CCPS Science Unit Plan

Grade	2nd	Subject	Science	Unit	Unit V
Unit Name	Life Cycles (Plants and Animals)		Timeline	6 Weeks February 24th - April 4th	
How to use the Framework	This Framework should be used to implement daily science instruction. The resources and instructional strategies reflected in the Framework will provide a foundation for effective implementation and student mastery of standards. Please see the hyperlinked abbreviation document to ensure understanding of all abbreviations used with this framework. Science Framework Abbreviations .pdf CCPS Department of Science Website for access to all unit frameworks				
Unit Overview	*All resources related to this Framework are embedded in this document or can be located via the Science Department website. **Background Information:** All animals and plants have a life cycle or a sequence of events that takes them from being young to being old (egg to death). This element focuses on how organisms that students interact with go from being young to being old. Life cycles take months to observe. It can take days, months, or years to go from young to old depending on the organisms. Life cycles are slightly different even if the life cycles have the same stages, they take place at different rates. There are several types of seed dispersal. The required focus is primarily on the animal's role in the spreading of the seeds. In this unit, students will obtain, evaluate, and communicate scientific information from observations, media, and texts to extend their understanding of life cycles of different living organisms, such as plants, animals, and insects. Students will explore their curiosity about how animals and plants change by introducing the lesson phenomenon of watching a plant starting to grow from a seed or comparing a tadpole and an adult frog. Students will plan and carry out investigations and develop models of plants and animals. Plants also go through a life cycle. Flowering plants go through four stages: seeds, seedlings, mature plants, and flowers. Other plants begin their life cycle with spores rather than seeds. In addition, students will investigate what seeds need to germinate and how animals and insects help the pollination process. **Prerequisites:** First Grade: Unit I: Plants and Animals (S1L1) **By the end of this unit the student will be able to**: • *capable* of inquiring about the sequence of the life cycle of common animals in their locality, including a mammal like a cat, dog, or classroom pet, a bird such as a chicken, an amphibian like a frog, and an insect like a butterfly. • *design* and execute an inquiry into the life cycle of a plant, achieved through nurturing a plant from a seed and documenting its transformations over a duration. • *formulate* an explanation regarding an animal's involvement in seed dispersal or plant pollination. • *create* models that depict the distinct and varied life cycles of organisms besides humans. **By the end of this unit the teacher should:** • *aid* students in inquiring about the life cycle sequence of local animals, including mammals like cats, dogs, or classroom pets, birds like chickens, amphibians like frogs, and insects such as butterflies. • *support* students as they plan and conduct an exploration into the life cycle of a plant, cultivating a plant from a seed and documenting its changes over time.				

- *assist* students in developing an explanation of how animals contribute to either seed dispersal or plant pollination.
- *guide* students in creating models that showcase the distinct and diverse life cycles of organisms apart from humans.

Standards

GSE	Science and Engineering Practices	Crosscutting Concepts
SL21 Obtain, evaluate, communicate information about the life cycles of different living organisms. a. Ask questions to determine the sequence of the life cycle of common animals in your area: a mammal such as a cat, dog, or classroom pet, a bird, such as a chicken, an amphibian such as a frog and an insect such as a butterfly. b. Plan and carry out an investigation of the life cycle of a plant by growing a plant from a seed and by recording changes over a period of time. c. Construct an explanation of an animal's role in dispersing seeds or in the pollination of plants. d. Develop models to illustrate the unique and diverse life cycles of organisms other than humans.	**Asking questions and defining problems** A practice of science is to ask and refine questions that lead to descriptions and explanations of how the natural and designed world works and which can be empirically tested. **Planning and carrying out investigations** Scientists and engineers plan and carry out investigations in the field or laboratory, working collaboratively as well as individually. Their investigations are systematic and require clarifying what counts as data and identifying variables or parameters. **Constructing Explanations and Designing Solutions** The products of science are explanations and the products of engineering are solutions. **Developing and Using Models** A practice of both science and engineering is to use and construct models as helpful tools for representing ideas and explanations. These tools include diagrams, drawings, physical replicas, mathematical representations, analogies, and computer simulations.	**Patterns** Observed patterns in nature guide organization and classification and prior questions about relationships and causes underlying them. **Energy and Matter** Tracking energy and matter flows, into, out of, and within systems helps one understand their system's behavior. **Systems and System Models** A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems. **Cause and Effect** Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.

NGSS Alignment

NGSS Alignment to Disciplinary Core Ideas

The Phenomenon Protocol

Anchoring Phenomena	Learning Targets
S2L1.a.	Students will ask questions to determine the sequence of the life cycle of common animals in your area: a mammal such as a cat, dog, or classroom pet, a bird, such as a chicken, an amphibian such as a frog and an insect such as a butterfly.

S2L1.b.	Students will plan and carry out an investigation of the life cycle of a plant by growing a plant from a seed and by recording changes over a period of time.
S2L1.c.	Students will construct an explanation of an animal's role in dispersing seeds or in the pollination of plants.
S2L1.d.	Students will develop models to illustrate the unique and diverse life cycles of organisms other than humans.

Weekly Lesson Tasks

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Week 1 Standards| Phenomenon | Weekly Lessons		
GSE: SL21.a.	**Focused Concept:** Ask questions to determine the sequence of the life cycle of common animals in your area: a mammal such as a cat, dog, or classroom pet, a bird, such as a chicken, an amphibian such as a frog and an insect such as a butterfly.	
Learning Target:	Students will ask questions to determine the sequence of the life cycle of common animals in your area: a mammal such as a cat, dog, or classroom pet, a bird, such as a chicken, an amphibian such as a frog and an insect such as a butterfly.	
Lab Safety Protocol and Material	**General Safety Practices**	
SEP Teacher Tip: (Day 1 and 3) To support students with the science and engineering practices for this week, follow the guidance in this protocol:		
Phenomenon: Monarch Butterfly		**DQ:** How are life cycles similar among common animals in your area?

