

## Lesson 10: Speaking, Reading, and Writing: Tools Paleontologists Use to Discover Fossils



### CCS Standards

- **RI.2.1:** Ask and answer such questions as *who*, *what*, *where*, *when*, *why*, and *how* to demonstrate understanding of key details in a text.
- **RI.2.4:** Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
- **W.2.7:** Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).
- **L.2.6:** Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).



### Daily Learning Targets

- I can answer questions about a paleontologist's tools using key details in the text *Curious about Fossils*. (RI.2.1, RI.2.4, L.2.6)
- I can write a supporting detail about the tools paleontologists use to discover fossils. (W.2.7)

### Ongoing Assessment

- During the Opening, listen for students to share a growing knowledge about the things that paleontologists do in their work. (L.2.6)
- During Work Time A, listen for students to answer questions about a paleontologist's tools using key details in the text *Curious about Fossils*. (RI.2.1, RI.2.4, L.2.6)
- During Work Time B, circulate and observe whether students are able to write a supporting detail about the tools paleontologists use to discover fossils on page 1 of their Paleontologist's notebook. (W.2.7)
- During the Closing, listen as students share the writing in their Paleontologist's notebook. Notice whether they are able to speak clearly to share their work and listen respectfully as a classmate shares.

### Agenda

#### 1. Opening

- A. Building Vocabulary: Fossils Word Wall (10 minutes)
- B. Reviewing A Unit 1 Guiding Question: "What Do Paleontologists Do?" (5 minutes)

#### 2. Work Time

- A. Focused Read-aloud: *Curious about Fossils*, Pages 22–26 (20 minutes)
- B. Shared Writing: Tools Paleontologists Use to Discover Fossils (20 minutes)

#### 3. Closing and Assessment

- A. Sharing Our Work: Paleontologist's Notebook (5 minutes)

## Teaching Notes

### Purpose of lesson and alignment to standards:

- This lesson shifts the focus of this unit from reading literature to reading informational texts. As students continue to explore the topic of fossils and paleontologists, they begin to study paleontologists and their tools using excerpts from the text *Curious about Fossils*. This work builds on the study of real-life paleontologist Mary Anning in Lessons 2–7.
- The pages of *Curious about Fossils* by Kate Waters are not numbered. For instructional purposes, the page that begins with “Can you see a shape ...” should be considered page 1 and all pages thereafter numbered accordingly.
- During Work Time B, students begin to co-create the Tools Paleontologists Use anchor chart using information gathered from an excerpt of the text. This anchor chart will serve as a resource for students as they discuss and write about the work that paleontologists do.
- During Work Time B, students are also introduced to the Paleontologist’s notebook, a resource in which they will record information about paleontologists. Consider providing an opportunity for students to illustrate the cover when time permits.

### How this lesson builds on previous work:

- Lessons 8–9 provide basic information about fossils and paleontologists so that students are prepared to learn more about paleontologists’ tools and work in this lesson.
- In Module 1, students wrote informative paragraphs. In this lesson, students review the parts of a paragraph: focusing statement, supporting details, and concluding statement.
- Continue to use Goal 1 and 2 Conversation Cues to promote productive and equitable conversation.

### Down the road:

- This lesson is the first in a series of three in which students gradually gain independence in writing a paragraph. In Lesson 11, students will collaborate to write a topic and concluding statement while adding a supporting detail independently. In Lesson 12, students will write their own paragraph independently.

### In advance:

- Prepare:
  - Fossils Word Wall card for *discover* and *site*. Write or type each word on a card and create or find a visual to accompany it.
  - Tools Paleontologists Use anchor chart (see supporting materials). Consider covering the bottom half (Tools Used to Study Fossils) so the chart doesn’t appear visually overwhelming to students.
  - Paleontologist’s notebook by copying and stapling together the cover and pages 1–4 for each student (see supporting materials). Place the notebooks and pencils at student workstations for Work Time B.
- Preview the focused read-aloud of an excerpt from *Curious about Fossils* during Work Time A to familiarize yourself with its content.
- Post: Learning targets and applicable anchor charts (see materials list).

