

## Lesson 4: Building Background Knowledge: What Do Tools Help to Do?, Part III



### CCS Standards

- **RI.1.1:** Ask and answer questions about key details in a text.
- **W.1.8:** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
- **SL.1.1:** Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups.



### Daily Learning Targets

- I can examine tools through close observation and drawing. (W.1.8)
- I can ask and answer questions about tools and how they are used. (RI.1.1, SL.1.1)

### Ongoing Assessment

- During Work Time A, circulate and observe students' progress with the classroom discussion norms. Reinforce the classroom discussion norm of listening to the speaker, taught in Lesson 1.
- During Work Time A, notice students' progress with answering questions. Encourage students to answer questions about tools. If necessary, provide sentence stems to answer questions in complete sentences. Model answering questions using complete sentences by repeating student answers.
- During Work Time B, circulate and observe students individually drawing and labeling a tool.
- At the end of Work Time B, collect the Tools Challenge #3 response sheets. Notice each student's drawing of the tool to be sure it captures accurate details. Note each student's encoding skills as represented in the label of the tool.

### Agenda

#### 1. Opening

- A. Noticing and Wondering: Tools for Challenge #3 (5 minutes)
- B. Reviewing Learning Targets (5 minutes)

#### 2. Work Time

- A. Developing Language: Play and Exploration with Science Tools (15 minutes)
- B. Recording Our Thinking: Draw and Label the Tool That Was Best for the Job (10 minutes)
- C. Reading Aloud: *I Use Science Tools* (10 minutes)

#### 3. Closing and Assessment

- A. Reflecting on Learning (5 minutes)
- B. Synthesizing Our Learning: What Makes a Tool a Tool? (10 minutes)

## Teaching Notes

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### Purpose of lesson and alignment to standards:

- This lesson follows the same cycle as the previous two lessons. Students complete a challenge with a new set of tools, closely observe and draw a tool, engage in a read-aloud about science tools, and engage with their peers as they orally rehearse asking and answering questions throughout the lesson.
- As students build their knowledge about tools, support a volume of reading on this topic; see the Recommended Texts and Other Resources list. Ensure that students have a variety of texts on this topic available during independent reading in the K-2 Reading Foundations Skills Block.
- This lesson is the second in a series of three that include built-out instruction for the use of Goal 1 Conversation Cues to promote productive and equitable conversation (adapted from Michaels, Sarah and O'Connor, Cathy. *Talk Science Primer*. Cambridge, MA: TERC, 2012. [http://inquiryproject.terc.edu/shared/pd/TalkScience\\_Primer.pdf](http://inquiryproject.terc.edu/shared/pd/TalkScience_Primer.pdf). Based on Chapin, S., O'Connor, C., and Anderson, N. [2009]. *Classroom Discussions: Using Math Talk to Help Students Learn, Grades K–6*. Second Edition. Sausalito, CA: Math Solutions Publications). As the modules progress, Goal 2, 3, and 4 Conversation Cues will be gradually introduced. Goal 1 Conversation Cues encourage all students to talk and be understood. Consider providing students with a thinking journal or scrap paper.

### How this lesson builds on previous work:

- In Lesson 1, students were introduced to the Mission Envelope and Mission Letter #1. This is the final lesson in the series in which students complete challenges in order to complete their mission.
- Students continue working on the speaking and listening discussion norms from previous lessons.
- Students also continue to develop an understanding of the definition of tools and the jobs that tools help to do. Students continue to capture their learning on the Tools anchor chart.
- During the Closing and Assessment, students synthesize their learning from Lessons 2–4. In order to name the definition of a tool, students reflect on the challenges and read-alouds, and answer the question “What makes a tool a tool?” The new, co-constructed What Makes a Tool a Tool? anchor chart will hold this definition and will provide a reference point for this definition.

### Areas in which students may need additional support:

- Students may need additional support orally asking questions. Support these students throughout the lessons before the assessment in Lesson 8 by prompting with question stems and modeling.

