



EXPEDITIONARY  
LEARNING

## **Grade 4: Module 2B: Unit 1: Lesson 9**

### **Text-Based Discussion: Science Talk about Animal Defenses**



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**Long-Term Targets Addressed (Based on NYSP12 ELA CCLS)**

I can effectively engage in discussions with diverse partners about fourth-grade topics and texts. (SL.4.1)

- a. I can draw on information to explore ideas in the discussion.
- b. I can follow our class norms when I participate in a conversation.
- c. I can ask questions that are on the topic being discussed.
- c. I can connect my questions and responses to what others say.

**Supporting Learning Targets**

- I can effectively participate in a Science Talk about animal defense mechanisms.
  - b. I can ask questions so I am clear about what is being discussed.
  - c. I can ask questions on the topic being discussed.
  - d. I can follow our class norms when I participate in a conversation.
- I can observe others participating in a Science Talk.

**Ongoing Assessment**

- Preparing for a Science Talk note-catcher



Agenda	Teaching Notes
<p>1. Opening</p> <p>A. Engaging the Reader: Connecting Key Vocabulary: Interactive Word Wall (10 minutes)</p> <p>B. Reviewing Learning Targets (5 minutes)</p> <p>2. Work Time</p> <p>A. Preparing for a Science Talk (10 minutes)</p> <p>B. Conducting the Science Talk—Round 1 (15 minutes)</p> <p>C. Conducting the Science Talk—Round 2 (15 minutes)</p> <p>3. Closing and Assessment</p> <p>A. Debrief and Review Homework (5 minutes)</p> <p>4. Homework</p> <p>A. Complete the K and W columns of the Millipede Defense Mechanisms: KWL chart on page 13 of your research journal.</p>	<ul style="list-style-type: none"><li>• Science Talks provide students the opportunity to collectively theorize and build on each other's ideas. These talks provide a window on student's thinking that can help teachers figure out what students really know and what their misconceptions may be.</li><li>• Because this lesson is an introduction to the Science Talk for students, it may take longer than 60 minutes to establish norms for the Science Talk, as well as complete both rounds of the Science Talk protocol. Consider breaking this lesson into two class periods if your students need more time to complete each round of the protocol.</li><li>• The structure of this Science Talk follows the Fishbowl protocol with two concentric circles, one observing the other as they participate in the Science Talk. The students are paired with a Science Talk partner. Consider intentionally partnering students in heterogeneous partnerships.</li><li>• Students will need access to all graphic organizers and texts from Lessons 2–7 to use during the protocol as they justify their answers with evidence from their research. In Lesson 8, students were asked to record the specific texts connected with the facts on their Preparing for a Science Talk graphic organizer as they prepared for the Science Talk. However, some students may need to refer to the actual text during the protocol as questions arise during the discussion.</li><li>• At the conclusion of the Science Talk, students set goals teacher feedback from their peers and the teacher to set goals. In Lesson 13, students will use your feedback on their performance during the Science Talk (written on their note-catchers) to improve their performance during their next Science Talk. Be sure to complete feedback on this Science Talk for students by Lesson 13.</li><li>• This lesson opens with a vocabulary activity called Interactive Word Wall, sometimes called vocabulary concept mapping. In this activity, students make connections and explain relationships between different vocabulary words they have studied on a given topic. This helps them to better understand the meaning of the individual words and continue to build broader conceptual understanding of the topic.</li><li>• Students will be in groups of four to participate in the Interactive Word Wall portion of this lesson.</li><li>• In advance: Make enough complete sets of the Vocabulary Note cards (from Lesson 6) so that each group can have a complete set. Also write the directions listed in the supporting materials of this lesson on a piece of chart paper or on the board.</li><li>• Review: Science Talk, Interactive Word Wall, and Fishbowl protocols (see Appendix).</li><li>• Post: Learning targets.</li></ul>