### Consider using an interactive white board or document camera to display lesson materials.

- Opening: Create the Fossils Word Wall in an online format—for example, Padlet (<https://padlet.com/>)—to share vocabulary words with families.
- Work Time A: Create the Tools Paleontologists Use anchor chart in an online format—for example, a Google Doc—for display and for families to access at home to reinforce learning.
- Work Time B: Students work collaboratively to the Paleontologist's notebook page 1 using a word-processing tool—for example, a Google Doc.

### Supporting English Language Learners

Supports guided in part by CA ELD Standards 2.I.A.1, 2.I.A.2, 2.I.B.6, 2.I.B.8, and 2.I.C.10

#### Important points in the lesson itself

- The basic design of this lesson supports ELLs by providing the opportunity to hear an informational text about fossils and paleontologists read aloud, which builds on student learning from the narrative text in the first half of the unit. In addition, this lesson supports ELLs by providing modeling and scaffolding for writing a paragraph about paleontologists' tools, and allowing students to share and take pride in their work.
- ELLs may find it challenging to write supporting details for their paragraphs in the time allotted. Work closely with and allow extra time for any students who need it. See “Levels of support” below and the Meeting Students' Needs column for additional suggestions.

#### Levels of support

*For lighter support:*

- During the Mini Language Dive, challenge students to generate questions about the sentence before asking the prepared questions. Example: “What questions can we ask about this sentence? Let's see if we can answer them together.”
- During Work Time B, challenge students to include adjectives to expand their supporting detail sentences. (Example: Paleontologists use *sharp* chisels to separate *small* fossils from larger rock.) Encourage students to select adjectives from the Adjective Construction board and to add new adjectives to the board.

*For heavier support:*

- Write the name of each tool from the Tools Paleontologists Use anchor chart and how each tool is used to discover fossils on separate large index cards. On a separate sentence strip, write the sentence frame “Paleontologists use \_\_\_\_ to \_\_\_\_.” During Work Time B, allow students to “build” a sentence by inserting the name of tools and their purpose into the sentence frame before writing. Encourage students to read aloud each sentence as they build it, and then choose one to include in their notebook.

## Universal Design for Learning

- **Multiple Means of Representation (MMR):** In Work Time A, students listen to a read-aloud of *Curious about Fossils*. Some may need additional support with the vocabulary introduced in this read-aloud. Before reading, consider pre-teaching the vocabulary that may be unfamiliar or difficult for students. (Example: Prepare index cards with words and an accompanying picture cue that helps clarify and sharpen the concept for students.)
- **Multiple Means of Action & Expression (MMAE):** In Work Time B, students write a sentence in response to the text by focusing on the first learning target. Some may need support in planning and strategy development for transferring knowledge from the shared writing to their independent writing. Before students write their sentence, invite them to select a tool picture card and orally share the tool's name and how it is used. This oral discussion serves as an advanced organizer for the independent writing.
- **Multiple Means of Engagement (MME):** During Closing A, students share their writing aloud with a writing partner. Some may need additional support with the potential threat or discomfort of sharing their work aloud. Before this sharing, pair students with strategic writing partners to ensure that developing readers and writers have a strong, politely helpful partner to support their efforts at writing and sharing their work. Build an accepting and supportive environment by reminding students that everyone is working toward individual goals and that learning is about continued growth and development.

## Vocabulary

### Key:

(L): Lesson-Specific Vocabulary

(T): Text-Specific Vocabulary

(W): Vocabulary Used in Writing

### New:

- discover (L)
- site, paper, pencil, pickax, chisel, toothbrush (T)

### Review:

- paragraph (L)
- remote, evidence (T)

## Materials

- ✓ Fossils Word Wall (begun in Lesson 8; added to in the Closing)
- ✓ Fossils Word Wall card (new; teacher-created; two)
- ✓ Mystery journal entry #1 (from Lesson 1; one to display)
- ✓ Unit 1 Guiding Questions anchor chart (from Lesson 1; one to display)
- ✓ *Curious about Fossils* (one to display; for teacher read-aloud)
- ✓ Tools Paleontologists Use anchor chart (new; co-created with students during Work Time A; see supporting materials)

