

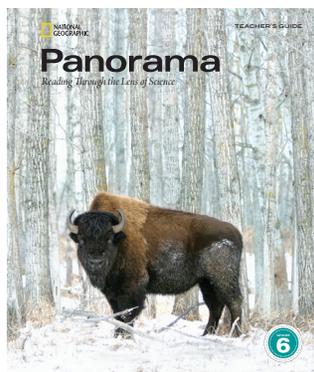


Deborah J. Short, Ph.D.

Differentiate Instruction

by *Deborah J. Short*

In *Panorama*, we want students to get their hands dirty, digging deep into rich, authentic, relevant text to pull out meaning and cultivate new ideas. We have crafted our units around big ideas in science. The units include real, grade-level text, both nonfiction and fiction.



We want students to grapple with the complex scientific ideas presented in these texts, but we realize that at times we need to provide support while they do so. We want to build their knowledge and skills, so they can read more independently, deriving meaning and making connections on their own over time.

When students struggled with comprehending grade-level text, research shows that teachers found texts at lower reading levels for students or read the texts aloud and explained the concepts to the students. Neither strategy advanced the students' own reading comprehension skills (Kamil, 2011). They were not scaffolds that moved students to independence; they were crutches that kept them hobbled. In contrast, in today's world we need students and workers who have strong comprehension skills and who can apply scientific knowledge to society's challenges (NGSS Lead States, 2013).

Therefore, in *Panorama* we do not differentiate the text. Instead we differentiate the instruction around the complex, academic text for students of multiple ability levels and stages of English language development at all grade levels. The goal is to enhance all students' reading skills, and we do so at varying points in the program. Differentiation, for example, can happen with teacher and student talk, with pre-reading activities, with supports during reading, and with post-reading activities.

Teachers can guide students to construct meaning from texts and to understand complex content concepts by scaffolding instruction and promoting social interaction (Bruner, 1983). This kind of contextualized communication enhances learning (Vygotsky, 1978). We illustrate this below with suggestions for differentiation around the text—at various stages of the meaning-making process.

Before Reading

Before students start to read a text, we can increase their access through several pre-reading activities. One critical way is to build background and make connections to prior knowledge. When readers have schema, that is familiarity with and accurate information about a text's topic or storyline, they can process the information they read more easily (Neuman, Kaefer & Pinkham, 2014). The National Geographic video clips provide an excellent introduction to the key science topics and a first pass at the Big Question students will be exploring. The visual and audio support that are inherent in the video clips will bring the topic to life for all students. For those who are struggling readers or English learners, these clips are an invaluable way to convey background information.



Background knowledge can also be built or activated through discussion and use of other types of visuals. (Echevarria, Vogt & Short, 2017). In *Panorama* we guide teachers and students with discussion prompts and academic language frames to facilitate collaborative conversations. National Geographic photos engage students and illustrate key learning points. By exploring the Big Question of the unit and the Focus Question of the selection, we also help students set a purpose for reading.

Sometimes to aid in the reading process we need to pre-teach key vocabulary (Fisher & Frey, 2014). In our materials, students engage with new science words and other academic terms that allow them to talk about the topics or the tasks in meaningful ways. They also have opportunities to develop word learning strategies so when they encounter an unfamiliar word, they can apply a set of strategies to try to derive meaning. They also explore how to make different forms of words from roots, bases, and affixes that can help them articulate their ideas more clearly in speech or writing.

As students advance through the elementary grades, they are given opportunities to read a variety of genres with increasingly sophisticated syntax. For some, the genres may be new, so it is important to explicitly teach the learners about the type of text and key text structures they will tackle. This knowledge is later put into practice when students learn to read independently. To further this independent reading, we also spend time teaching students a reading skill, like identifying supporting details, and a reading strategy, like making predictions, that they immediately apply with a new text. Through a mini-lesson on these skills or on grammatical elements they may face, students build up their reading abilities to overcome stumbling blocks while moving through a selection. The skills they develop promote the reading comprehension process.

During Reading

While students are reading, additional differentiation may be needed. Key features like visuals and captions support student comprehension. Teachers may want to check in with some students as they read sections of a text. The Before You Move On questions are ideal for this as they are text-dependent and assess comprehension. They may call attention to new vocabulary words used in context, suggest a reading skill or strategy that can be employed to make meaning, or encourage students to connect the text they are reading with another they have read. Teacher prompts during the reading process can also direct students to textual support for the Focus Questions they seek to answer.

Keeping track of all the information in a text can be a challenge, particularly in the upper elementary grades when texts are longer and denser. When students read a text the first time, the goal is to get the gist of the story, or article, or poem. Then we engage students with purposeful rereading to delve deeper. To assist, we offer graphic organizers and charts for students to record the key ideas. These organizers are useful later when students have to cite evidence, draw inferences, or generate conclusions.

We also ask students to do a close reading. This involves a targeted deep dive, perhaps into the author's purpose, the author's style and word choice, the implications of the information, and more. The process is also a scaffold for independent reading so students learn to unpack the complexity of text (Serafini, 2014). They use collaborative discussions and an interactive worktext to annotate, collect, share, and test their ideas and understandings.

Close Reading for page 2 of African Savanna

Objectives: Reading (C.1) Read Complex Informational Text. Speaking and Listening (L.1) Engage in Collaborative Discussion.

Materials: African Savanna Interactive Workbook page 40-41

Set a Purpose: Facilitate a whole-group collaborative discussion about Kilguri and Kibo. Tell students that to prepare for this discussion, you will show them how to closely read page 2 in *African Savanna*. This page is complex because the author does not explicitly state what would have happened to Kibo and Kilguri without the people at the orphanage.

Disrupt Text Complexity: Tell students that before digging into deeper meaning, it's important to understand the literal meaning of text. Read about the text and pause to talk about ambiguous language, such as "nowhere to be found" and "key to their survival."

Model: Have to unpack inferential meaning as students follow on *Interactive Workbook* (page 41). See *ML.5.L.10.C.1* *Engage.com* for a modeling script.

Collaborative Discussion: Facilitate a text-based discussion to help students better understand the goal of the Wildlife Trust's Orphan Project. Have students use pages 40-41 of the *Interactive Workbook* to closely read and take notes on page 2 of *African Savanna* to prepare for the discussion.

1. What is the goal of the David Sheldrick Wildlife Trust's elephant nursery in Kenya? