

# CCPS Science Unit Plan

<b>Grade</b>	3rd	<b>Subject</b>	Science	<b>Unit</b>	2
<b>Unit Name</b>	Fossils		<b>Timeline</b>	6 weeks	
<b>How to use the Framework</b>	<p>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.</p> <p>Please see the hyperlinked <a href="#">abbreviation document</a> to ensure understanding of all abbreviations used with this framework.</p> <p><a href="#">CCPS Department of Science Website</a> for access to all unit frameworks</p>				
<b>Unit Overview</b>	<p><i>*All resources related to this Framework are either embedded in this document or can be located via the Science Department website.</i></p> <p><b>Background:</b> The science and engineering practice in the standard is to obtain, evaluate, and communicate information. This is the overarching science and engineering practice for each of the standards. The goal of this science and engineering practice is for students to obtain information, evaluate information, and then communicate information. Below, each of the elements has its own science and engineering practice.</p> <ul style="list-style-type: none"> <li>• Fossils can be compared to one another and to living organisms. Some organisms that lived long ago are similar to living organisms of today and some are very different.</li> <li>• Fossils can tell us what the environment was like long ago.</li> </ul> <p>A fossil is evidence of past life. They provide evidence of the environment, activities, origins, and physical attributes of organisms of long ago. For example, a fossilized fish skeleton found in a desert indicates that the environment of the area in which the fossil was discovered was once covered by water. Scientists study fossils to learn about living organisms that no longer exist and the environment in which they existed.</p> <p>Fossils can be compared to each other as well as to living organisms. Some fossils will look very similar to living organisms of today while others look different.</p> <p><b>Prerequisites: SKL1. Obtain, evaluate, and communicate information about how organisms (alive and not alive) and non-living objects are grouped.</b></p> <p>a. Construct an explanation based on observations to recognize the differences between organisms and nonliving objects.</p> <p>b. Develop a model to represent how a set of organisms and nonliving objects are sorted into groups based on their attributes.</p> <p><b>Throughout this unit, the student should:</b></p> <ul style="list-style-type: none"> <li>• <i>Obtain, evaluate, and communicate</i> information on how fossils provide evidence of past organisms.</li> <li>• <i>Developed</i> a model to describe the sequence and conditions required for an organism to become fossilized.</li> </ul> <p><b>Throughout this unit, the teacher should:</b></p> <ul style="list-style-type: none"> <li>• <i>ensure</i> that students can communicate information on how fossils serve as evidence of past organisms.</li> <li>• <i>evaluate</i> the students' plans as they carry out investigations</li> <li>• <i>guide</i> constructed explanations about how fossils serve as past evidence.</li> </ul>				

- ensure students' fossil models can describe the conditions and sequence how fossils form over time.

[Teacher Notes](#)

Standards	<u>GSE</u>	<u>Science and Engineering Practices</u>	<u>Crosscutting Concepts</u>
	<p><b>S3E2. Obtain, evaluate, and communicate information on how fossils provide evidence of past organisms.</b></p> <p>a. Construct an argument from observations of fossils (authentic or reproductions) to communicate how they serve as evidence of past organisms and the environments in which they lived.</p> <p>b. Develop a model to describe the sequence and conditions required for an organism to become fossilized. (Clarification statement: Types of fossils (cast, mold, trace, and true) are not addressed in this standard.)</p>	<p><b>Ask Questions</b> 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.</p> <p><b>Plan and Carry Out Investigations</b> 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.</p> <p><b>Construct Explanations</b> The products of science are explanations and the products of engineering are solutions.</p> <p><b>Develop and Use Models</b> 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.</p> <p><b>Analyzing and Interpreting Data</b> Scientific investigations produce data that must be analyzed in order to derive meaning. Because data patterns and trends are not always obvious, scientists use a range of tools—including tabulation, graphical interpretation, visualization, and statistical analysis—to identify the significant features and patterns in the data. Scientists identify sources of error in the investigations and calculate the degree of certainty in the results. Modern technology makes the collection of large data sets much easier, providing secondary sources for analysis.</p>	<p><b>Patterns</b> Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them.</p> <p><b>Cause and Effect</b> Mechanism and explanation. Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.</p> <p><b>Systems and System Models</b> Defining the system under study—specifying its boundaries and making explicit a model of that system—provides tools for understanding and testing ideas that are applicable throughout science and engineering.</p> <p><b>Scale, proportion, and quantity:</b> In considering phenomena, it is critical to recognize what is relevant at different measures of size, time, and energy and to recognize how changes in scale, proportion, or quantity affect a system’s structure or performance.</p> <p><b>Energy and matter:</b> Flows, cycles, and conservation. Tracking fluxes of energy and matter into, out of, and within systems helps one understand the systems’ possibilities and limitations.</p>

NGSS Alignment	<a href="#">NGSS Alignment to Disciplinary Core Ideas</a>			
<b>The Phenomenon Protocol</b>				
<b>Anchoring Phenomena</b>			<b>Learning Targets</b>	
S3E2a:Trilobite fossils found in Northwest Georgia ■ <a href="#">Fossils.pdf</a> -			The students will be able to make observations of fossils( authentic or reproductions) to communicate how they serve as evidence of past organisms.	
S3E2a:Trilobite fossils found in Northwest Georgia ■ <a href="#">Fossils.pdf</a>			The student will be able to construct an argument from observations of fossils (authentic or reproductions) and communicate what type of environment from where it lived.	
S3E2a:Trilobite fossils found in Northwest Georgia ■ <a href="#">Fossils.pdf</a>			The students will be able to make observations of fossils to communicate how they serve as evidence of past organisms.	
S3E2b:Plant Vogtle Whale Fossil ■ <a href="#">Fossilized.pdf</a>			The students will be able to describe the sequence and conditions required for an organism to become fossilized.	
S3E2b:Plant Vogtle Whale Fossil ■ <a href="#">Fossilized.pdf</a>			The students will be able to develop a model to describe the sequence and conditions required for an organism to become fossilized.	
S3E2b:Plant Vogtle Whale Fossil ■ <a href="#">Fossilized.pdf</a>			The students will be able to describe fossils and communicate conditions about how they served as evidence of past organisms.	
<b>Weekly Lesson Tasks</b> Navigation: <a href="#">Week 1</a>   <a href="#">Week 2</a>   <a href="#">Week 3</a>   <a href="#">Week 4</a>   <a href="#">Week 5</a>   <a href="#">Week 6</a>   <a href="#">Return to top</a>   <a href="#">Assessment Prep</a>				
<b>Week 1</b> <a href="#">Standards</a>   <a href="#">Phenomenon</a>   <a href="#">Weekly Lessons</a>				
GSE:S3E2a	<b>Focused Concept:</b> How Fossils Provide Evidence of Past Organisms?			
<b>Learning Target:</b>	The students will construct an argument from observations of fossils (authentic or reproductions) to communicate how they serve as evidence of past organisms.			
<b>Lab Safety and Materials:</b>	■ <a href="#">General Safety Practices for the Elementary Science Classroom- TOC.docx.pdf</a>			
<b>SEP Teacher Tip: (Day 1 and 3)</b> To support students with the Science & Engineering Practices for this week, follow the guidance in this protocol: ■ <a href="#">Construct Explanations and Argue from Evidence.pdf</a>				
<b>Phenomenon:</b> <a href="#">Trilobite Fossils Found in the Northwest Georgia</a>			<b>Guiding Question:</b> <i>What evidence does a fossil provide for past organisms and environment?</i>	
<b>Day 1: Opening</b>	<b>Day 2 : Guided Practice/ Transition</b>	<b>Day 3: Independent Practice</b>	<b>Day 4: Independent Practice</b>	<b>Day 5: Assessment / Summary</b>
<b>Phenomenon Introduction</b> (5-7 minutes)	<b>Introduce the Guiding Question:</b>	<b>Review the Driving Question:</b>	<b>Text Annotation Strategy</b> (30-45 minutes)	<b>Review the Phenomenon</b> (5-7 minutes)