Lesson Vocabulary	Materials
effectively, participate	<ul style="list-style-type: none"><li>• Vocabulary word cards (from Lesson 8; one set per group of four)</li><li>• Interactive Word Wall Directions (for teacher reference)</li><li>• Document camera</li><li>• Interactive Word Wall symbols (one set per group of four)</li><li>• Equity sticks</li><li>• Science Talk Norms anchor chart (from Lesson 8)</li><li>• Preparing for a Science Talk note-catcher (page 11 of the Animal Defenses research journal; from Lesson 8; one per student and one to display)</li><li>• Preparing for a Science Talk Notes and Goals sheet (page 12 of the Animal Defenses research journal; one per student and one to display)</li><li>• Participating in a Science Talk anchor chart (new; teacher-created)</li><li>• Sticky notes (three to four per student)</li><li>• Science Talk Criteria checklist (one for teacher reference)</li><li>• Millipede Defense Mechanisms: KWL chart (page 13 in Animal Defenses research journal; one per student and one to display)</li></ul>



Opening	Meeting Students' Needs
<p><b>A. Engaging the Reader: Connecting Key Vocabulary: Interactive Word Wall (10 minutes)</b></p> <ul style="list-style-type: none"><li>• Tell students they will use the <b>Vocabulary word cards (from Lesson 8)</b> they used in the previous lesson for Quiz-Quiz-Trade to participate in an activity called Interactive Word Wall. Explain further that the purpose of this activity is to help them make connections between the meanings of vocabulary words related to animal defense mechanisms.</li><li>• Place students in groups of four. Post or display and review the <b>Interactive Word Wall directions</b>:<ol style="list-style-type: none"><li>1. Place vocabulary word cards and arrows face-up in the middle of your group space.</li><li>2. Take turns selecting one word to connect with another.</li><li>3. Explain your connection to the group each time you take a turn.</li><li>4. It is fine to move words or connect more than one word with another.</li><li>5. Continue taking turns until you have connected every word to some other word.</li></ol></li><li>• Briefly model for students how to make and explain a connection. Use the <b>document camera</b> (or magnets on the board) to model something like the following: “I am going to connect the word <i>alert</i> to the word <i>escape</i>, because if an animal is alert and hears a predator coming, it has time to escape.” Emphasize each step of the directions, and be sure that students understand that words can be connected in multiple ways.</li><li>• Distribute a set of Vocabulary word cards with <b>Interactive Word Wall symbols</b> to each group. Give groups 10 minutes to make connections. If they finish early, encourage them to start again and try to make new connections with their words.</li><li>• Ask each group to share one connection they made between words and why. Ask: “Why is it important for readers to make connections between words? How does it help us to become better readers?” Have groups discuss briefly. Then use <b>equity sticks</b> to cold call a few students to share out.</li><li>• Collect Vocabulary word cards.</li></ul>	<ul style="list-style-type: none"><li>• For ELLs and other students needing additional support, consider predetermining the words and giving students time to discuss with a partner what they will say during a protocol-based conversation.</li><li>• Consider underlining or drawing a box around the vocabulary words in the learning targets to help struggling readers focus on those key words.</li></ul>



Opening (continued)	Meeting Students' Needs
<p><b>B. Reviewing Learning Targets (5 minutes)</b></p> <ul style="list-style-type: none"><li>• Ask students to read the first learning target: “I can effectively participate in a Science Talk about animal defense mechanisms.” Focus students’ attentions on the phrase <i>effectively participate</i>. Ask students what it looks/sounds like to effectively participate with peers, listening for ideas such as: “Wait my turn to speak, so I am heard; don’t shout/speak too loudly; make sure everyone gets a turn to speak; no one person does most/all of the speaking; use information from text to support my ideas,” etc. Add students’ ideas to a <b>Science Talk Norms anchor chart</b>.</li><li>• Ask the students to read the first two supporting targets for today’s lesson: “I can ask questions so I am clear about what is being discussed.” and “I can ask questions on the topic being discussed.” Ask students what they think is the difference between these two targets. Listen for things like: “The first one is asking me to make sure I’m understanding what is being talk about by everyone during the Science Talk,” and “The second one is asking me to ask questions during the Science Talk, not just listen to other people talk.”</li></ul>	