Day 1: Opening	Day 2 : Guided Practice/ Transition	Day 3: Independent Practice	Day 4: Independent Practice	Day 5: Assessment / Summary
Phenomenon Introduction (5-7 minutes) Show students the phenomenon card: Monarch Butterfly Use the see, think wonder strategy to guide student thinking. Teachers should provide students opportunities to share observations and develop questions. The teacher should record students' observations on chart paper and refer back to initial student ideas throughout the week. **Inquiry Activity (10-15 minutes)** **Animal Life Cycle Activity** Have students follow the procedures laid out in the following activity: **Animal Life Cycle Activity** The teacher should record the observations of the students throughout the activity on chart paper. **Objective:** Students will arrange the animal task cards in the order of an organism's life cycle, from its beginning to its end. **TEACHER NOTE:	**Introduce the Driving Question: (7-10 minutes)** Have students review the driving question: *How are life cycles similar among common animals in your area?* Use the strategy to support students with making connections and understanding the driving question (DQ). Visualizing the Driving Question Click here to access question words reference chart The process can be recorded on chart paper with the students or the teacher can complete the graphic organizer. Be sure to create a reference for students to have throughout the week. ****Teacher Note:** Students should not answer the driving question at this time. Students will need to collect information, data and understanding from the phenomenon strategy, inquiry activity, investigation, text or video protocol and vocabulary strategy to develop a response in the claim-evidence-reasoning format. **Objective:** Expose students to claim-evidence-reasoning (CER)	**Graphic Organizer and Materials (2-3 minutes)** Students will need and will use the student lab sheet provided in their consumable book or access to the student handout Animal Sort **Objective:** In this activity, students identify the stages of various animals' life cycles using card sorts. **Materials** 1 animal card (per group) 1 student data sheet 1 scissors, pair (per group) 1 glue stick (per group) 1 set of markers (per group) **Investigation Facilitation (35-40 minutes)** **TEACHER NOTE: In this lab, the teacher should. Distribute materials to each group. Groups will sort the Animal Cards by species. Students will order each set of cards by the animal's life cycle. Students will check card placements with the teacher.	**Text Annotation Strategy (30-45 minutes)** Have students read and annotate the following text: Animal Life Cycles Text The teacher should facilitate the following process.Have the students follow the text protocol facilitation directions provided in the following strategy: K-2 Annotation Protocol Students should complete the following student handout as they work through the text annotation protocol: K-2 Text Annotation Student Document (editable) Text Annotation Student Document PDF During the teacher-led discussion, the teacher should ask the following questions: *How can we learn about the life cycles of different animals?* *How do you grow throughout your life cycle?* **TEACHER NOTE: Read and review the annotation protocol prior to providing this lesson to students. Students will need to be placed in groups or have an	**Claim-Evidence-Reasoning (15-25 minutes)** Students will write a response to the following driving question in the CER format. *How are life cycles similar among common animals in your area?* Review the claim-evidence-reasoning poster with the students **TEACHER NOTE: Provide students with sentence starters by sharing on the board: K-2 Claim-Evidence-Reasoning Sentence Starters Have students write their claim-evidence-reasoning **writing a claim** Have students develop a claim which is their answer to the driving question, claim. Students should use all their knowledge from the phenomenon, inquiry activity, investigation, and information analysis protocol to develop an answer to the question. **writing evidence** Students should provide observational or numerical data as their evidence from their investigation and write a short caption or brief description of the data they provide to support their claim.

Teacher Preparation for Lab:

Copy all sets of animal cards **ONLY** on cardstock

Ensure each group has a complete set of cards for each organism (cat, butterfly, frog).

Mix all three sets together and place them in one bag for each group.

In this lab, students will sort the task cards into sets of cat, butterfly, and frog. Students will put the sets in order by what comes first through the card that shows what happens last.

Teacher should prompt students to think by asking; What they think comes first, the adult or the baby? The egg or the frog? The caterpillar or the butterfly?

Teacher should facilitate throughout the activity and check each group's cards. If any cards are incorrect, pull those cards and give the students time to figure out the correct placements.

Materials:
animal task cards
plastic bags
1 poster board (per group)

student samples below to review and understand their peers' thoughts on the topic, initiating the process of developing skills for effective argumentation.

Claim-Evidence-Reasoning (CER) (10-12 minutes)

The teacher should state the following to students:

"Claim-Evidence-Reasoning or CER is a way of writing that helps students understand and explain what they learn in science investigations and science ideas."

Review the claim-evidence-reasoning poster with students.

As a class or in student groups, provide students with this week's claim- evidence-reasoning sample.

Student Sample

The teacher or students should read over student sample(s) to analyze claim-evidence-reasoning protocol. Ask students to use the CER observations chart to complete the following analysis protocol:

Claim-Evidence-Reasoning Record Observations Document (google doc)

Claim-Evidence-Reasoning Record Observation Document PDF

1. Identify the student's claim in the sample and have the teacher

Students will glue the life cycle models onto the group poster board. Students will use markers to label and draw arrows indicating the order.

Ask Students:

How are these life cycles similar? (Each one depicts an animal's growth and development.)

How do they differ? (Some animals undergo changes in appearance as they mature, while others simply increase in size.)

How did you determine the sequence of the cards? (We identified the stages by recognizing which pictures showed younger versus older animals.)

understanding of how the groups will change to limit time used for transitioning.

Vocabulary Strategy (10-15 minutes)
Vocabulary
life cycle
larvae
classify
mammal

Four Square
Provide students with the graphic organizer (editable) or pdf handout, explaining its four sections: word, meaning, picture, and sentence.

Use a Think Aloud to demonstrate how to use the graphic organizer with one of the provided vocabulary words.

Allow students to work in collaborative groups. Actively monitor and facilitate small group discussions and review various artifacts (pictures, images, primary sources, charts) to build knowledge of the term.

Have students collaborate to complete the four square strategy for the other vocabulary terms.

Monitor student progress, sharing new ideas for class discussion, and help students distinguish essential from non-essential characteristics.

Allow groups to share their thinking through academic dialogue and compare their completed task with members of

writing the reasoning
Students will use textual evidence from the "text annotation graphic organizer" to generate the reasoning or justification in the CER format.

Have students use the following template to write their claim-evidence-reasoning (CER)
K-2 Student Writing Template (editable)
K-2 Student Writing Template (pdf)

**TEACHER NOTE: Have students review the student sample(s) of claim-evidence-reasoning on Day 2. Have students compare their writing to those students' samples. Ask the following questions:

How are your thoughts or understanding similar to another writer on the topic? How are your thoughts or understanding different to another writer on the topic? What would you like to learn more about? Why?

Assessment for Learning (10-15 minutes)
Have students complete the following assessment.

Animal Quiz

Animal Quiz PDF

	or students write their observations or questions. *2. Identify the student's evidence in the sample and have the teacher or students write their observations or questions.* *3. Identify the student's reasoning in the sample and have the teacher or students write their observations or questions.* Ask the following questions to students as they analyze the student samples: Claim-Evidence-Reasoning Questions ****Teacher Note:** As students review the student samples, they will begin to see or read vocabulary. Begin or continue a reference chart of questions or observations about vocabulary. Students will explicitly learn vocabulary on Day 4.		other groups.	