Show students the phenomenon card. [Fossils.pdf](#) and [view video](#)

### See, Think, Wonder

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)

U Demonstrate Lab: Savvas Page 292:

[W](#) What were this organism...

[Fossil Picture for Fossil ...](#)

*What was this organism and its environment like?*

### Materials:

Savvas U Demonstrate Lab Sheet:page 292  
Phenomenon Fossils Card  
Chart Paper  
Pencils  
Computer  
Fossil Picture

*What type of environment do you think the fossil lived?*

*How do you think the animal became fossilized?*

*What type of rock do you think the fossil was found in ?*

**\*\*TEACHER NOTE:**

If your students need more direction on this lab, use the following procedure.

1. Think about the different

(7 - 10 minutes)

*What evidence does a fossil provide for past organisms and the environment?*

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.

(3-5 teachers and students should focus on developing claim, evidence, and reasoning)

### Claim-Evidence-Reasoning (CER)

(10-12 minutes)

**Objective:** Expose students to claim-evidence-reasoning (CER) student samples below to review and understand their peers'

(1-2 minutes)

*What evidence does a fossil provide for past organisms and the environment?*

### Graphic Organizer

(2-3 minutes for students to access)

[W](#) ELS19\_NA\_03\_T7\_L2...

### Investigation

(35 - 40 minutes)

Uconnect Lab: Savvas: Page 269

What can a fossil footprint tell you about an animal?

[W](#) ELS19\_NA\_03\_T7\_L2...

**Objective:** Students examine animal footprints and record attributes about each set of fossil footprints.

### Materials:

Markers  
Meter Stick  
Rulers  
Fossils FootPrint sheet  
U-Investigation Lab sheet  
Lab Material Sheet

Fossils Footprint sheet:

[Fossil Footprints Sheet...](#)

Lab Material sheet:

[uInvestigate Lab Place...](#)

U investigate Lab Sheet:

[W](#) ELS19\_NA\_03\_T7\_L2...

**\*\*TEACHER NOTE:**

Students will most likely observe the size of the footprints first since this is the most obvious means of comparison. Students will need and use the student lab sheet

Have students read and annotate the following text:

[The Treasure Hunt](#)

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

### [3-5 Information Analysis Student Organizer \(editable\)](#)

[3-5 Information Analysis...](#)

During the teacher-led discussion, the teacher should ask the following questions:

*What is the story about?*

*What type of fossil did she find during her hunt?*

*Why do you think the passage is called The Treasure Hunt?*

**\*\*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 Words:

Fossils  
Trace Fossils  
Organisms  
Evidence  
Sedimentary Rocks  
Environment

### Vocabulary Strategy: (10-15 minutes)

#### Four Square

Provide students with the [graphic organizer \(editable\)](#) or [pdf handout](#), explaining its four

Allow students to review the initial observations and questions from see, think, wonder strategy on Day 1.

Have students review initial ideas. Ask students: *Have any of your ideas about the phenomenon changed? How?*

Have students review their initial questions. Ask students: *What questions generated on Day 1 can you answer, now? What are your answers to the questions?*

### Claim-Evidence-Reasoning (15 -25 minutes)

Students will write a response to the following driving question in the CER format.

*What evidence does a fossil provide for past organisms and the environment?*

Review the [claim-evidence-reasoning poster](#) with the students

**\*\*TEACHER NOTE:** Provide students with sentence starters by sharing on the board:

[3-5 Claim-Evidence-Rea...](#)

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,

- features of living things you know about.
- Identify features in the photo that can describe a pterodactyl.
  - Identify the ways a pterodactyl could use its features to survive.
  - Use the photo to imagine how a pterodactyl looked when it was alive.
  - Use the bones in the photo and the living things you know about to help you draw a living pterodactyl.

**Assessment Prep Activity:**

Following the task, click the link above. Have students practice applying their knowledge to an assessment question.

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** (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*

for: What can fossil footprints tell you about an animal Encourage them to infer that there are different types of fossils refer to the below list using the link.

**Types of Fossils**

*What can you learn from fossil footprints?*

*What type of animal do you think left the footprints?*

*Can you tell from the footprints the animal size?*

**Assessment Prep Activity:**

Following the task, click the link above. Have students practice applying their knowledge to an assessment question.

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.

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**

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)

[3-5 Student Writing Template \(editable\)](#)

[3-5 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 your 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?*

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-Reasonin...

**\*\*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 for Learning (10-15 minutes)**  
 ■ CCPS 3rd Grade Fossils ...

Illuminate has the assessment for  
 CCPS 3rd Grade Fossils  
 Unit 2 Week 1 Assessment

**Week 2**

[Standards](#) | [Phenomenon](#) | [Weekly Lessons](#)

**GSE:S3E2a**

**Focused Concept:** *What can dinosaur footprints tell us about the past?*

**Learning Target:**

The student will construct an argument from observations of fossils (authentic or reproductions) to communicate the environments in which they lived.