- ✓ Tools Paleontologists Use for Discovery picture cards (new; added to Tools Paleontologists Use anchor chart during Work Time A)
- ✓ Tools Paleontologists Use anchor chart (answers, for teacher reference)
- ✓ Paleontologist's notebook (page 1; one for teacher modeling and one per student)
- ✓ Paleontologist's notebook (page 1; example, for teacher reference)
- ✓ Pencils (one per student)
- ✓ Writing Partners anchor chart (begun in Module 1)

### Opening

#### A. Building Vocabulary: Fossils Word Wall (10 minutes)

- Invite students to the whole group area.
- Share that now students will post two important words from the lesson on the **Fossils Word Wall**.
- Show students the **Fossils Word Wall card** for *discover* and follow the same routine established in Lesson 8: provide its definition, clap out its syllables, use it in a sentence, and place the card and its picture on the Fossils Word Wall.
- Share that paleontologists may make a discovery at a site.
- Repeat the above process to add the Fossils Word Wall card for *site* to the Fossils Word Wall.
- Explain that paleontologists work at sites where they hope to discover preserved fossils in the ground.
- Display the **mystery journal entry #1**.
- Remind students that the paleontologist who wrote this entry was hoping to discover a new fossil at a site.
- Reread the text, reading slowly, fluently, with expression, and without interruption.
- Invite students to turn and talk to an elbow partner:  
***"Use the words discover and site in a sentence with a partner."***
- Invite several students to share their sentences with the group.
- Preview the work in this lesson with students by explaining that today they will learn about one important part of what paleontologists do: use special tools to discover fossils at sites!

#### Meeting Students' Needs

- When introducing the words *discover* and *site*, offer an alternative to visual information by introducing a physical gesture indicating the word's meaning. (Example: Hold up a pretend magnifying glass to look at something closely.) (MMR, MMAE)
- For ELLs: Provide visual support next to the words *discover* and *site* on the Word Wall and invite students to share the translation of the words in their home languages. Invite all students to repeat the translation in a different home language.

## Opening

### B. Reviewing the Unit 1 Guiding Question: “What Do Paleontologists Do?” (5 minutes)

- Direct students’ attention to the **Unit 1 Guiding Questions anchor chart** and read the first guiding question aloud:
  - “What do paleontologists do?”
- Invite students to Think-Pair-Share with an elbow partner:
 

*“What do paleontologists do?” (dig up fossils/bones; discover new dinosaurs or creatures; study animals and plants from long ago)*
- Refocus students whole group and invite several students to share out. Confirm or provide students with the basic understanding that paleontologists study fossils to learn about plants and animals from long ago.
- Share that now students will hear a text read aloud about the various tools that paleontologists use when discovering fossils.

### Meeting Students’ Needs

- For students who may be uncomfortable sharing their own preferences with the entire class: Consider allowing them to share what their partner said so that they still have a chance to speak in front of the class. (MME)

## Work Time

### A. Focused Read-aloud: *Curious about Fossils*, Pages 22–26 (20 minutes)

- Direct students’ attention to the posted learning targets and read the first one aloud:
 

*“I can answer questions about a paleontologist’s tools using key details in the text **Curious about Fossils.**”*
- Invite students to turn and talk to an elbow partner:
 

*“What does this learning target mean?” (answer questions about paleontologists’ tools in the book **Curious about Fossils**; use the important information in the text to answer questions about paleontologists’ tools)*
- Invite a few students to share out.
- Share that this text has a lot of information about paleontologists, and today the important information is about the tools they use to discover fossils.
- Display the cover of ***Curious about Fossils*** and read the title aloud.
- Direct students’ attention to the **Tools Paleontologists Use anchor chart**.
- Share that, for the next few days, students will hear parts of this text read aloud and will use this anchor chart to record information about paleontologists and the tools they use to discover and study fossils.
- Read aloud the title in the top left-hand column: “Tool Picture.”
- Read aloud the title in the top middle column: “Tool Used to Discover.”
- Read aloud the title in the top right-hand column: “How Tool Is Used.”
- Share that as students hear the text read aloud, they will pause and record the names and use of some tools. They will also post a picture of each tool.