Week 2		
GSE: S2L1.b.	**Focused Concept:** Plan and carry out an investigation of the life cycle of a plant by growing a plant from a seed and by recording changes over a period of time.	
Learning Targets:	Students will Plan and carry out an investigation of the life cycle of a plant by growing a plant from a seed and by recording changes over a period of time.	
Lab Safety and Materials:	**General Safety Practices**	
SEP Teacher Tip: (Day 1 and 3) To support students with the science and engineering practices for this week, follow the guidance in this protocol:		
Phenomenon: Red Bell Peppers		**DQ:** What patterns do you observe when growing a plant from a

			seed?	
Day 1: Opening	**Day 2 : Guided Practice/ Transition**	**Day 3: Independent Practice**	**Day 4: Independent Practice**	**Day 5: Assessment / Summary**
Phenomenon Introduction (5-7 minutes) Show students the phenomenon card: Red Bell Peppers Use the see, think wonder strategy to guide student thinking. Teachers should provide students opportunities to share observations and develop questions. The teacher should record students' observations on chart paper and refer back to initial student ideas throughout the week. **Inquiry Activity (10-15 minutes)** **What is inside a seed or a bulb?** Lab preparation steps: To achieve optimal results, buy garlic a week before the lab. Keep the cloves intact with their paper layer and place them in a cup with approximately 100 ml (or 3 oz) of water to encourage sprouting. Soak the lima beans in water for 24 hours. Before the lab session, make a vertical cut to halve the garlic cloves and lima beans. Have students follow the procedures laid out in the following activity: **What is inside a seed or a bulb?**	**Introduce the Driving Question: (7-10 minutes)** Have students review the driving question: *What patterns do you observe when growing a plant from a seed?* Use the strategy to support students with making connections and understanding the driving question (DQ). Visualizing the Driving Question Click here to access question words reference chart The process can be recorded on chart paper with the students or the teacher can complete the graphic organizer. Be sure to create a reference for students to have throughout the week. **Teacher Note: Students should not answer the driving question at this time. Students will need to collect information, data and understanding from the phenomenon strategy, inquiry activity, investigation, text or video protocol and vocabulary strategy to develop a response in the claim-evidence-reasoning format. **Objective:** Expose students to claim-evidence-reasoning (CER) student samples below to	**Graphic Organizer and Materials (2-3 minutes)** Students will need and will use the student lab sheet provided in their consumable book or access to the student handout Growing Plants **Objective:** Students will plant seeds in a cup to observe their growth and development over time. **Materials** permanent marker, 1 small, clear plastic cup (per group), 1 small, clear plastic cup (per group), 5 pinto beans (per group), 1 large bag of potting soil **Investigation Facilitation (35-40 minutes)** *Ask Students:* *How long do you think it will take for the seeds to sprout?* *Why do you think it's important to observe the plants every day?*	**Text Annotation Strategy (30-45 minutes)** Have students read and annotate the following text: "Pumpkin Time" The teacher should facilitate the following process.Have the students follow the text protocol facilitation directions provided in the following strategy: K-2 Annotation Protocol Students should complete the following student handout as they work through the text annotation protocol: K-2 Text Annotation Student Document (editable) Text Annotation Student Document PDF During the teacher-led discussion, the teacher should ask the following questions: *How does the pumpkin plant change from the time the seed is planted until it becomes a vine?* *How do the blossoms on the vine lead to the growth of pumpkins?* *How can the seeds inside a picked pumpkin be used to grow more pumpkins?* **TEACHER NOTE: Read and	**Claim-Evidence-Reasoning (15-25 minutes)** Students will write a response to the following driving question in the CER format. *What patterns do you observe when growing a plant from a seed?* Review the claim-evidence-reasoning poster with the students **TEACHER NOTE: Provide students with sentence starters by sharing on the board: K-2 Claim-Evidence-Reasoning Sentence Starters Have students write their claim-evidence-reasoning **writing a claim** Have students develop a claim which is their answer to the driving question, claim. Students should use all their knowledge from the phenomenon, inquiry activity, investigation, and information analysis protocol to develop an answer to the question. **writing evidence** Students should provide observational or numerical data as their evidence from their investigation and write a short caption or brief description of the data they provide to support their claim. **writing the reasoning**

The teacher should record the observations of the students throughout the activity on chart paper.

Objective: Students will observe parts of a seed and bulb and then infer what the parts are used for as the plant grows into an adult.

**TEACHER NOTE:
Teacher will ensure students grasp the distinction between observations and inferences. Clarify that observations involve using their senses to see, hear, feel, smell, or taste something. They can observe various aspects of the bulb and the seed. In contrast, an inference is a conclusion or idea based on those observations. Students make inferences about what they believe the next stage of life will be for the bulb and the seed.

Materials:
Refer to lab safety protocol
garlic cove (cut in half)
lima bean (cut in half)
hand lens

review and understand their peers' thoughts on the topic, initiating the process of developing skills for effective argumentation.

Claim-Evidence-Reasoning (CER) (10-12 minutes)

The teacher should state the following to students:

"Claim-Evidence-Reasoning or CER is a way of writing that helps students understand and explain what they learn in science investigations and science ideas."

Review the claim-evidence-reasoning poster with students.

As a class or in student groups, provide students with this week's claim-evidence-reasoning sample.

Student Sample

The teacher or students should read over student sample(s) to analyze claim-evidence-reasoning protocol. Ask students to use the CER observations chart to complete the following analysis protocol:

Claim-Evidence-Reasoning Record Observations Document (google doc)

Claim-Evidence-Reasoning Record Observation Document PDF

review the annotation protocol prior to providing this lesson to students. Students will need to be placed in groups or have an understanding of how the groups will change to limit time used for transitioning.

Vocabulary Strategy
(10-15 minutes)
Vocabulary
seed
sprout
seedling

Four Square
Provide students with the graphic organizer (editable) or pdf handout, explaining its four sections: word, meaning, picture, and sentence.

Use a Think Aloud to demonstrate how to use the graphic organizer with one of the provided vocabulary words.

Allow students to work in collaborative groups. Actively monitor and facilitate small group discussions and review various artifacts (pictures, images, primary sources, charts) to build knowledge of the term.

Have students collaborate to complete the four square strategy for the other vocabulary terms.

Monitor student progress, sharing new ideas for class discussion, and help students distinguish essential from non-essential characteristics. Allow groups to share their

Students will use textual evidence from the "text annotation graphic organizer" to generate the reasoning or justification in the CER format. Have students use the following template to write their claim-evidence-reasoning (CER)
K-2 Student Writing Template (editable)
K-2 Student Writing Template (pdf)
**TEACHER NOTE: Have students review the student sample(s) of claim-evidence-reasoning on Day 2. Have students compare their writing to those students' samples. Ask the following questions:

How are your thoughts or understanding similar to another writer on the topic? How are your thoughts or understanding different to another writer on the topic? What would you like to learn more about? Why?