**Lab Safety and Materials:**

■ **General Safety Practices for the Elementary Science Classroom- TOC.docx.pdf**

**SEP Teacher Tip:(Day 1 and 3)**

To support students with the Science & Engineering Practices for this week, follow the guidance in this protocol: ■ **Construct Explanations and Argue from Evidence.pdf**

**Phenomenon:** [Trilobite Fossils Found in the Northwest Georgia](#)

Video Link: [Collecting Trilobites from Georgia! \(Yes, Trilobites in Georgia, no kidding!\)](#)

■ **Fossils.pdf**

**DQ:** *How do fossils help us learn about animals and plants that lived long ago and their environments?*

**Day 1: Opening**

**Day 2 : Guided Practice/  
Transition**

**Day 3: Independent Practice**

**Day 4: Independent Practice**

**Day 5: Assessment / Summary**

**Phenomenon:****(5-7 minutes)**

Show students the **phenomenon video below.**

**Phenomenon Video link:**

▶ **Historic drought reveals ...**

**See, Think, Wonder**

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)**

📁 **Science-3rd-phenomeno...**

📖 **Dinosaurs Tracks Picture...**

📄 **Fossil Footprints Sheet.pdf**

TSW will construct an argument based on observations to communicate how fossils provide evidence of past organisms.

They will view both fossils (and replicas) as well as “visiting” various locations where tracks have been found from the pictures of fossil tracks. Start the lesson by engaging students in observing a picture of dinosaur fossils in rock such as those in the resources above. Start a list of notices (what do you notice and wonder about what they see.

An overarching guiding question could be:

*What do those fossil tracks can tell us about past organisms?*

**Introduce the Guiding****Question:****(7 - 10 minutes)**

Have students review the driving question

*How do fossils help us learn about animals and plants that lived long ago and their environments?*

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.

**(3-5 teachers and students should focus on developing**

**Review the Driving Question:****(1-2 minutes)**

*How do fossils help us learn about animals and plants that lived long ago and their environments?*

**Graphic Organizer and Materials****(2-3 minutes for students to access)****Investigation****(35 - 40 minutes)**

Students will complete the inquiry reading Lab from Inspire: Third Grade Science Literacy Lesson /Fossil Sort

📁 Science-3rd-Literacy-Pla...

📁 Science-3rd-Literacy-Pla...

**Objective:** Students will complete the above reading inquiry lab fossil sort .

**Materials:**

Computer  
Pencil  
Fossil Powerpoint  
Fossils observation Sort Sheet

**\*\*TEACHER NOTES:**

In this lab, the teacher will need to assist students with the setup of this activity. Use the following for setup: Ensure students have access to the powerpoint slide presentation and Fossil observation sheet through email, canvas or print out the slides for each group. allow students to work with a partner and observe the fossils

**Text Annotation Strategy****(30-45 minutes)**

Have students read and annotate the following text:

*All About Fossil Evidence*  
Savvas Level Reader  
[https://media.pk12ls.com/curriculum/science/Leveled\\_Readers/elevate\\_sci\\_2019\\_2020/grs3\\_4\\_5/LR\\_G3\\_AL\\_NA\\_All\\_About\\_Fossil\\_Evidence/html5forpc.html](https://media.pk12ls.com/curriculum/science/Leveled_Readers/elevate_sci_2019_2020/grs3_4_5/LR_G3_AL_NA_All_About_Fossil_Evidence/html5forpc.html)

The teacher should facilitate the following process. Have the students follow the text protocol facilitation directions provided in the following strategy:

📁 3-5 Text Annotation Prot...

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

**3-5 Information Analysis Student Organizer (editable)**

📁 3-5 Information Analysis...

During the teacher-led discussion, the teacher should ask the following questions:

*What are fossils?  
What is the fossilization process?  
What do dinosaurs or any fossils tell us about their environment?*

**\*\*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

**Review the Phenomenon****(5-7 minutes)**

Allow students to review the initial observations and questions from see, think, wonder strategy on Day 1.

Have students review initial ideas. Ask students: *Have any of your ideas about the phenomenon changed? How?*

Have students review their initial questions. Ask students: *What questions generated on Day 1 can you answer, now? What are your answers to the questions?*

**Claim-Evidence-Reasoning (15 -25 minutes)**

Students will write a response to the following driving question in the CER format.

*How do fossils help us learn about animals and plants that lived long ago and their environments?*

Review the [claim-evidence-reasoning poster](#) with the students

**\*\*TEACHER NOTE:** Provide students with sentence starters by sharing on the board:

📁 3-5 Claim-Evidence-Rea...

Have students write their claim-evidence-reasoning

**writing a claim**

Have students develop a claim which is their answer to the driving question, claim.

**\*\*TEACHER NOTE:**

Students may need help establishing the criteria they'll use to observe the picture. Ask guiding questions to help students make the connection between their track observations.

**Assessment Prep Activity:**

Following the task, click the link above. Have students practice applying their knowledge to an assessment question.

**claim, evidence, and reasoning)**

**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. [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)

slide presentation.

After fossil sort investigation, the teacher should ask :

*Does fossil physical features help you determine the difference between land and water fossils?*

**Assessment Prep Activity:**

Following the task, click the link above. Have students practice applying their knowledge to an assessment question.

used for transitioning.

**Vocabulary Strategy (10-15 minutes)**

**Vocabulary Words:**

Fossils Tracks  
Environment  
Fossil  
Authentic  
Reproduction

**Vocabulary Strategy:**

**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

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**

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)

[3-5 Student Writing Template \(editable\)](#)  
[3-5 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*

	<p>■ Claim-Evidence-Reasoni... (PDF)</p> <p>1. Identify the student's claim in the sample and have the teacher or students write their observations or questions.</p> <p>2. Identify the student's evidence in the sample and have the teacher or students write their observations or questions.</p> <p>3. Identify the student's reasoning in the sample and have the teacher or students write their observations or questions.</p> <p>Ask the following questions to students as they analyze the student samples:</p> <p>■ Claim-Evidence-Reasoni...</p> <p><b>**Teacher Note:</b> 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.</p>		<p>other groups.</p>	<p><i>another writer on the topic? What would you like to learn more about? Why?</i></p> <p>Students should write in the CER format to answer the guiding question based on their learning experiences from the phenomenon task, inquiry activity, lab investigation and the text source.</p> <p><b>Assessment for Learning (10-15 minutes)</b></p> <p>■ CCPS 3rd Grade Fossils ...</p> <p>■ CCPS Science Fossil We...</p> <p><b>Illuminate test for Week 2 at CCPS 3rd Science Unit 2 Fossils Week 2 Assessment</b></p>
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**Week 3**

[Standards](#) | [Phenomenon](#) | [Weekly Lessons](#)

<b>GSE:S3E2b</b>	<b>Focused Concept:</b> Develop a model to describe the sequence and conditions required for an organism to become fossilized.
<b>Learning Target:</b>	The students will construct an argument from observations of fossils (authentic or reproductions) to communicate the environments in which they lived.
<b>Lab Safety and Materials:</b>	■ <b>General Safety Practices for the Elementary Science Classroom- TOC.docx.pdf</b>