- Prompt students to listen carefully for names and uses of specific tools.
- Display page 22 of the text and read the first sentence aloud.
- Review the definition of *remote* (at a far distance in space or time), emphasizing that paleontologists sometimes travel to remote places in search of fossils.
- Draw students' attention back to the text and read the remainder of pages 22–23 aloud.
- Using a total participation technique, invite responses from the group:  
*“What are these pages about?” (paleontologists go to sites to discover fossils; what paleontologists do to find a site and dig there)*
- Confirm that pages 22–23 provide information about how paleontologists prepare, or get ready, to dig and discover fossils.
- Review the definition of *site* (a place in which evidence of past activity is preserved) and *evidence* (something that gives proof of or a reason to believe something).
- Referring to the photos on page 23, confirm that paleontologists dig for fossils at a site because they are looking for evidence of life long ago.
- Draw students' attention back to the text and display pages 24–25. Prompt students to listen carefully for the names and uses of specific tools on these pages. Consider inviting students to show a silent signal (a quiet thumbs-up; touch forehead or nose) each time they hear the name of a paleontologist's tool.
- Read pages 24–25 aloud.
- Pause and invite students to turn and talk to an elbow partner:  
*“What is one tool that a paleontologist uses to discover fossils?” (Responses will vary, but should include information from pages 24–25.)*
- Invite a few students to share out. As students share, record several tools from pages 24–25 and post the corresponding **Tools Paleontologists Use for Discovery picture cards** as you create the anchor chart. Refer to the **Tools Paleontologists Use anchor chart (answers, for teacher reference)** as necessary.
- Draw students' attention back to the text and read page 26 aloud.
- Share that in the next lesson, students will learn more about the tools that paleontologists use to study fossils.

### Meeting Students' Needs

- Before reading the text, provide options for students to record (drawing or writing) paleontologists' tools as they hear them. This helps scaffold active listening for key details, which supports students as they discuss with a partner and contribute to the anchor chart afterward. (MMR, MMAE)
- For ELLs: Mini Language Dive. Ask students about the meaning of the sentence from page 25 of *Curious about Fossils*: “When most of the rock is gone, they use small picks, brushes, and even toothbrushes to remove the dust and rock bits.” Examples:  
*“Who does the word they refer to in this sentence?” (the paleontologists)*  
*“What tools does this sentence say that paleontologist use?” (picks, brushes, and toothbrushes)*

*“Do you ever use any of these tools? What do you use them for?” (Responses will vary, but may include: I use a toothbrush to clean my teeth; I use a brush when I paint.)*

*“What does this sentence tell us about how paleontologists use these tools?” (They use them to remove dust and rock bits.)*

*“What does remove mean?” (to take away or get rid of)*

*“What is remove in our home languages?” (remover in Portuguese) Invite all students to repeat the translation in a different home language.*

- Invite students to study the middle photograph on page 24 and the bottom photograph on page 25. Ask:

*“What are paleontologists doing in these photos?” (They are using tools to remove dust and rock.)*

*“How does removing dust and rock bits help paleontologists learn about fossils? (It helps them see the fossils better.)*

- For ELLs: Provide sentence frames for students to use when discussing what they learned about tools paleontologists use. Examples:
  - “One tool paleontologists use to discover fossils is \_\_\_\_.”
  - “Paleontologists use \_\_\_\_ to \_\_\_\_.”

## Work Time

### B. Shared Writing: Tools Paleontologists Use to Discover Fossils (20 minutes)

- Direct students’ attention to the posted learning targets and read the second one aloud:
 

*“I can write a supporting detail about the tools paleontologists use to discover fossils.”*
- Reread the learning target, emphasizing these words: “I can write a supporting detail about the tools paleontologists use to discover fossils.”
- Using a total participation technique, invite responses from the group:
 

*“What does this learning target mean?” (write something important about tools a paleontologist uses to discover fossils)*
- Display page 1 of the **Paleontologist’s notebook**.
- Tell students that you will now collaborate to write a paragraph about the tools paleontologists use to discover fossils. Prompt students to consider that this task may require perseverance if it feels challenging to complete.
- Review the definition of *paragraph* (a group of sentences in writing that develop an idea together).
- Read the title of page 1 aloud: “Tools Paleontologists Use to Discover Fossils.”
- Remind students that the first sentence in an informative paragraph, the focusing statement, tells the reader what the main topic is.
- Point to the focusing statement and invite students to read it aloud with you: “Paleontologists use many tools to discover fossils.”
- Remind students that the concluding statement tells the reader the main topic again.
- Point to the concluding statement and invite students to read it aloud with you: “These tools help them to do their work.”