Assessment for Learning
(10-15 minutes)

Students will complete this week's CER for the assessment.

	1. Identify the student's claim in the sample and have the teacher or students write their observations or questions. *2. Identify the student's evidence in the sample and have the teacher or students write their observations or questions.* *3. Identify the student's reasoning in the sample and have the teacher or students write their observations or questions.* Ask the following questions to students as they analyze the student samples: Claim-Evidence-Reasoning Questions **Teacher Note:** As students review the student samples, they will begin to see or read vocabulary. Begin or continue a reference chart of questions or observations about vocabulary. Students will explicitly learn vocabulary on Day 4.		thinking through academic dialogue and compare their completed task with members of other groups.	

Week 3		
GSE: S2L1.c.	**Focused Concept:** Construct an explanation of an animal's role in dispersing seeds or in the pollination of plants.	
Learning Targets:	Students will construct an explanation of an animal's role in dispersing seeds or in the pollination of plants.	
Lab Safety and Materials:	**General Safety Practices**	
SEP Teacher Tip: (Day 1 and 3) To support students with the science and engineering practices for this week, follow the guidance in this protocol:		
Phenomenon: Bees on a Flower		**DQ:** What is an animal's role in dispersing seeds or in the

			pollination of plants?	
Day 1: Opening	**Day 2 : Guided Practice/ Transition**	**Day 3: Independent Practice**	**Day 4: Independent Practice**	**Day 5: Assessment / Summary**
Phenomenon Introduction (5-7 minutes) Show students the phenomenon card: Bees on a flower Use the see, think wonder strategy to guide student thinking. Teachers should provide students opportunities to share observations and develop. Teachers should provide students opportunities to share observations and develop questions. The teacher should record students' observations on chart paper and refer back to initial student ideas throughout the week. **Inquiry Activity (10-15 minutes)** **How can you model how animals spread seeds?** Spreading Seeds PDF Spreading Seeds (edit) Have students follow the procedures laid out in the following activity: Spreading Seeds PDF The teacher should record the observations of the students throughout the activity on chart paper. **uInvestigate Lab** How can you model how animals spread seeds? Savvas pg. 175	**Introduce the Driving Question: (7-10 minutes)** Have students review the driving question: *What is an animal's role in dispersing seeds or in the pollination of plants?* Use the strategy to support students with making connections and understanding the driving question (DQ). Visualizing the Driving Question Click here to access question words reference chart The process can be recorded on chart paper with the students or the teacher can complete the graphic organizer. Be sure to create a reference for students to have throughout the week. **Teacher Note:** Students should not answer the driving question at this time. Students will need to collect information, data and understanding from the phenomenon strategy, inquiry activity, investigation, text or video protocol and vocabulary strategy to develop a response in the claim-evidence-reasoning format. **Objective:** Expose students to	**Graphic Organizer and Materials (2-3 minutes)** Students will need and will use the student lab sheet provided in their consumable book or access to the student handout Mystery Science Animal Dispersal Activity Animal Dispersal lab sheet PDF Animal Dispersal Activity (edit) **Objective:** Students will explore how the structure of seeds enables them to disperse, with a focus on seeds that utilize animal structures to aid in their dispersal. **Materials** student lab sheet 1 marker (per paired group) 1 liquid glue (per paired group) 1 plastic plate (per paired group, this is to catch excess glue, plastic trays can be used as well) black beans (2 per paired group)any medium-sized dried bean or a pony bead should work. Used as seed B cotton balls (12 cotton balls per paired group)	**Text Annotation Strategy (30-45 minutes)** Have students read and annotate the following text: Seeds Need to Move The teacher should facilitate the following process.Have the students follow the text protocol facilitation directions provided in the following strategy: K-2 Annotation Protocol Students should complete the following student handout as they work through the text annotation protocol: K-2 Text Annotation Student Document (editable) Text Annotation Student Document PDF During the teacher-led discussion, the teacher should ask the following questions: *How do hitchhiker seeds use animals to help them move?* *Why do seeds need to travel away from their parent plant?* *Can you name some animals that might carry seeds without knowing it?* **TEACHER NOTE: Read and review the annotation protocol prior to providing this lesson to	**Claim-Evidence-Reasoning (15-25 minutes)** Students will write a response to the following driving question in the CER format. *What is an animal's role in dispersing seeds or in the pollination of plants?* Review the claim-evidence-reasoning poster with the students **TEACHER NOTE: Provide students with sentence starters by sharing on the board: K-2 Claim-Evidence-Reasoning Sentence Starters Have students write their claim-evidence-reasoning **writing a claim** Have students develop a claim which is their answer to the driving question, claim. Students should use all their knowledge from the phenomenon, inquiry activity, investigation, and information analysis protocol to develop an answer to the question. **writing evidence** Students should provide observational or numerical data as their evidence from their investigation and write a short caption or brief description of the data they provide to support their claim. **writing the reasoning**

Objective: Students make and use a model to show how seeds can be carried by clothes or fur.

**TEACHER NOTE:
In this lab, the teacher should encourage students to design models that closely resemble the actual objects, allowing them to effectively illustrate how seeds are dispersed by animals. (bee pollination week 5)

The teacher should guide students to notice how the loops of the fastener strip can cling to certain types of clothing. Ensure that items like winter hats or fur-lined jackets are available for testing. (Consider requesting free fabric scraps from a local fabric store.)

Facilitation points:
Students will:
Examine each side of a hook and loop fastener strip. (Teacher will need to facilitate students with fastener and hook)

Rub the two parts together and observe how they adhere. Inspect both sides closely.

Choose the side that best represents a seed transported by animals.

Test model seed on different fabrics.

Ask Students:

What observations can you make about the clothing that adheres to the model seeds?

claim-evidence-reasoning (CER) student samples below to review and understand their peers' thoughts on the topic, initiating the process of developing skills for effective argumentation.

Claim-Evidence-Reasoning (CER) (10-12 minutes)

The teacher should state the following to students:

"Claim-Evidence-Reasoning or CER is a way of writing that helps students understand and explain what they learn in science investigations and science ideas."

Review the claim-evidence-reasoning poster with students.

As a class or in student groups, provide students with this week's claim-evidence-reasoning sample.