**SEP Teacher Tip:(Day 1 and 3)**

To support students with the Science & Engineering Practices for this week, follow the guidance in this protocol: [Develop and Use Models.pdf](#)

**Phenomenon:** [Trilobite Fossils Found in the Northwest Georgia](#)

[Fossilized.pdf](#)

**DQ:** *How Does an organism become fossilized?*

Day 1: Opening	Day 2 : Guided Practice/ Transition	Day 3: Independent Practice	Day 4: Independent Practice	Day 5: Assessment / Summary
<p><b>Anchoring Phenomenon:</b> (5-7 minutes) Show students the phenomenon card <a href="#">Fossilized.pdf</a> and <a href="#">view website</a> Use the <a href="#">see, think wonder strategy</a> to guide student thinking.</p> <p><b>**TEACHER NOTE**</b> 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.</p> <p><b>Inquiry Activity</b> (10-15 minutes) <b>Saavus : The Stories Fossil Tell(Virtual Exploration) pgs 262-265</b></p> <p><b>**TEACHER NOTE:</b> Prior to students engaging in the Virtual Exploration activity the teacher will review the instructions. In step 1, I see that the body of a dead fish is sinking to the ocean floor. In step 2, the body is covered with layers of mud or sand.</p>	<p><b>Introduce the Driving Question:</b> (7 - 10 minutes) <i>How Does an organism become fossilized?</i></p> <p>Use the strategy to support students with making connections and understanding the driving question (DQ).</p> <p><a href="#">Visualizing the Driving Question</a></p> <p>Click here to access <a href="#">question words reference chart</a></p> <p>The process can be recorded on chart paper with the students or the teacher can complete the graphic organizer.</p> <p>Be sure to create a reference for students to have throughout the week.</p> <p><b>**TEACHER NOTE::</b> 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.</p>	<p><b>Review the Driving Question:</b> (1-2 minutes) <i>How Does an organism become fossilized?</i></p> <p><b>Graphic Organizers</b> (2-3 minutes for students to access) <i>How Can You Find Whales in the Desert?</i></p> <ul style="list-style-type: none"> <li><a href="#">Fossil Dig worksheet Fos...</a></li> <li><a href="#">Mystery Fossils Pictures ...</a></li> <li><a href="#">Fossils Dig Printout -Fos...</a></li> </ul> <p><b>Investigation</b> (35 - 40 minutes) <a href="#">Where can you find whales in a desert?</a> <i>How Can You Find Whales in the Desert?</i> Mystery Science Lesson 1: Students will engage with the interactive Mystery Science for 30-40 minutes. Students will. Follow directions from the <i>How Can You Find Whales in the Desert Investigation Lab</i></p> <p><b>Materials:</b> Scissors 3 Dot stickers per student or Tape Fossil Dig Worksheet Fossil Dig Printout Mystery Fossil printout Glue Sticks pencil</p>	<p><b>Text Annotation Strategy</b> (30-45 minutes) Have students read and annotate the following text. There will be two text to compare this week: <b>Readworks: Learning from Dinosaurs Fossils AND Fossils and Dinosaurs: The Age of Dinosaurs</b></p> <ul style="list-style-type: none"> <li><a href="#">Fossils and Dinosaurs-T...</a></li> <li><a href="#">Fossils- Dinosaurs - The ...</a></li> </ul> <p>The teacher should facilitate the following process. Have the students follow the text protocol facilitation directions provided in the following strategy:</p> <ul style="list-style-type: none"> <li><a href="#">3-5 Text Annotation Prot...</a></li> </ul> <p>Students should complete the following student handout as they work through the text annotation protocol:</p> <p><a href="#">3-5 Information Analysis Student Organizer (editable)</a></p> <ul style="list-style-type: none"> <li><a href="#">3-5 Information Analysis...</a></li> </ul> <p>During the teacher-led discussion, the teacher should ask the following questions: <i>Why are fossils so important?</i> <i>What can we learn from fossils?</i></p> <p><i>What are people who study</i></p>	<p><b>Review the Phenomenon</b> (5-7 minutes)</p> <p>Allow students to review the initial observations and questions from see, think, wonder strategy on Day 1.</p> <p>Have students review initial ideas. Ask students: <i>Have any of your ideas about the phenomenon changed? How?</i></p> <p>Have students review their initial questions. Ask students: <i>What questions generated on Day 1 can you answer, now? What are your answers to the questions?</i></p> <p><b>Claim-Evidence-Reasoning</b> (15 -25 minutes) Students will write a response to the following driving question in the CER format.</p> <p><i>How Does an organism become fossilized?</i></p> <p>Review the <a href="#">claim-evidence-reasoning poster</a> with the students</p> <p><b>**TEACHER NOTE:</b> Provide students with sentence starters by sharing on the board:</p> <ul style="list-style-type: none"> <li><a href="#">3-5 Claim-Evidence-Rea...</a></li> </ul>

In step 3, flowing water dissolves the remains of the fish, leaving an empty space called a fossil mold.

In step 4, minerals enter the mold and harden over many years, creating a cast fossil.

In step 5, a fossil of the fish can be found in rock after millions of years.

*How does a fossil form?*

*What happens when an insect is found in amber?*

*What are tar pits? Can animals be fossilized in Tar?*

*What does extinction mean?*

#### Assessment Prep Activity:

Following the task, click the link above. Have students practice applying their knowledge to an assessment question.

(3-5 teachers and students should focus on developing claim, evidence, and reasoning)

#### **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.

#### **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:

*What kind of animal do you think each fossil was when it was alive?*

*Why are there two different layers of fossils?*

*Do you think the layers are formed from oldest to youngest fossils?*

#### **\*\*TEACHER NOTE:**

Mystery Science Lesson 1: All materials should be copied to canvas or downloaded and copied for each student or groups. Encourage students to pay attention to each inquiry phase of the activity, in order to move through each activity smoothly.

The activity will be completed in the following order:  
Exploration 5 minutes  
Hands On Activity 30 minutes  
Wrap up lesson 10 minutes

#### Assessment Prep Activity:

Following the task, click the link above. Have students practice applying their knowledge to an assessment question.

*dinosaurs called?*

**\*\*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 Words:**

Fossil  
Fossilization  
environment  
sequence  
extinct

#### **Vocabulary Strategy:**

#### **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.

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

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)

[3-5 Student Writing Template \(editable\)](#)

[3-5 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'

[Claim-Evidence-Reasoning Record Observations Document](#)  
(google doc)

■ Claim-Evidence-Reasoni...  
(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-Reasoni...