### Down the road:

- During this lesson, students are encouraged to use question words (*who, what, when, where, why, and how*). Continue to note students' skill level with asking questions, and provide modeling and question stems as needed. In Lesson 6, the Speaking and Listening Checklist is formally introduced, and students will begin to be formally assessed on SL.1.1 over the course of Lessons 6–8.

- Beginning in Lesson 5, students will be introduced to *Tools* by Ann Morris. They will continue to engage with the text in a series of focused read-alouds in Lessons 6–8. During these focused read-aloud sessions, students will refer to the challenge experiences in Lessons 2–4 as they continue to answer the question “Why do we need tools?”

**In advance:**

- Gather materials for Tools Challenge #3.  
Consider putting a tablecloth or newspaper over the workspace for easier cleanup.
- Set up a document camera to read Mission Letter #1 and other lesson materials.
- Distribute the Tools Challenge #3 response sheets at student workspaces. Doing this in advance helps ensure a smooth transition during Work Time B.
- Prepare the What Makes a Tool a Tool? anchor chart.
- Review the Think-Pair-Share protocol. (Refer to the Classroom Protocols document for the full version of the protocol.)
- Be aware that the Think-Pair-Share protocol (e.g., partnering with the opposite gender) may be uncomfortable and inappropriate for some students. If necessary, modify the protocol according to students’ cultural traditions
- Post: Learning targets, Think-Pair-Share anchor chart, Classroom Discussion Norms anchor chart, “Learning Target” poem, Tools anchor chart, What Makes a Tool a Tool? anchor chart.

**Technology & Multimedia**

**Consider using an interactive whiteboard or document camera to display lesson materials.**

- Work Time A: Tools Challenge Note #3 could be an email.
- Work Time A: Record students as they have their small group discussions in the whole group meeting space to listen to with students later to discuss strengths and what they could improve on, or to use as models for the group. Most devices (cell phones, tablets, laptop computers) come equipped with free video and audio recording apps or software.
- Closing and Assessment B: Create the What Makes a Tool a Tool? anchor chart in an online format, for example a Google Doc, to display.

**Supporting English Language Learners**

Supports guided in part by CA ELD Standards 1.I.A.1, 1.I.A.3, 1.I.B.5, 1.I.B.6, and 1.I.C.10

**Important points in the lesson itself**

- The basic design of this lesson supports ELLs by repeating the structure of prior lessons, which will make it familiar and predictable to students. Throughout the lesson, take opportunities to remind students about the work they completed in the previous two lessons. Build confidence by commending their prior work and complimenting their English conversation skills.
- It may be difficult for ELLs to interpret the language on the Tools anchor chart. Use icons and illustrations when possible to promote comprehension.

### Levels of support

*For lighter support:*

- During Work Time A, invite students to further discuss and practice using the word *will*. (Examples: “If I take the word *will* out of this sentence, how would that change the meaning?” “Can you use *will* to talk about what you plan to do after school?”)

*For heavier support:*

- When grouping triads during Work Time A, create mixed proficiency groups with at least one beginning proficiency student and one advanced proficiency student who speak the same home language, if possible.
- Consider previewing the *I Use Science Tools* text at the beginning of class to visually build schema around authentic uses of science tools. If possible, show a video of the tools being used or invite a science teacher to do a demonstration.
- Review question words. Refer to the anchor chart and prompt students to use question words to practice asking questions throughout the lesson.

### Universal Design for Learning

- **Multiple Means of Representation (MMR):** Throughout this lesson, embed support for unfamiliar vocabulary by providing explanation and visual examples. This will help students make connections and support comprehension.
- **Multiple Means of Action & Expression (MMAE):** In this lesson, students continue writing and drawing routines. Consider alternative writing tools (e.g., pencil grips, slant boards) and scaffolds (e.g., dictation, writing prompts) that will support all students to be successful writers.
- **Multiple Means of Engagement (MME):** In this lesson, students complete a *Tools Challenge* that requires precision with tweezers. First-graders have a range of fine motor skills, and some students may struggle to manipulate the tweezers. Facilitate personal coping skills by modeling what students can do if they make a mistake or feel frustrated by this task. Example: “What should I do if I lose a bead? I can ask a friend to help me find it.”

### Vocabulary

**Key:**

(L): Lesson-Specific Vocabulary

(T): Text-Specific Vocabulary

- close observation, examine, hand lens, learning target, tweezers (L)

### Materials

- ✓ Tools Challenge #3 Materials Set 1: eyedropper, magnifying glass, plastic tweezers (one set per small group and one set to display)
- ✓ Think-Pair-Share anchor chart (begun in Lesson 1)
- ✓ Classroom Discussion Norms anchor chart (begun in Lesson 2)
- ✓ “Learning Target” poem (from Lesson 1; one to display)
- ✓ Tools Challenge Note #3 (one for teacher)

- ✓ Tools Challenge #3 Materials Set 2: plastic beads, plastic cup (one set per student)
- ✓ Tools Challenge #3 response sheet (one per student)
- ✓ Document camera
- ✓ *I Use Science Tools* (book; one for teacher read-aloud)
- ✓ Tools anchor chart (begun in Lesson 2 and added to in Closing A; see supporting materials)
- ✓ What Makes a Tool a Tool? anchor chart (new, co-created with students during Closing B; see Teaching Notes)

## Opening

### A. Noticing and Wondering: Tools for Challenge #3 (5 minutes)

- Display the **Tools Challenge #3 Materials Set 1** in the center of the circle so all students can have a clear view. Name each tool for the students.
- Provide 20–30 seconds of silent viewing of the tools.
- Ask:
  - “**What do you notice about these tools?**”
- Direct students to the **Think-Pair-Share anchor chart** and the **Classroom Discussion Norms anchor chart**. Read the Classroom Discussion Norms anchor chart with students. Explain to students that during their Think-Pair-Share today, they should focus on the discussion norm of taking turns speaking. If necessary, model with another student what it sounds like to take turns speaking.
- Remind students of the partner A and partner B for each pair. Tell students that partner A will share first.
- Invite students to take turns sharing what they notice about their tools with their partner.
- Cold call on two to three A partners to share what they noticed with their partner. Encourage students to use the sentence stem “I notice that \_\_\_\_.” (name of tool)
- Ask students to Think-Pair-Share:
  - “**What do you wonder about these tools?**”
- Cold call on two to three B partners to share what they wondered. Encourage students to use the sentence stem “I wonder \_\_\_\_.” (question word, name of tool)
- Throughout this portion, support students’ notices and wonders with prompts such as:
  - “**Look closely at the details of the tool. How would you describe the tool?**”
  - “**How do people use this tool?**”
  - “**Who might use this tool?**”
  - “**What can this tool be used for?**”

### Meeting Students’ Needs

- During the Think-Pair-Share, provide options for expression by inviting students to feel the tools, prompting with explicit sentence starters and question words. Examples:
  - “**I wonder why (name of tool) is \_\_\_\_?**”
  - “**I wonder how (name of tool) can \_\_\_\_?**” (MMAE)

- To help students anticipate and prepare for sharing their thinking with a partner, provide all students with index cards that designate whether they are partner A or B. (MME)
- For ELLs: Call on a beginning proficiency student and assist him or her in formulating a question. (Example: “What shape is the magnifying glass? Is it a circle? So what question could you ask? Why ... is it ... a circle?”) Allow the student to repeat the question one phrase or word at a time.

## Opening

### B. Reviewing Learning Targets (5 minutes)

- Direct students’ attention to the posted learning targets and read the first target aloud:  
**“I can examine tools through close observation and drawing.”**
- Using a total participation technique, invite responses from the group:  
**“What do you remember about what the word examine means?” (to inspect, study, look closely at, investigate an object)**
- Invite students to put on their “examining goggles” by cupping their hands over their eyes like glasses.
- Focus students on the phrase *close observation*. Remind them that doing a close observation means to look carefully at the small details and notice the shape, color, texture, size, etc. of something. Refer to some specific notices and wonders that students shared during Opening A to support students’ understanding.
- Remind students that a *learning target* is a goal for them to reach. Invite students to take out their “magic bows” and take aim at the target while chorally reciting the **“Learning Target” poem**.
- Share with students that just as they did yesterday and the day before, they will have the opportunity later today to draw what they have closely observed to really hit the target.