Student Sample

The teacher or students should read over student sample(s) to analyze claim-evidence-reasoning protocol. Ask students to use the CER observations chart to complete the following analysis protocol:
Claim-Evidence-Reasoning Record Observations Document (google doc)

Claim-Evidence-Reasoning Record Observation Document

dixie cups (2 per paired group)

pompoms (2 per paired group)

Investigation Facilitation (35-40 minutes)

**TEACHER NOTE:
In this lab, students create a model of a furry animal to test how far seed models with various structures can travel.

Teacher preparation steps:

Distribute Seed A (pompom) in Step 7 and Seed B (bean) in Step 14.

Provide enough space for students to jump in place during fluffadoo and seed model tests.

Seed A should remain attached to the fluffadoo the longest, often up to 15 hops. Seed B typically falls off within 1 or 2 hops.

If Seed A falls off too soon, check that it's placed where multiple cotton balls meet and that students are hopping gently without shaking their fluffadoo too much.

Facilitation steps can be found here: **Mystery Science**
Teacher facilitation video
Ask Students:

How do you think animals help seeds move from one place to another?

What kinds of seeds do you

students. Students will need to be placed in groups or have an understanding of how the groups will change to limit time used for transitioning.

Vocabulary Strategy (10-15 minutes)
Vocabulary
animal dispersal
pollination
pollen

Four Square
Provide students with the graphic organizer (editable) or pdf handout, explaining its four sections: word, meaning, picture, and sentence.

Use a Think Aloud to demonstrate how to use the graphic organizer with one of the provided vocabulary words.

Allow students to work in collaborative groups. Actively monitor and facilitate small group discussions and review various artifacts (pictures, images, primary sources, charts) to build knowledge of the term.

Have students collaborate to complete the four square strategy for the other vocabulary terms.

Monitor student progress, sharing new ideas for class discussion, and help students distinguish essential from non-essential characteristics.

Allow groups to share their thinking through academic

Students will use textual evidence from the "text annotation graphic organizer" to generate the reasoning or justification in the CER format.

Have students use the following template to write their claim-evidence-reasoning (CER)
K-2 Student Writing Template (editable)
K-2 Student Writing Template (pdf)
**TEACHER NOTE: Have students review the student sample(s) of claim-evidence-reasoning on Day 2. Have students compare their writing to those students' samples. Ask the following questions:

How are your thoughts or understanding similar to another writer on the topic? How are your thoughts or understanding different to another writer on the topic? What would you like to learn more about? Why?

Assessment for Learning (10-15 minutes)
Have students complete the following assessment.

An Animal's Role Quiz

Materials tape fastners hook-and-loop fastners paper clips	PDF *1. Identify the student's claim in the sample and have the teacher or students write their observations or questions.* *2. Identify the student's evidence in the sample and have the teacher or students write their observations or questions.* *3. Identify the student's reasoning in the sample and have the teacher or students write their observations or questions.* Ask the following questions to students as they analyze the student samples: Claim-Evidence-Reasoning Questions ****Teacher Note:** As students review the student samples, they will begin to see or read vocabulary. Begin or continue a reference chart of questions or observations about vocabulary. Students will explicitly learn vocabulary on Day 4.	*think would stick to an animal's fur?*	dialogue and compare their completed task with members of other groups.	

Week 4	
GSE: S2P1.d.	**Focused Concept:** Develop models to illustrate the unique and diverse life cycles of organisms other than humans.
Learning Targets:	Students will develop models to illustrate the unique and diverse life cycles of organisms other than humans.
Lab Safety and Materials:	**General Safety Practices**

Phenomenon: Penny the Chicken			**DQ:** How can we develop a model of life cycles based on what we have learned?	
Day 1: Opening	**Day 2 : Guided Practice/ Transition**	**Day 3: Independent Practice**	**Day 4: Independent Practice**	**Day 5: Assessment / Summary**
Phenomenon Introduction (5-7 minutes) Show students the phenomenon card: Penny the Chicken Use the see, think wonder strategy to guide student thinking. Teachers should provide students opportunities to share observations and develop questions. The teacher should record students' observations on chart paper and refer back to initial student ideas throughout the week. **Inquiry Activity (10-15 minutes)** **GaDoe Inspire** **Frog Life PDF** **Frog Life (Edit)** Have students follow the procedures laid out in the following activity: The teacher should record the observations of the students throughout the activity on chart paper. Objective: Students will construct a model to show the life cycle of an animal Have students follow the procedure provided in the lab. Students will use scissors to cut	**Introduce the Driving Question: (7-10 minutes)** Have students review the driving question: *How can we develop a model of life cycles based on what we have learned?* Use the strategy to support students with making connections and understanding the driving question (DQ). Visualizing the Driving Question Click here to access question words reference chart The process can be recorded on chart paper with the students or the teacher can complete the graphic organizer. Be sure to create a reference for students to have throughout the week. **Teacher Note:** Students should not answer the driving question at this time. Students will need to collect information, data and understanding from the phenomenon strategy, inquiry activity, investigation, text or video protocol and vocabulary strategy to develop a response in the claim-evidence-reasoning format. **Claim-Evidence-Reasoning (CER) (10-12 minutes)**	**Graphic Organizer and Materials (2-3 minutes)** Students will need and will use the student lab sheet provided in their consumable book or access to the student handout **Butterfly Data Sheet** **Butterfly Images** **Objective:** Students will use a graphic organizer to develop a model for the life cycle of the butterfly. They will draw an image to represent each stage. **Materials:** student data sheet butterfly life cycle cards crayons **Investigation Facilitation (30-45 minutes)** **TEACHER NOTE: The teacher will have to pre-cut the four cards that are needed for this activity. It may be beneficial for the teacher to model the directions for the students to be aware of the expectations of this activity. Teacher should ask the following question: *What is the first stage in a*	**Text Annotation Strategy (30-45 minutes)** Have students read and annotate the following text: Frog Life Text The teacher should facilitate the following process.Have the students follow the text protocol facilitation directions provided in the following strategy: **K-2 Text Annotation Protocol** Students should complete the following student handout as they work through the text annotation protocol: K-2 Text Annotation Student Document (editable) Text Annotation Student Document During the teacher-led discussion, the teacher should ask the following questions: *Can you describe the first stage in the life cycle of a frog?* *What changes do you see as a tadpole becomes a frog?* **TEACHER NOTE: Read and review the annotation protocol prior to providing this lesson to students. Students will need to be placed in groups or have an	**Claim-Evidence-Reasoning (15-25 minutes)** Students will write a response to the following driving question in the CER format. *How can we develop a model of life cycles based on what we have learned?* Review the claim-evidence-reasoning poster with the students **TEACHER NOTE: Provide students with sentence starters by sharing on the board: K-2 CER Sentence Starters Have students write their claim-evidence-reasoning **writing a claim** Have students develop a claim which is their answer to the driving question, claim. Students should use all their knowledge from the phenomenon, inquiry activity, investigation, and information analysis protocol to develop an answer to the question. **writing evidence** Students should provide observational or numerical data as their evidence from their investigation and write a short caption or brief description of the data they provide to support their claim.