**\*\*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.

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.

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?*

Students should write in the CER format to answer the guiding question based on their learning experiences from the phenomenon task, inquiry activity, lab investigation and the text source.

**Assessment for Learning:**

**(10-15 minutes)**

**There is a week 3 Illuminate assessment for Fossils**

■ CCPS 3rd Science Fossil...

**Where can you find whales in a desert assessment link?**  
<https://mysteryscience.com/docs/80>

#### Week 4

[Standards](#) | [Phenomenon](#) | [Weekly Lessons](#)

**GSE:S3E2b**

**Focused Concept:** Describe the sequence and conditions required for an organism to become fossilized.

**Learning Target:**

The students will describe the sequence and conditions required for an organism to become fossilized.

**Lab Safety and Materials:**

■ [General Safety Practices for the Elementary Science Classroom- TOC.docx.pdf](#)

**SEP Teacher Tip:(Day 1 and 3)**

To support students with the Science & Engineering Practices for this week, follow the guidance in this protocol: ■ [Develop and Use Models.pdf](#)

**Phenomenon: Plant Vogtle Whale Fossil** ■ [Fossilized.pdf](#)

**DQ:** *How does an organism become fossilized?*

Day 1: Opening	Day 2 : Guided Practice/ Transition	Day 3: Independent Practice	Day 4: Independent Practice	Day 5: Assessment / Summary
<p><b>Phenomenon Introduction (5-7 minutes)</b> Show students the phenomenon card ■ <a href="#">Fossilized.pdf</a> and <a href="#">view website</a> <a href="#">See, Think, Wonder</a> 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.</p> <p><b>Inquiry Activity (10-15 minutes)</b> Students will complete the <b>Interactivity: Exploring Fossils</b> (Synthesize Video Activity pg 265 Lesson 1)</p> <p><i>What are the steps to the fossilization process stated in the interactivity?</i> <i>Chart their responses on chart paper.</i></p> <p>Students will answer the Inquiry activity two questions: <i>What is a fossil?</i> <i>Complete The Explain Question from the Video inquiry.</i></p> <p><b>Materials</b></p>	<p><b>Introduce the Driving Question: (7 - 10 minutes)</b> <i>How does an organism become fossilized?</i></p> <p>Use the strategy to support students with making connections and understanding the driving question (DQ).</p> <p><a href="#">Visualizing the Driving Question</a></p> <p>Click here to access <a href="#">question words reference chart</a></p> <p>The process can be recorded on chart paper with the students or the teacher can complete the graphic organizer.</p> <p>Be sure to create a reference for students to have throughout the week. <b>**Teacher Note:</b> 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.</p>	<p><b>Review the Driving Question: (1-2 minutes)</b> <i>How Does an organism become fossilized?</i></p> <p><b>Graphic Organizer (2-3 minutes for students to access)</b></p> <p><a href="#">W</a> How do minerals help fo...</p> <p><b>Materials</b> safety goggles plastic gloves sponge salt warm water clear cup spoon Suggested materials: <i>saucer</i></p> <p><b>Investigation (35 - 40 minutes)</b> uInvestigate Lab: Lesson 1 page 259 Link: <a href="#">W</a> ELS19_NA_03_T7_L1_...</p> <p><b>Objective:</b> Students will plan and carry out an investigation to understand how minerals contribute to fossil formation.</p> <p><b>**TEACHER NOTE</b> Students may not have the</p>	<p><b>Text Annotation Strategy (30-45 minutes)</b> Have students read and annotate the following text: The text for this week's lesson can be found at <a href="#">Readworks...</a> ■ <a href="#">ReadingScience-Lone St...</a></p> <p>Students should complete the following student handout as they work through the text annotation protocol:</p> <p>■ <a href="#">3-5 Text Annotation Prot...</a></p> <p><a href="#">3-5 Information Analysis Student Organizer (editable)</a> ■ <a href="#">3-5 Information Analysis...</a></p> <p>During the teacher-led discussion, the teacher should ask the following questions:</p> <p><i>What caused the tracks to fossilize?</i></p> <p><i>What are scientists who study fossils and why are fossils important to these types of scientists?</i></p> <p><i>Where would you most likely find fossils? Why?</i></p> <p><b>**TEACHER NOTE:</b> Read and review the annotation protocol</p>	<p><b>Review the Phenomenon (5-7 minutes)</b></p> <p>Allow students to review the initial observations and questions from see, think, wonder strategy on Day 1.</p> <p>Have students review initial ideas. Ask students: <i>Have any of your ideas about the phenomenon changed? How?</i></p> <p>Have students review their initial questions. Ask students: <i>What questions generated on Day 1 can you answer, now? What are your answers to the questions?</i></p> <p><b>Claim-Evidence-Reasoning (15 -25 minutes)</b> Students will write a response to the following driving question in the CER format.</p> <p><b>How Does an organism become fossilized?</b></p> <p>Review the <a href="#">claim-evidence-reasoning poster</a> with the students</p> <p><b>**TEACHER NOTE:</b> Provide students with sentence starters by sharing on the board:</p>

Computer  
Savvas Page 265 Video activity

**\*\*TEACHER NOTE:**

Have students view the interactivity and record their understanding in the SAVVAS Realize platform

[Assessment Prep Activity:](#)

Following the task, click the link above. Have students practice applying their knowledge to an assessment question.

(3-5 teachers and students should focus on developing claim, evidence, and reasoning)

**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.

[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:

background knowledge to create steps from scratch or original thought. Consider providing the following steps to students to place in any order. Allow students an opportunity to test multiple times.

Have students record their understanding or observations in their student consumable (p259) or handout. Allow students time to work in groups to develop the order of steps if they are unable to generate steps from scratch. The following steps will either need to be pre-cut and disseminated or students can order the steps on a google slide. Have students record their understanding or observations in their student consumable or handout.

**Options for student scaffolds**

[How do minerals form fossils? Inquiry Activity Scaffold](#)

■ How do minerals help fo...

The teacher will ask the following questions:

*What does each part of your model represent?  
How does this model represent what happens to some fossils?  
What are some reasons this process may not happen to all fossils?*

[Assessment Prep Activity:](#)

Following the task, click the link above. Have students practice applying their knowledge to an assessment question.

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 Words:**

Fossil  
Organisms  
Past  
Sedimentary Rocks  
Environment  
Evidence

**Vocabulary Strategy:**

**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

■ 3-5 Claim-Evidence-Rea...