### Meeting Students’ Needs

- As you review the first learning target, offer alternatives for auditory information by scribing the words *close observation* and writing a short definition on chart paper or a whiteboard. (e.g., *close observation* = look carefully at details) Enhance comprehension by showing students close-up images of different objects depicting details in texture, color, shape, etc. (MMR)
- For ELLs: Invite a beginning or intermediate student to demonstrate for the class what it means to examine something. Example:  
**“Can somebody help me examine this marker? Let’s see how closely you can look at it and what you notice.”**
- For ELLs: Vary methods for response by inviting students to join you in physical movements that express particular phrases in the “Learning Target” poem. Examples:
  - “think of the thing”
  - “in your heart”

- “keep your eyes”
- “take your aim” (MMAE)
- For ELLs: Discuss the phrase *desire to learn* from the “Learning Target” poem.  
Example:  
**“When you desire to learn something, what does that mean?” (You want to learn something.)**  
**What do you desire to learn about?**
- After reading the learning targets, optimize relevance by prompting students to reflect on personal interests. Example:  
**“Whisper to your shoulder partner something you would like to observe up-close.”**  
(MME)

## Work Time

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### A. Developing Language: Play and Exploration with Science Tools (15 minutes)

- Direct students’ attention to the posted learning targets and read the second one aloud:  
**“I can ask and answer questions about tools and how they are used.”**
- Remind students of the guiding question for Unit 1: “Why do we need tools?” Explain that asking questions is one way to learn about something. So asking questions about tools will help them discover what tools do.
- Invite students to do a drumroll on their laps as you take out the envelope. With excitement, reveal **Tools Challenge Note #3**. Remind students of the challenges they did in the previous lessons. Explain that today they will do another challenge and learn more about tools.
- Invite students to whisper shout: “It’s challenge time!”
- Read aloud Tools Challenge Note #3: “Your challenge is to get eight beads into the cup, placing one bead in at a time. Your tools are an eyedropper, a magnifying glass, and tweezers. You may not use your hands to do this. Which tool is best for the job?”
- Display **Tools Challenge #3 Materials Set 2**: plastic beads, plastic cup.
- While gesturing to each material, restate that the challenge is to get the eight beads into the cup without using your hands.
- Invite students to Think-Pair-Share:  
**“What is the best tool for this job?”**
- Model the sentence stem: “I think the best tool for the job will be\_\_\_\_\_.”
- Circulate and listen as students share with their partners.
- Cold call two to three A partners to share their predictions with the class.
- Give specific, positive feedback regarding how well students are using the Think-Pair-Share routine.
- Tell students that just like last time, they now will do a challenge in small groups of three at their workspaces.

- Remind students of norms for using materials and working together in small groups: Look at the speaker, listen with care, and take turns with the materials that you will be sharing.
- Direct students' attention to the Tools Challenge #3 Materials Sets 1 and 2 on each workspace. Have students notice that each student will work with a cup and eight beads, and that they will need to take turns using the eyedropper, magnifying glass, and tweezers when they are deciding the best tool to get the beads into the cup without using their hands.
- Transition small groups to the workspaces.
- Circulate and support students as needed.
- Call on one group at a time to return to the whole group meeting space.
- Engage students in a whole group discussion. Ask:  
***“What happened? Which tool was the best for the job? How do you know?” (Listen for ideas like: “The tweezers were the best tool for the job because they could pick up the beads,” or “The tweezers were the best tool for the job because you could squeeze the two sides together to help pick up the beads.”)***
- If productive, use a Goal 1 Conversation Cue to encourage students to clarify the conversation about the best tool for the job:  
***“So, do you mean \_\_\_\_?” (Responses will vary.)***