Work Time	Meeting Students' Needs
<p><b>A. Preparing for a Science Talk (10 minutes)</b></p> <ul style="list-style-type: none"><li>• Remind students that a Science Talk is a discussion about big or important questions scientists have. While scientists discuss these big questions with one another, it is important for them to create a set of rules, or norms, that they will all follow so everyone's ideas can be heard and considered.</li><li>• Explain that before they can participate in the Science Talk today, they need to spend a few minutes reviewing the notes they made on their Preparing for a Science Talk note-catcher in Lesson 8. Give the students 3–5 minutes to review their notes for the Science Talk on page 12 of their research journals.</li></ul>	<ul style="list-style-type: none"><li>• Science Talks help your ELLs process their thinking verbally, and learn from the thoughts of others.</li><li>• When reviewing the graphic organizers or recording forms, consider using a document camera to display the document for students who struggle with auditory processing.</li><li>• Encourage students to agree or disagree using thumbs-ups or thumbs-down. This can help students who struggle with language to process what their peers are saying.</li><li>• Consider drawing visuals next to each norm, giving ELLs another access point to understand the text.</li></ul>



Work Time (continued)	Meeting Students' Needs
<p><b>B. Conducting the Science Talk—Round 1 (15 minutes)</b></p> <ul style="list-style-type: none"> <li>• Gather students on the rug. Remind them to bring their research journals with the <b>Preparing for a Science Talk note-catcher</b> and the <b>Preparing for a Science Talk Notes and Goals sheet</b> on pages 9 and 10. Display the <b>Participating in a Science Talk anchor chart</b> for students to see. Briefly review the anchor chart with students, and answer any clarifying questions.</li> <li>• Explain that they today they will talk to each other about what they have been learning. Explain that this will not be the same kind of conversation that they might have on the playground or in other times during the day. Ask: <ul style="list-style-type: none"> <li>* “Why might this conversation be different?”</li> </ul> </li> <li>• Listen for responses like: <ul style="list-style-type: none"> <li>– “We’ll have to be more formal with each other and talk to each other like we would talk to an adult.”</li> </ul> </li> <li>• Ask the students to find the second section of their note-catcher labeled “My Science Talk Notes: Ideas and Questions.” Explain that this is where they will take notes during the Science Talk if they think of an idea or question they would like to share while waiting their turn to speak.</li> <li>• Distribute several <b>sticky notes</b> to each student in the outside circle to record observations of Science Talk Norms. Be explicit with students that they are recording evidence of the norms of the whole group, not individual students and that these comments should be kind, helpful, and specific, so that the group can improve their performance in future class discussions.</li> <li>• Briefly review the Science Talk Norms (from Lesson 8) and explain that their feedback should be based on these norms.</li> <li>• Provide a brief example of what students should write down on their sticky notes by saying something like: “Pay attention to the group you are observing and notice how they use the norms of a Science Talk. You might write down something on your sticky note like: ‘Most students used evidence from <i>Animal Behavior: Animal Defenses</i> to support their thinking.’”</li> <li>• Direct students to begin the Science Talk. Use the <b>Science Talk Criteria checklist</b> during this time to monitor student progression toward the learning targets. Quickly redirect and support students as needed, but avoid leading the conversation. Remind students that their questions and comments should be directed to one another, not the teacher.</li> </ul>	<ul style="list-style-type: none"> <li>• Providing visual models of academic vocabulary supports language development and comprehension.</li> <li>• Provide sentence frames for students to use as they participate in the Science Talk: “When I saw/heard _____, I learned _____” and “I wonder _____.”</li> </ul>



Work Time (continued)	Meeting Students' Needs
<p><b>C. Conducting the Science Talk—Round 2 (15 minutes)</b></p> <ul style="list-style-type: none"><li>• Ask students to switch places with their partners so that those students who were sitting in the outside circle are now sitting in the inside circle.</li><li>• Review the Science Talk Norms and invite students to help you give feedback to the exiting group. Consider using the following prompt:<ul style="list-style-type: none"><li>* What are two things this group did really well?</li><li>* What is one thing they could work on next time?</li></ul></li><li>• Discuss strategies that might help the next group be more successful in this area.</li><li>• Distribute several sticky notes to each student in the outside circle in order to record observations of Science Talk Norms.</li><li>• As you circulate and note which students are speaking and what ideas are being shared, make sure to record these observations on sticky notes. Refer back to these in future lessons.</li><li>• Direct students to begin the Science Talk. Use the Science Talk Criteria checklist during this time to monitor student progression toward the learning targets. Quickly redirect and support students as needed, but avoid leading the conversation. Remind students that their questions and comments should be directed to one another, not the teacher. Briefly review the Science Talk Norms anchor chart.</li></ul>	<ul style="list-style-type: none"><li>• Provide sentence frames for students to use as they participate in the Science Talk: “When I saw/heard _____, I learned _____” and “I wonder _____.”</li></ul>