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](#)

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)

[3-5 Student Writing Template \(editable\)](#)

[3-5 Student Writing Template \(pdf\)](#)

**\*\*TEACHER NOTE:** Have students review the student sample(s) of claim-evidence-reasoning on Day 2. Have students compare

[Claim-Evidence-Reasoning Record Observations Document](#)  
(google doc)

■ Claim-Evidence-Reasoni...  
(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-Reasoni...

**\*\*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.

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?*

Students should write in the CER format to answer the guiding question based on their learning experiences from the phenomenon task, inquiry activity, lab investigation and the text source.

**Assessment for Learning (10-15 minutes)**

Teacher Copy

■ CCPS 3rd Grade Fossils ...

Student Copy

■ CCPS 3rd Grade Fossils ...

**Assessment can also be found in Illuminate**

**Illuminate test for Week 4 at CCPS 3rd Science Unit 2 Fossils Week 4 Assessment**

### Week 5

[Standards](#) | [Phenomenon](#) | [Weekly Lessons](#)

**GSE:S3E2ab**

**Focused Concept:** develop a model to describe the sequence and conditions required for an organism to become fossilized.

**Learning Target:**

The students will develop a model to describe the sequence and conditions required for an organism to become fossilized.

**Lab Safety:**

■ [General Safety Practices for the Elementary Science Classroom- TOC.docx.pdf](#)

**SEP Teacher Tip:(Day 1 and 3)**

To support students with the Science & Engineering Practices for this week, follow the guidance in this protocol: ■ [Develop and Use Models.pdf](#)

**Phenomenon:** ■ [Fossilized.pdf](#)

**DQ:** *How does an organism become fossilized?*

Day 1: Opening	Day 2 : Guided Practice/ Transition	Day 3: Independent Practice	Day 4: Independent Practice	Day 5: Assessment / Summary
<p><b>Phenomenon Introduction (5-7 minutes)</b> Show students the phenomenon card: <b>Plant Vogtle Whale Fossil</b> ■ <a href="#">Fossilized.pdf</a> and <a href="#">view website</a></p> <p>Use the <a href="#">see, think wonder strategy</a> to guide student thinking.</p> <p>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.</p> <p><b>Inquiry Activity: (10-15 minutes)</b> Students will develop a model to describe the sequence and conditions required for an organism to become fossilized.</p> <p><b>Objective:</b> Students will create fossil models. ■ <a href="#">Make your own fossils S...</a></p> <p><b>Materials:</b> Shells</p>	<p><b>Introduce the Driving Question: (7 - 10 minutes)</b> Have students review the driving question: <i>How does an organism become fossilized?</i></p> <p>Use the strategy to support students with making connections and understanding the driving question (DQ).</p> <p><a href="#">Visualizing the Driving Question</a></p> <p>Click here to access <a href="#">question words reference chart</a></p> <p>The process can be recorded on chart paper with the students or the teacher can complete the graphic organizer.</p> <p>Be sure to create a reference for students to have throughout the week. <b>**Teacher Note:</b> 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</p>	<p><b>Review the Driving Question: (1-2 minutes)</b> <i>How does an organism become fossilized?</i></p> <p><b>Graphic Organizer (2-3 minutes for students to access)</b></p> <p>Fossil Dig InquirySheet: ■ <a href="#">Fossil Dig Data Sheet.pdf</a></p> <p><b>Investigation (35 - 40 minutes)</b> <b>GaDoe Inspire Science Fossil Dig</b> Have the students write their name on the bottom of their fossil with a permanent marker, watercolor their fossil model, and then allow the model to dry overnight.</p> <p><b>Making an Archeological Dig (Connections to Engineering, Technology, and Applications of Science)</b> Place the fossils into the plastic container and cover them with sand or rice before the students arrive for class. Be sure to keep a record of which fossil is in which section, so that you can grade the activity sheets later. As class starts, explain that scientists that look for fossils</p>	<p><b>Text Annotation Strategy (30-45 minutes)</b> Have students read and annotate the following text</p> <p>The text for this week's lesson can be found on <b>Epic Readers: Figuring Out Fossils by Sally M.Waker</b> <a href="https://www.getepic.com/aprd/6019">https://www.getepic.com/aprd/6019</a></p> <p>Students should complete the following student handout as they work through the text annotation protocol:</p> <p>■ <a href="#">3-5 Text Annotation Prot...</a> <a href="#">3-5 Information Analysis Student Organizer (editable)</a> ■ <a href="#">3-5 Information Analysis...</a></p> <p>During the teacher-led discussion, the teacher should ask the following questions: <i>What does the word ancient mean?</i> <i>Can Animal tracks be fossilized?</i> <i>What causes bones to turn into stone?</i> <b>**TEACHER NOTE:</b> Read and review the annotation protocol prior to providing this lesson to students. Students will need to be placed in groups or have an</p>	<p><b>Review the Phenomenon (5-7 minutes)</b></p> <p>Allow students to review the initial observations and questions from see, think, wonder strategy on Day 1.</p> <p>Have students review initial ideas. Ask students: <i>Have any of your ideas about the phenomenon changed? How?</i></p> <p>Have students review their initial questions. Ask students: <i>What questions generated on Day 1 can you answer, now? What are your answers to the questions?</i></p> <p><b>Claim-Evidence-Reasoning (15 -25 minutes)</b> Students will write a response to the following driving question in the CER format. <i>How does an organism become fossilized?</i></p> <p>Review the <a href="#">claim-evidence-reasoning poster</a> with the students</p> <p><b>**TEACHER NOTE:</b> Provide students with sentence starters by sharing on the board:</p>

acorn  
small dinosaur toy  
1 cup Flour  
1 Cup Salt  
¾ cup water small bowl  
Marker

**\*\*TEACHER NOTE:**

In this lab, The teacher should provide students with the opportunity to work with their peers. Provide students with the opportunity to summarize their experiences and draw conclusions through a closing activity or discuss

**How does this activity represent how fossils are formed?**

**What does the flour and salt represent in the activity?**

**Assessment Prep Activity:**

Following the task, click the link above. Have students practice applying their knowledge to an assessment question.

strategy to develop a response in the claim-evidence-reasoning format.

**(3-5 teachers and students should focus on developing claim, evidence, and reasoning)**

**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.

**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

are called ‘paleontologists’. Paleontologists keep a careful record of where they find their fossils. Explain to the students that they are going to make a grid and keep data about their fossil dig, too.

Tape four pieces of string across the width of the plastic container, at equal distances to form five rectangular sections. Tape four pieces of string across the length of the plastic container to form small squares. Label each square with an index card. The squares across the top will be A, B, C, D and E. The squares down the side will be 1, 2, 3, 4 and 5. (see illustration)

Pass out the **Fossil Dig Data Sheet**.