out five labels and five images. They will then arrange the stages of a frog's life cycle in the correct order. Next, students will glue the sequence onto a star-shaped graphic organizer, ensuring each label matches the corresponding image and is placed in the correct order. **TEACHER NOTE: In this lab, the teacher will monitor and facilitate to make sure students are actively learning. *Ask students:* *Why is it important to put the stages of the frog's life cycle in the correct order?* **Materials:** student activity sheet scissors glue	**Objective:** Expose students to claim-evidence-reasoning (CER) student samples below to review and understand their peers' thoughts on the topic, initiating the process of developing skills for effective argumentation. The teacher should state the following to students: "Claim-Evidence-Reasoning or CER is a way of writing that helps students understand and explain what they learn in science investigations and science ideas." Review the claim-evidence-reasoning poster with students. As a class or in student groups, provide students with this week's claim-evidence-reasoning sample. Student Sample The teacher or students should read over student sample(s) to analyze claim-evidence-reasoning protocol. Ask students to use the CER observations chart to complete the following analysis protocol: Claim-Evidence-Reasoning Record Observations Document (google doc) Claim-Evidence-Reasoning Record Observation Document PDF	*butterfly's life cycle?* *How does a caterpillar change during the chrysalis stage?* *Why do you think butterflies need to go through different stages to become adults?*	understanding of how the groups will change to limit time used for transitioning. **Vocabulary Strategy** **(10-15 minutes)** **Vocabulary** life cycles **Four Square** Provide students with the graphic organizer (editable) or pdf handout, explaining its four sections: word, meaning, picture, and sentence. Use a Think Aloud to demonstrate how to use the graphic organizer with one of the provided vocabulary words. Allow students to work in collaborative groups. Actively monitor and facilitate small group discussions and review various artifacts (pictures, images, primary sources, charts) to build knowledge of the term. Have students collaborate to complete the four square strategy for the other vocabulary terms. Monitor student progress, sharing new ideas for class discussion, and help students distinguish essential from non-essential characteristics. Allow groups to share their thinking through academic dialogue and compare their completed task with members of other groups.	**writing the reasoning** Students will use textual evidence from the "text annotation graphic organizer" to generate the reasoning or justification in the CER format. Have students use the following template to write their claim-evidence-reasoning (CER) K-2 Student Writing Template (editable) K-2 Student Writing Template (pdf) **TEACHER NOTE: Have students review the student sample(s) of claim-evidence-reasoning on Day 2. Have students compare their writing to those students' samples. Ask the following questions: *How are your thoughts or understanding similar to another writer on the topic?* *How are your thoughts or understanding different to another writer on the topic?* *What would you like to learn more about? Why?* **Assessment for Learning** **(10-15 minutes)** Students will complete this week's CER for the assessment.

	1. Identify the student's claim in the sample and have the teacher or students write their observations or questions. *2. Identify the student's evidence in the sample and have the teacher or students write their observations or questions.* *3. Identify the student's reasoning in the sample and have the teacher or students write their observations or questions.* Ask the following questions to students as they analyze the student samples: Claim-Evidence-Reasoning Questions ****Teacher Note:** As students review the student samples, they will begin to see or read vocabulary. Begin or continue a reference chart of questions or observations about vocabulary. Students will explicitly learn vocabulary on Day 4.			

Week 5	
GSE: SL21.a.	**Focused Concept:** Ask questions to determine the sequence of the life cycle of common animals in your area: a mammal such as a cat, dog, or classroom pet, a bird, such as a chicken, an amphibian such as a frog and an insect such as a butterfly.
Learning Targets:	Students will ask questions to determine the sequence of the life cycle of common animals in your area: a mammal such as a cat, dog, or classroom pet, a bird, such as a chicken, an amphibian such as a frog and an insect such as a butterfly.
Lab Safety and Materials:	**General Safety Practices**

SEP Teacher Tip: (Day 1 and 3) To support students with the science and engineering practices for this week, follow the guidance in this protocol:				
Phenomenon: Monarch Butterfly				**DQ:** How are life cycles similar among common animals in your area?
Day 1: Opening	**Day 2 : Guided Practice/ Transition**	**Day 3: Independent Practice**	**Day 4: Independent Practice**	**Day 5: Assessment / Summary**
Phenomenon Introduction (5-7 minutes) Show students the phenomenon card: Monarch Butterfly Use the see, think wonder strategy to guide student thinking. Teachers should provide students opportunities to share observations and develop questions. The teacher should record students' observations on chart paper and refer back to initial student ideas throughout the week. **Inquiry Activity (10-15 minutes)** **Science4Us** **Animal Life Cycle Pt.2.** Have students follow the procedures laid out in the following activity: The teacher should record the observations of the students throughout the activity on chart paper. **Objective:** Students will ask questions to determine the sequence of the life cycle of	**Introduce the Driving Question: (7-10 minutes)** Have students review the driving question: *How are life cycles similar among common animals in your area?* Use the strategy to support students with making connections and understanding the driving question (DQ). Visualizing the Driving Question Click here to access question words reference chart The process can be recorded on chart paper with the students or the teacher can complete the graphic organizer. Be sure to create a reference for students to have throughout the week. ****Teacher Note:** Students should not answer the driving question at this time. Students will need to collect information, data and understanding from the	**Graphic Organizer and Materials (2-3 minutes)** Students will need and will use the student lab sheet provided in their consumable book or access to the student handout How are life cycles similar or different? (editable) Life Cycles Sheet PDF **Objective:** Students will ask questions to determine the sequence of an animal's life cycle and investigate to find out how organisms are alike and different. **Materials:** Life cycle sheet **Investigation Facilitation (30-45 minutes)** **TEACHER NOTE: Have students show their plan before they start the investigation. Remind the students to include plants and	**Text Annotation Strategy (30-45 minutes)** Have students read and annotate the following text: Dragonfly Life Cycle PDF Dragonfly Life Cycle (editable) The teacher should facilitate the following process.Have the students follow the text protocol facilitation directions provided in the following strategy: **K-2 Text Annotation Protocol** Students should complete the following student handout as they work through the text annotation protocol: K-2 Text Annotation Student Document (editable) Text Annotation Student Document During the teacher-led discussion, the teacher should ask the following questions: *Which life cycle stage of a*	**Claim-Evidence-Reasoning (15-25 minutes)** Students will write a response to the following driving question in the CER format. *How are life cycles similar among common animals in your area?* Review the claim-evidence-reasoning poster with the students **TEACHER NOTE: Provide students with sentence starters by sharing on the board: K-2 Claim-Evidence-Reasoning Sentence Starters Have students write their claim-evidence-reasoning **writing a claim** Have students develop a claim which is their answer to the driving question, claim. Students should use all their knowledge from the phenomenon, inquiry activity, investigation, and information analysis protocol to develop an answer to the question.

common animals such as a frog and a chicken.