Closing and Assessment	Meeting Students' Needs
<p><b>A. Debrief and Review Homework (5 minutes)</b></p> <ul style="list-style-type: none"> <li>• Read aloud the learning target: “I can effectively participate in a Science Talk about animal defense mechanisms.” Ask students to use thumbs-up if they met the target or thumbs-down if they still need to work on the target. Cold call using the equity sticks on several students to share why they gave themselves a thumbs-up or thumbs-down, prompting them to refer to the norms they determined for the Science Talk Norms anchor chart as a way to support their self-assessment.</li> <li>• Review the homework assignment for tonight. Explain to students that they will now be shifting their research on animal defense mechanisms and focus specifically on the millipede’s defense mechanisms.</li> <li>• Invite students to open to page 13 of their research journals to the <b>Millipede Defense Mechanisms: KWL chart</b>. Explain that they will be using this chart like they used the Animal Defense Mechanisms: KWL chart.</li> <li>• Tell students that for homework, they should start thinking about what they already know about the millipede and what they want to know about it, noting their thinking in the K and W columns of the chart.</li> </ul>	<ul style="list-style-type: none"> <li>• Allowing students to work in small groups provides the opportunity for all students to share their voices.</li> </ul>
Homework	Meeting Students' Needs
<ul style="list-style-type: none"> <li>• Complete the K and W columns of the Millipede Defense Mechanisms: KWL Chart on page 13 of your research journal.</li> </ul> <p><i>Note: Students will need specific feedback from this Science Talk in order to reflect on and set goals before they participate in the next Science Talk in Lesson 13. Write feedback on the teacher feedback sections on their Preparing for a Science Talk note-catcher.</i></p> <p><i>Focus the feedback on the learning targets that was emphasized in this lesson: “I can ask questions so I am clear about what is being discussed” and “I can ask questions on the topic being discussed.” Also give suggestions to any students who may need more coaching in order to follow the Science Talk norms created in this lesson. Keep feedback focused, brief, and encouraging. For example: “I noticed that you recorded three pieces of evidence from the text on your form. Great! During next Science Talk, be sure to mention the text during the class the discussion.” Or “I noticed you were able to use evidence from the text when sharing your ideas during the Science Talk. Good work! One thing you should focus on for our next Science Talk is waiting your turn to speak.”</i></p>	



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## Supporting Materials



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**Interactive Word Wall:**  
Directions For Teacher Reference

**Teacher Directions:** Write these directions on a piece of chart paper or on the board prior to beginning this lesson with students.

**Interactive Word Wall Directions**

1. Place vocabulary word cards and arrows face up in the middle of your group space.
2. Take turns selecting one word to connect with another.
3. Explain your connection to the group each time you take a turn.
4. It is fine to move words or connect more than one word with another.
5. Continue taking turns until you have connected every word to some other word.



Interactive Word Wall:  
Symbols




Participating in a Science Talk  
Anchor Chart  
(for Teacher Reference)

- Discussing a question you are researching with your peers can help you understand what you have read in your research of the topic.
- Think about the question: How do animals' bodies and behaviors help them survive?
- Revisit the text and gather evidence to support your thinking.
- Find a Science Talk Partner and number off, 1 and 2.
- Gather in two circles on the floor with your Preparing for a Science Talk note-catcher. Partner 1 sits in the inside circle facing in. Partner 2 sits directly behind their partner.
- Inside circle:
  - \* Take turns sharing your thinking about the question. Be sure to reference the evidence you gathered from the texts you read and recorded in your note-catcher.
  - \* As you listen to the conversation, record any new ideas or questions you would like to share with the group as you wait to speak.
  - \* Respond to others and build on their ideas.
  - \* Follow Science Talk Norms.
- Outside circle:
  - \* Observe the inside group silently, looking for evidence of how they are following the Science Talk Norms.
  - \* Record your observations on sticky notes. Be specific about what you see.
- Outside partner gives feedback to the inside partner about how well the group followed the Science Talk Norms.