■ [Fossil Dig Data Sheet.pdf](#)

Allow one student at a time to explore one section of the ‘dig’ with a soft paint brush. When a student finds one fossil, the brush should be handed to another student to explore. All students should record what is found in each section of the dig, just like a real paleontologist. At the end of the fossil dig, the students can fold the data sheet and glue it into their Science Journal. Activity sheets can be graded based on the percentage of fossils recorded in the correct section of the recording sheet.

**Materials:**

Fossils Dig Sheet  
Yarn or string  
small soft paint brush  
marker  
Plastic Container

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

**Vocabulary Strategy**

**Vocabulary Words:**

Sediments  
Extinct  
ancient  
fossilization  
**(10-15 minutes)**

**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.

■ **3-5 Claim-Evidence-Reasoning**

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**

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)

[3-5 Student Writing Template \(editable\)](#)

[3-5 Student Writing Template \(pdf\)](#)

**\*\*TEACHER NOTE:** Have students review the student sample(s) of claim-evidence-reasoning on Day 2. Have students compare

complete the following analysis protocol:

[Claim-Evidence-Reasoning Record Observations Document](#) (google doc)

■ Claim-Evidence-Reasoni... (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-Reasoni...

**\*\*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.

sand or rice  
Different types of small fossils

**\*\*Teacher Note:** Encourage students to pay attention to the lab inquiry directions. TTW puts instruction in Canvas or using a word document for each group to complete the lab.

*What does the string represent in the inquiry activity?*

*What is the inquiry activity teaching you about?*

*Why did you make different sections for your fossil dig activity?*

**Assessment Prep Activity:** Following the task, click the link above. Have students practice applying their knowledge to an assessment question.

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?*

Students should write in the CER format to answer the guiding question based on their learning experiences from the phenomenon task, inquiry activity, lab investigation and the text source.

**Assessment for Learning (10-15 minutes)**

Student Copy

■ CCPS 3rd Science Fossil...

Teacher Copy

■ CCPS 3rd Science Fossil...

**Illuminate test for Week 5 at CCPS 3rd Science Unit 2 Fossils Week 5 Assessment**

## Week 6

[Standards](#) | [Phenomenon](#) | [Weekly Lessons](#)

GSE:S3E2ab

**Focused Concept:** Describe the sequence and conditions required for an organism to become fossilized.

<b>Learning Target:</b>	The students will develop a model to describe the sequence and conditions required for an organism to become fossilized.			
<b>Lab Safety:</b>	<ul style="list-style-type: none"> <li>General Safety Practices for the Elementary Science Classroom- TOC.docx.pdf</li> </ul>			
<b>SEP Teacher Tip:(Day 1 and 3)</b> To support students with the Science & Engineering Practices for this week, follow the guidance in this protocol: <ul style="list-style-type: none"> <li>Develop and Use Models.pdf</li> </ul>				
<b>Phenomenon:Plant Vogtle Whale Fossil</b> <ul style="list-style-type: none"> <li>Fossilized.pdf</li> </ul>		<b>DQ:</b> <i>How Does an organism become fossilized?</i>		
<b>Day 1: Opening</b>	<b>Day 2 : Guided Practice/ Transition</b>	<b>Day 3: Independent Practice</b>	<b>Day 4: Independent Practice</b>	<b>Day 5: Assessment / Summary</b>
<p><b>Phenomenon (5-7 minutes)</b></p> <ul style="list-style-type: none"> <li>Fossilized.pdf Show students the phenomenon card.</li> <li>Fossils.pdf and <a href="#">view video</a></li> </ul> <p><b>See, Think, Wonder</b></p> <p>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.</p> <p><b>Inquiry Activity: (10-15 minutes)</b></p> <p><b>Mystery Science:Exploration:</b></p> <p>DISCUSS:How do you think scientists figure out what dinosaurs looked like?</p> <p><b>Graphic Organizers:</b></p> <ul style="list-style-type: none"> <li>Extra Evidence Bone Car...</li> <li>Modern Bones Card A-B...</li> </ul>	<p><b>Introduce the Guiding Question: (7 - 10 minutes)</b></p> <p>Have students review the driving question:</p> <p><i>How Does an organism become fossilized?</i></p> <p>Use the strategy to support students with making connections and understanding the driving question (DQ).</p> <p><a href="#">Visualizing the Driving Question</a></p> <p>Click here to access <a href="#">question words reference chart</a></p> <p>The process can be recorded on chart paper with the students or the teacher can complete the graphic organizer.</p> <p>Be sure to create a reference for students to have throughout the week.</p> <p><b>**Teacher Note:</b> Students should not answer the driving question at this time. Students will need to collect information, data and understanding from the</p>	<p><b>Review the Driving Question: (1-2 minutes)</b></p> <p><i>How Does an organism become fossilized?</i></p> <p><b>Graphic Organizer (2-3 minutes for students to access)</b></p> <ul style="list-style-type: none"> <li>Guided Practice Guided ...</li> <li>GuidedPractice-Fossil Or...</li> </ul> <p><b>Investigation (35 - 40 minutes)</b></p> <p>Students will create different fossils with their groups and then stack them in a randomized order for another group to dig up and make conclusions about the environment and order of the fossils.</p> <p><b>Materials:</b></p> <p>Fossil Order Handout (per student)</p> <p>Small toy animals (3 different ones per group: fish, frog, lizard, snake, etc.)</p> <p>Metal spoon (per student)</p> <p>2 Cups clay-based cat litter (per student)</p> <p>1 Cup water (per student)</p> <p>Small, plastic bowl (per student)</p>	<p><b>Text Annotation Strategy (30-45 minutes)</b></p> <p>Have students read and annotate the following text: The text for this week's lesson can be found in <b>Fossils by Grace Hansen</b></p> <p>Epic:<a href="https://www.getepic.com/app/read/25699">https://www.getepic.com/app/read/25699</a></p> <p>During the teacher-led discussion, the teacher should ask the following questions:</p> <p><i>What is the process of fossilization?</i></p> <p><i>How long does it take for an animal to become a fossil?</i></p> <p><i>Do all animals and plants turn into fossils?</i></p> <ul style="list-style-type: none"> <li>3-5 Text Annotation Prot...</li> </ul> <p><a href="#">3-5 Information Analysis Student Organizer (editable)</a></p> <ul style="list-style-type: none"> <li>3-5 Information Analysis...</li> </ul> <p>View the following facilitation directions:</p> <p><b>**Teacher Note:</b></p> <p>In groups, provide each group with a small portion of the</p>	<p><b>Review the Phenomenon (5-7 minutes)</b></p> <p>Allow students to review the initial observations and questions from see, think, wonder strategy on Day 1.</p> <p>Have students review initial ideas. Ask students: <i>Have any of your ideas about the phenomenon changed? How?</i></p> <p>Have students review their initial questions. Ask students: <i>What questions generated on Day 1 can you answer, now? What are your answers to the questions?</i></p> <p><b>Claim-Evidence-Reasoning (15 -25 minutes)</b></p> <p>Students will write a response to the following driving question in the CER format.</p> <p><b>How Does an organism become fossilized?</b></p> <p>Review the <a href="#">claim-evidence-reasoning poster</a> with the students</p>