### Meeting Students' Needs

- After you read Tools Challenge Note #3, highlight patterns and critical features by asking students how this tools challenge is similar to and different from the previous challenges. (MMR)
- For ELLs: Underline the word *will* in the sentence frame “I think the best tool for the job will be\_\_\_\_.” Say:  
***“Don’t forget to use the word will. It tells us we are guessing about something happening later.”***
- For ELLs: Practice pronouncing the word *magnifying* with the class, noting the shape of the mouth and positioning of the tongue. Have students repeat each syllable, noting the stressed vowel: “MAG-ni-fy-ing.”
- Before transitioning students to workspaces, facilitate personal coping skills by modeling what students can do if they make a mistake or feel frustrated. Example:  
***“What should I do if I lose a bead?” (I can ask a friend to help me find it.)*** (MME)
- For ELLs: Invite students to use their home languages during the challenge. This will make them more comfortable engaging with the content, and it will facilitate transfer of language skills across languages. (MMAE)

## Work Time

### B. Recording Our Thinking: Draw and Label the Tool That Was Best for the Job (10 minutes)

- Direct students' attention to the posted learning targets and reread the first one aloud, emphasizing the word *drawing*:
 

***“I can examine tools through close observation and drawing.”***
- Share with students that as in the previous lessons, they will get a chance to show what they know about the tools from the challenge by drawing a tool. Point out that the tools from which they may choose are on display.
- Model how to look closely at the tool, draw the details, and label the tool as necessary.
- Transition students to their seats by having them make the shape of tweezers with their bodies (arms extended and opening and closing like tweezers) and walk to their seats.
- Direct students' attention to the **Tools Challenge #3 response sheets** and writing utensils at their workspaces.
- Invite students to draw a tool from Tools Challenge #3 and label the tool. Circulate to listen in and support students as needed by prompting them to look for the shapes within the object and the angles of the lines.
- Collect students' Tools Challenge #3 response sheets.

### Meeting Students' Needs

- Before students begin drawing and labeling, maximize transfer by providing individual checklists with words and pictures that include (MMR):
  - Draw
  - Label
  - Add details
- As students begin writing and drawing, vary methods for fine motor response by considering alternative writing utensils (e.g., fine-tipped markers vs. pencils) and/or pre-printed images that students can select to glue down. (MMAE)
- For ELLs: Select a piece of successful student work from one of the previous drawing lessons, preferably from an ELL who struggled with the task. Share the work with the class and identify what makes it effective. (Example: “Look at how detailed Brianna’s ladle is. You can see that she really examined the shape before she drew. Good work!”)
- As students draw and write, vary demands and optimize challenge by inviting students who finish early and have added sufficient detail to select a second tool to draw and label. (MME)
- For ELLs: Allow students to choose the tool they want to draw and to tell their partners before transitioning to their seats. This will allow them to verbalize their plans and will foster a sense of direction and autonomy.

## Work Time

### C. Reading Aloud: *I Use Science Tools* (10 minutes)

- Give students specific, positive feedback on their ability to draw and label a tool from Challenge #3.
- Using a **document camera**, display *I Use Science Tools*. Share with students that they can learn about other science tools from this book. Draw students' attention to the title of the book and read the title aloud.
- While still displaying the text, complete a first read of the text, reading slowly, fluently, with expression, and without interruption.
- Using a total participation technique, invite responses from the group:  
***“What was this book mostly about?” (how people use different science tools)***
- Review the Think-Pair-Share protocol as needed. Focus students on their partner. Tell them you are going to read several pages from the text. After each page they are going to Think-Pair-Share, and partner A will speak first, then partner B. Remind students to take turns speaking.
- Display and reread page 7 aloud.
- Invite them to use the sentence starter, “A (name of tool) helps to \_\_\_\_\_” to Think-Pair-Share:  
***“What tool is this? How is it used?”***
- Repeat this process with pages 10 and 11, alternating which partner speaks first.
- Synthesize the read-aloud by having students Think-Pair-Share:  
***“Name one new science tool you learned about today. What job does this tool help to do?” (Responses will vary.)***