Have students follow the procedure provided in the lab.

**TEACHER NOTE:
The procedure for this lab can be found in the link above. Students were exposed to this standard in week 1. Teacher should facilitate a discussion where students share their answers.Use chart paper to compare and contrast the frog and chicken life cycles, highlighting similarities and differences. Teacher should guide students as they sort the pictures into two piles, explaining the stages of each life cycle as needed.

Ask students:
How are the life cycles of a frog and a chicken similar?

How are the life cycles of a frog and a chicken different?

Materials:
animal life cards (linked above)
construction paper
scissors
glue sticks
crayons
chart paper (optional)

phenomenon strategy, inquiry activity, investigation, text or video protocol and vocabulary strategy to develop a response in the claim-evidence-reasoning format.

Claim-Evidence-Reasoning (CER) (10-12 minutes)

Objective: Expose students to claim-evidence-reasoning (CER) student samples below to review and understand their peers' thoughts on the topic, initiating the process of developing skills for effective argumentation.

The teacher should state the following to students:

"Claim-Evidence-Reasoning or CER is a way of writing that helps students understand and explain what they learn in science investigations and science ideas."

Review the claim-evidence-reasoning poster with students.

As a class or in student groups, provide students with this week's claim-evidence-reasoning sample.

The teacher will pull students samples from earlier in the unit for peer review. Be sure to hide student names.

The teacher or students should read over student sample(s) to analyze claim-evidence-reasoning

animals in their model.

Ask Students:

How does your model and the other group's model show that life cycles are alike?

How do they show that life cycles are different?

dragonfly can fly?

Why do nymphs shed their skin?

Which stage lasts the longest?

**TEACHER NOTE: Read and review the annotation protocol prior to providing this lesson to students. Students will need to be placed in groups or have an understanding of how the groups will change to limit time used for transitioning.

Vocabulary Strategy
(10-15 minutes)
Vocabulary
nymph

Four Square
Provide students with the graphic organizer (editable) or pdf handout, explaining its four sections: word, meaning, picture, and sentence.

Use a Think Aloud to demonstrate how to use the graphic organizer with one of the provided vocabulary words.

Allow students to work in collaborative groups. Actively monitor and facilitate small group discussions and review various artifacts (pictures, images, primary sources, charts) to build knowledge of the term. Have students collaborate to complete the four square strategy for the other vocabulary terms.
Monitor student progress, sharing new ideas for class discussion, and help students distinguish essential from

writing evidence
Students should provide observational or numerical data as their evidence from their investigation and write a short caption or brief description of the data they provide to support their claim.
writing the reasoning
Students will use textual evidence from the "text annotation graphic organizer" to generate the reasoning or justification in the CER format.

Have students use the following template to write their claim-evidence-reasoning (CER)
K-2 Student Writing Template (editable)
K-2 Student Writing Template (pdf)

**TEACHER NOTE: Have students review the student sample(s) of claim-evidence-reasoning on Day 2. Have students compare their writing to those students' samples. Ask the following questions: *How are your thoughts or understanding similar to another writer on the topic? How are your thoughts or understanding different to another writer on the topic? What would you like to learn more about? Why?*

Assessment for Learning
(10-15 minutes)
Have students complete the following assessment.

	protocol. Ask students to use the CER observations chart to complete the following analysis protocol: Claim-Evidence-Reasoning Record Observations Document (google doc) Claim-Evidence-Reasoning Record Observation Document PDF *1. Identify the student's claim in the sample and have the teacher or students write their observations or questions.* *2. Identify the student's evidence in the sample and have the teacher or students write their observations or questions.* *3. Identify the student's reasoning in the sample and have the teacher or students write their observations or questions.* Ask the following questions to students as they analyze the student samples: Claim-Evidence-Reasoning Questions ****Teacher Note:** As students review the student samples, they will begin to see or read vocabulary. Begin or continue a reference chart of questions or observations about vocabulary. Students will explicitly learn vocabulary on Day 4.		non-essential characteristics. Allow groups to share their thinking through academic dialogue and compare their completed task with members of other groups.	Life Cycles Open Response

Week 6				
GSE: S2L1b		**Focused Concept:** Plan and carry out an investigation of the life cycle of a plant by growing a plant from a seed and by recording changes over a period of time.		
Learning Targets:	Students will Plan and carry out an investigation of the life cycle of a plant by growing a plant from a seed and by recording changes over a period of time.			
Lab Safety and Materials:	General Safety Practices			
SEP Teacher Tip: (Day 1 and 3) To support students with the science and engineering practices for this week, follow the guidance in this protocol:				
Phenomenon: Red Bell Peppers				**DQ:** What patterns do you observe when growing a plant from a seed?
Day 1: Opening	**Day 2 : Guided Practice/ Transition**	**Day 3: Independent Practice**	**Day 4: Independent Practice**	**Day 5: Assessment / Summary**
Phenomenon Introduction (5-7 minutes) Show students the phenomenon card: **Red Bell Peppers** Use the see, think wonder strategy to guide student thinking. Teachers should provide students opportunities to share observations and develop questions. The teacher should record students' observations on chart paper and refer back to initial student ideas throughout the week. **Inquiry Activity (10-15 minutes)**	**Introduce the Driving Question: (7-10 minutes)** Have students review the driving question: *What patterns do you observe when growing a plant from a seed?* Use the strategy to support students with making connections and understanding the driving question (DQ). Visualizing the Driving Question Click here to access question words reference chart	**Graphic Organizer and Materials (2-3 minutes)** Students will need and will use the student lab sheet provided in their consumable book or access to the student handout Show What you Know (Teacher) **Objective:** Students will observe patterns as it relates to the plant's growth. **Materials:** handout	**Text Annotation Strategy (30-45 minutes)** Have students read and annotate the following text: Life Cycles This text can be found in the digital platform in the 2nd grade Savvas section. It is listed as an interactivity. The teacher should facilitate the following process.Have the students follow the text protocol facilitation directions provided in the following strategy: **K-2 Text Annotation Protocol** Students should complete the	**Claim-Evidence-Reasoning (15-25 minutes)** Students will write a response to the following driving question in the CER format. *What patterns do you observe when growing a plant from a seed?* Review the claim-evidence-reasoning poster with the students **TEACHER NOTE: Provide students with sentence starters by sharing on the board: K-2 Claim-Evidence-Reasoning Sentence Starters

Pick the Plant

Pick the Plant (Teacher)
Pick the Plant (Student)

Have students follow the procedures laid out in the following activity: Pick the Plant (Student)
The teacher should record the observations of the students throughout the activity on chart paper.