## Dinosaur Decision Work...

**Objective:** Explore Fossils in a simulated 3D environment under the Animals through time unit.

Mystery Science Link [How do we know what dinosaurs looked like?](#)

### Materials:

Mystery Science Exploration Lesson  
Computer  
Scissors  
Modern Animal Bone cards  
Dinosaur Decision Worksheet  
Extra evidence Cards

**\*\*Teacher Note:** Follow the simulation activity instructions. Allow students to work in pairs. Ensure the cards and materials are prepared and printed prior to activity. Cards are used in step 16. This activity involves students annotating illustrations of animal bones. Students are asked to write observations and circle patterns on their Animal Bone Cards. Prior to beginning the activity, it may be helpful to have a discussion about how circling similarities and writing notes on diagrams can be a useful way to compare and contrast multiple images. The activity will be completed in the following timeframes:

**Exploration-10 minutes**

**Hands on activity- 25 minutes**

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

(3-5 teachers and students should focus on developing claim, evidence, and reasoning)

### 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.

### Student Sample

The teacher or students should read over student sample(s) to analyze

Small, plastic cup (per group)  
Paper towel (per student)  
Pencil (per student)

*What organism would be the oldest or the youngest?*

*What do you think its environment would look like?*

*What do you think would be available for the animal in the top layer to eat?*

### \*\*Teacher Note:

If students need additional guidance, have them start with the age of the layers (older layers are lower). Once students begin this process, have them think about whether the organism was likely on land or in the water and what the environment must have been like during its lifetime. It may be a good idea for the teacher to try this activity before having students complete it to find the proper cat litter-to-water ratio for whatever brand is available.

### Assessment Prep Activity:

Following the task, click the link above. Have students practice applying their knowledge to an assessment question.

text or an entire reading passage. The amount of text should be considered student reading levels.

Have the students in the group read independently for five - seven minutes.

After students read individually, allow five to seven minutes to discuss information read in their groups.

Encourage students to take notes or draw pictures in the [provided graphic organizer](#).

Students should highlight, underline, circle and or box key phrases, vocabulary or important concepts if working on physical text or online notation tools.

When students have completed their discussion, you will need to allow the students to switch groups to meet other peers that were not initially in their group. Students will share their knowledge with another group of students for 7 - 10 minutes. Students will compare notes from their initial groups.

[See diagram of example](#)

### Vocabulary Words:

Fossil  
evidence  
sequence  
mineralization

**Vocabulary Strategy:**  
(10-15 minutes)

**\*\*Teacher Note:** Provide students with sentence starters by sharing on the board:

■ 3-5 Claim-Evidence-Rea...

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

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)

[3-5 Student Writing Template \(editable\)](#)  
[3-5 Student Writing Template \(pdf\)](#)

**\*\*Teacher Note:** Have students review the student sample(s) of claim-evidence-reasoning on

## Wrap up-10 minutes

*Do we know the actual color patterns of Dinosaurs?*

*Can Fossils give us clues about dinosaurs' color or size?*

*Are some fossils similar to the plants and animals of today's environment?*

### Assessment Prep Activity:

Following the task, click the link above. Have students practice applying their knowledge to an assessment question.

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-Reasoni... (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-Reasoni...

**\*\*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.

## 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.

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?*

Students should write in the CER format to answer the guiding question based on their learning experiences from the phenomenon task, inquiry activity, lab investigation and the text source.

### **Assessment for Learning (10-15 minutes)**

■ Mystery Science Week S...

**There is also a week 6 illuminate assessment**

■ CCPS 3rd Science Fossil...

**Assessment Prep (5-7 minutes)**

## Assessment Prep

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

**Objective:** Have students make connections between in class tasks and assessment questions to provide an opportunity for students to analyze and interpret the expectations of test and quiz questions and apply knowledge of experience to answering the assessment questions accurately

**Facilitation:** The teacher will select an assessment question that relates to the concept of the day. Students should only analyze one question each day the “*Assessment Prep Activity*” is provided in the plan. Students should engage in discussion to argue and develop reasoning for answer choices that are both correct and incorrect.

**Goal:** The goal is to practice the skills of test taking, such as: process of elimination, reasoned assumption, avoiding premature selection, checking for consistency, time management, using context clues, reading questions carefully, etc to build confidence in students as they perform on summative assessments throughout the year.

Use the following:

- Fossils Assessment Prep Questions

Provide the following guidance:

Place students in groups and display the assessment question. Complete the following assessment prep protocol:

Ask the students the following questions as they work through the assessment prep protocol.

- *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 inquiry task and investigation experience connects to the question.

Using the answer choices provided, students should begin asking themselves and their group members:

- 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 the same question on the very next day. Do not feel the need to rush to the next question to review. Assessment prep is not meant to be a lengthy activity when considering time. Provide students with five - seven minutes to analyze the question and check for understanding.

### Labs / Investigations

Mandatory Labs	Gizmo	Mystery Science
Fossil Dig Data Sheet. How do minerals Form Fossils? Fossil Observation Lab Fossil Order Lab Construct a Fossil		How do we know what the dinosaurs looked like? Why can you find whales in the desert?

### Additional- Resources/Tasks

<b>Supplemental</b>	What can fossil footprint tell you about an animal
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<b>Labs</b>	
<b>Culminating Performance Task</b>	<p><i>What evidence does a fossil provide for past organisms and the environment? CER</i></p> <p><i>Describe the sequence and conditions required for an organism to become fossilized. CER</i></p> <p><i>Develop a model to describe the sequence and conditions required for an organism to become fossilized. CER</i></p>
<b>STEM Activities</b>	<p>ADI ■ Prehistoric Ecosystem in Germany (2).pdf</p> <p>U engineer It Lab- Fossil lab -Savvas(Fossil as Record)</p> <p>U Engineer It Lab- Rebuilding Dinosaurs</p>
<b>Guidance Document</b>	<p>Link the following : <a href="https://drive.google.com/file/d/1dDFitw1NescTodMZ9XAr7zc0-S5GZKPB/view?usp=drive_link">https://drive.google.com/file/d/1dDFitw1NescTodMZ9XAr7zc0-S5GZKPB/view?usp=drive_link</a></p>