### Meeting Students' Needs

- For ELLs: Before reading *I Use Science Tools*, activate background knowledge by previewing the question you will ask:  
***“What was this story mostly about?”*** (MMR)
- After the first reading, optimize relevance by prompting students to make connections to previous experiences. Example:  
***“Give a thumbs-up if you have used this science tool before.”*** (MME)
- For ELLs: Ask students about this sentence from the text: *A hand lens makes small things look bigger.* Examples:  
***“What do you think this sentence means?”***  
***“What is a hand lens? Look closely at the picture. It looks like something we used today!” (It is the same as a magnifying glass.)***  
***“What is the meaning of makes here? Does the hand lens make something? Does it make dinner?” (No, it means it changes something.) Say: “Sometimes movies make me cry. The movie changes me. It makes me cry!”***  
***“What is the small thing in the picture?” (a bug; a dragonfly)***  
***“How does the hand lens change how it looks?” (When you look through it, the bug looks big.)***

*Reread the sentence and omit the word looks. Ask: “What if I covered the word looks? How does that change the meaning?” (It would mean the hand lens could make the dragonfly grow.)*

*“Now what do you think the sentence means?” (If I look into the magnifying glass, the bug looks big.)*

*“If you are a scientist, how does the magnifying glass make your work easier?” (You can see things better; you can see more details to draw.)*

## Closing and Assessment

### A. Reflecting on Learning (5 minutes)

- Share that today students learned about science tools and what science tools do by solving a challenge and reading about science tools.
- Display and direct students’ attention to the **Tools anchor chart**.
- Remind students that as they learn about new tools and what these tools do, they will use this anchor chart to keep track of their learning.
- Using a total participation technique, invite responses from the group:

*“Which tool did we need to get the job done in the challenge?” (tweezers; add to the left side of the Tools anchor chart)*

*“What job does the tool help to do?” (Tweezers help pick up small things; add to the right side of the Tools anchor chart.)*

- Return to pages 7, 10, and 11 from *I Use Science Tools*.
- Cold call on different students to help fill out the anchor chart. Responses will vary, but may include:

Tool	What job does the tool help to do?
Tweezers	Tweezers help pick up very small things.
Hand Lens	A hand lens helps make things that are small look bigger.
Camera	A camera helps take pictures of things around us.
Ruler	A ruler helps find out how long or short something is.

### Meeting Students' Needs

- For ELLs: Use multiple media for communication by inviting students to physically demonstrate how to use each science tool (e.g., tweezers, camera, hand lens) as you add information to the Tools anchor chart. (MMAE)
- As students reflect on their learning, optimize autonomy by involving students in setting their own academic and behavioral goals regarding science tools. Example:

*“Whisper to your shoulder partner one kind of science tool you hope to use again in first grade.” (MME)*

## Closing and Assessment

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### B. Synthesizing Our Learning: What Makes a Tool a Tool? (10 minutes)

- Give students specific, positive feedback on having learned a lot about tools in just a few days. Tell them that to help us think more deeply about our learning, we are going to think about one important question and discuss this with our shoulder partner.
- Show students the **What Makes a Tool a Tool? anchor chart**.
- Explain that being able to answer this question will help us accomplish our mission.
- Ask students to Think-Pair-Share:  
*“What makes a tool a tool?” (A tool helps to do a job; a tool is something that makes work easier.)*
- If productive, use a Goal 1 Conversation Cue to encourage students to expand the conversation about tools:  
*“Can you give an example?” (Responses will vary.)*
- Refocus students on the What Makes a Tool a Tool? anchor chart.
- Give students specific, positive feedback on all the information they have learned about tools, and on getting one step closer to accomplishing their mission.

### Meeting Students' Needs

- For ELLs: The phrasing “What makes a tool a tool?” may be confusing. Rephrase the question to ensure comprehension. Examples:  
*“What is a tool?”*  
*“Why do we use tools?”*  
*“How can you tell something is a tool?”*