Objective: Students will label the different stages in the life cycle of a plant.

Have students follow the procedure provided in the lab.

Distribute the student handout "Pick the Plant" and a green crayon to each student. Read directions with the students and complete one answer together as an example. Students complete the handout individually or with assistance as appropriate.

**TEACHER NOTE:

The teacher can lead the class to complete the activity together as a whole group. The activity can be completed at a center with an aide or with the teacher. The activity can be completed with the assistance of a peer buddy.

Ask students:

Which picture represents the seedling?

What differences do you notice

The process can be recorded on chart paper with the students or the teacher can complete the graphic organizer.
Be sure to create a reference for students to have throughout the week.
****Teacher Note:** Students should not answer the driving question at this time. Students will need to collect information, data and understanding from the phenomenon strategy, inquiry activity, investigation, text or video protocol and vocabulary strategy to develop a response in the claim-evidence-reasoning format.

Claim-Evidence-Reasoning (CER) (10-12 minutes)

Objective: Expose students to claim-evidence-reasoning (CER) student samples below to review and understand their peers' thoughts on the topic, initiating the process of developing skills for effective argumentation.

The teacher should state the following to students:

"Claim-Evidence-Reasoning or CER is a way of writing that helps students understand and explain what they learn in science investigations and science ideas."

Review the claim-evidence-reasoning poster with students.

As a class or in student groups, provide students with this

pencil

laptop/Mimio board

Investigation Facilitation (30-45 minutes)

This task can be found in the Science 4 Us platform in the online platform. The instruction details have been linked above.

After the discussion, observe the growth of the seedling from a previous lesson as a follow up of this task.

**TEACHER NOTE:

The teacher should start this activity in a whole group setting. Students can collaborate and have discussions with their peers once they have been provided the prompts.

Ask Students:

What changes do you see?

What predictions can you about our plant, as it continues to grow?

Do you expect all of our seeds to grow at the same rate?

following student handout as they work through the text annotation protocol:

K-2 Text Annotation Student Document (editable)

Text Annotation Student Document
During the teacher-led discussion, the teacher should ask the following questions:

How are plants and animals life cycles the same?

What are the stages of the life cycle of a plant?

What do plants need to grow and survive?

**TEACHER NOTE: Read and review the annotation protocol prior to providing this lesson to students. Students will need to be placed in groups or have an understanding of how the groups will change to limit time used for transitioning.

Vocabulary Strategy (10-15 minutes)
Vocabulary

The students will review the following vocabulary words:
seed
seedling
life cycle
adult plant
environment

Four Square
Provide students with the graphic organizer (editable) or pdf handout, explaining its four

Have students write their template to write their claim-evidence-reasoning (CER)
K-2 Student Writing Template (editable)
K-2 Student Writing Template (pdf)

**TEACHER NOTE: Have students review the student sample(s) of claim-evidence-reasoning on Day 2. Have students compare their writing to those students' samples. Ask the following questions:

How are your thoughts or understanding similar to another writer on the topic? How are your thoughts or understanding different to another writer on the topic? What would you like to learn more about? Why?

Assessment for Learning (10-15 minutes)
Students will complete this week's CER for the assessment.

about each stage? *What picture is a representation of the adult stage?* **Materials:** pencil crayon Handout	week's claim-evidence-reasoning sample. The teacher will pull students samples from earlier in the unit for peer review. Be sure to hide student names. The teacher or students should read over student sample(s) to analyze claim-evidence-reasoning protocol. Ask students to use the CER observations chart to complete the following analysis protocol: Claim-Evidence-Reasoning Record Observations Document (google doc) Claim-Evidence-Reasoning Record Observation Document PDF *1. Identify the student's claim in the sample and have the teacher or students write their observations or questions.* *2. Identify the student's evidence in the sample and have the teacher or students write their observations or questions.* *3. Identify the student's reasoning in the sample and have the teacher or students write their observations or questions.* Ask the following questions to students as they analyze the student samples: Claim-Evidence-Reasoning Questions		sections: word, meaning, picture, and sentence. Use a Think Aloud to demonstrate how to use the graphic organizer with one of the provided vocabulary words. Allow students to work in collaborative groups. Actively monitor and facilitate small group discussions and review various artifacts (pictures, images, primary sources, charts) to build knowledge of the term. Have students collaborate to complete the four square strategy for the other vocabulary terms. Monitor student progress, sharing new ideas for class discussion, and help students distinguish essential from non-essential characteristics. Allow groups to share their thinking through academic dialogue and compare their completed task with members of other groups.	

	Teacher Note: As students review the student samples, they will begin to see or read vocabulary. Begin or continue a reference chart of questions or observations about vocabulary. Students will explicitly learn vocabulary on Day 4.			

Assessment Prep

Prepare students for assessment by reviewing the following Assessment Prep Presentation.

Provide the following guidance:

Ask the students to use what they know about the tasks completed to answer the provided assessment prep question.

- What is the question asking you?
- What do you know about the vocabulary or concept in the question?
- Is this question similar to any investigations or tasks we've completed?
- How can what you've done help you answer this question?
- Just view the assessment question: What is the question asking you?

Guide students to think about how their experience connects to the question.

Using the answer choices provided, ask the students the following:

- Identify a wrong answer: How do I know this answer is incorrect?
- Identify the right answer: How do we know this answer is correct?

Allow the students time to discuss in collaborative groups.

TEACHER NOTE: If students struggle with the question, review it the next day. Do not rush to the next question; instructional time is the only time they have to prepare for the end-of-year assessment.

Labs / Investigations

Mandatory Labs	Explore Learning Science 4 Us	Mystery Science/Phet
Animal Sort **Growing Plants** **Animal Dispersal** **Butterfly Life** **Life Cycles**	**Science 4 Us Animal and Plant Module**	**Animal Dispersal**

Additional- Resources/Tasks

Supplemental Labs	Science 4 Us Animal and Plant Module
Culminating Performance Task	How are life cycles similar among common animals in your area? CER Task What patterns do you observe when growing a plant from a seed? CER Task What is an animal's role in dispersing seeds or in the pollination of plants? CER Task How can we develop a model of life cycles based on what we have learned? CER Task
STEM Activities	GaDOE Nectar Simulation