DVD.
- http://www.internet4classrooms.com/grade_level_help/life_science_parents_offspring_first_1st_grade_science.htm

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1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts

- Parsons, Alexandra, and Jerry Young. *Amazing Mammals*. New York: Alfred A. Knopf, 1990. (also 1-LS1-2)
- Farndon, John. *1000 Things You Should Know about Wild Animals*. Great Barfield, Essex: Miles Kelly Publishing, 2003. (also 1-LS1-2 and 1-LS3-1)
- Patent, Dorothy Hinshaw, and Kendahl Jan Jubb. *Flashy Fantastic Rain Forest Frogs*. Scholastic ed. New York: Scholastic, 1997. (also 1-LS1-2 and 1-LS3-1)

1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

- Hatkoff, Juliana, and Peter Greste. *Looking for Miza: the true story of the mountain gorilla family who rescued one of their own*. New York: Scholastic Press, 2008. (also 1-LS3-1)
- Hirschland, Roger B.. *How Animals Care for Their Babies*. New York, N.Y.: Scholastic, 1999. (also 1-LS3-1)
- Mayer, Mercer. *The New Baby*. New York: Golden Press, 1983.

1-LS3-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

- Clarke, Ginjer L., and Lucia Washburn. *Cheetah Cubs*. New York: Grosset & Dunlap, 2007. (also 1-LS1-2)
- Serventy, Vincent. *Animals in the Wild: Koala*. New York: Scholastic, 1983. (Series of books by same author. All appropriate for this unit. Also 1-LS1-1 and 1-LS1-2)
- Burns, Diane L., and Linda Garrow. *Trees, Leaves, and Bark*. North American ed. Milwaukee, Wis.: Gareth Stevens Pub., 1998.

Texts from Leveled Library:

- <https://www.georgiastandards.org/layouts/GeorgiaStandards/UnitBuilder/DWPublicPreview.aspx?wid=89&obj=64081&mode=1>
- http://www.magictreehouse.com/teachersclub/resource_center/pdfs/12-exploring-adaptations.pdf
- <http://www.nextgenscience.org/>
- <http://www.readwritethink.org/classroom-resources/student-interactives/printing-press-30036.html>

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| <ul style="list-style-type: none">• Randell, Beverley. <i>The Careful Crocodile</i>. Crystal Lake, IL: Rigby, 1997. (Level I, use with 1-LS1-2) | |
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