- Point to the blank lines in the middle and tell students that this is where they will write several sentences including supporting details about paleontologists' tools. Refer to the posted Tools Paleontologists Use anchor chart.
- Model composing a sentence orally about a tool:  
***"Paleontologists use toothbrushes to remove rock and dust bits."***
- Record the sentence on page 1 of the displayed Paleontologist's notebook.
- Invite students to turn and talk to an elbow partner using a sentence frame:  
***"Paleontologists use \_\_\_\_ to \_\_\_\_."***
- Invite several students to share their sentences with the group.
- Tell students they will now write their own sentence on page 1 of their own Paleontologist's notebook. Share that they will also draw a picture to match the information in their sentence. Refer to the **Paleontologist's notebook (answers, for teacher reference)** as necessary."
- Transition students back to their workspaces.
- Point out the Paleontologist's notebooks and **pencils** already at their workspaces.
- Invite students to open their notebooks to page 1 and begin working on their own sentence and drawing about a tool a paleontologist uses.
- Give students 7–8 minutes to work. As they work, circulate and provide support. As needed, remodel the sentence frame and refer students to the Tools Paleontologists Use anchor chart. Also consider asking students to read their sentence aloud and/or describe the content in their drawing.
- Refocus students using a designated signal and provide brief directions for cleanup.
- Invite students to walk safely back to the whole group area and to bring their Paleontologist's notebooks with them.

### Meeting Students' Needs

- For students who may need additional support with self-regulation and independence: Before the transition to clean up, provide a clear routine for what to do with the notebooks and use a visual timer. (MME)
- For ELLs: Pair students with a partner of greater language proficiency. The partner with greater language can serve as a models in the group, initiating discussions and providing implicit sentence frames.
- For ELLs: Ask students about the meaning of the learning target by first reviewing that a *detail* is one piece of information, then asking:  
***"What do you think a supporting detail is?" (a piece of information that supports, or tells something important about, a topic) "What will you write a supporting detail about?" (about the tools paleontologist use)***
- For ELLs: During the turn and talk, write the suggested sentence frame on the board for students to refer to as they share. When students return to tables, encourage them to use the sentence frame to say their sentence aloud as many times as needed before writing.

## Closing and Assessment

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### A. Sharing Our Work: Paleontologist's Notebook (5 minutes)

- Once settled, invite students to place their Paleontologist's notebook in their lap.
- Share that now students will read their writing aloud to a partner.
- Post and review the following directions:
  1. Label yourselves A and B.
  2. Partner B reads page 1 of his or her Paleontologist's notebook aloud to partner A.
  3. Partner A listens closely as partner B reads.
  4. Partners switch roles.
  5. Make a bridge with your arms when both partners have shared.
- Remind students to read all of page 1, not only the part they have written. If needed, consider modeling for students.
- Invite students to begin sharing.
- Gather students back together and invite a few to share page 1 of their Paleontologist's notebook with the whole group.
- Share with students that, in the next lesson, they will read and write about the tools that paleontologists use to study fossils!

### Meeting Students' Needs

- To increase mastery-oriented feedback as students share their writing, provide feedback that is frequent, timely, and specific to individual pairs of students. (Example: "I hear that your sentences include the name of the tool and a detail about how it is used, just as our learning target says.") (MME)
- For ELLs: Review the learning targets introduced in Work Times A and B. Ask students to give specific examples of how they worked toward achieving them in this lesson. Invite students to rephrase the learning targets now that they have more experience answering questions and writing a supporting detail about paleontologist tools.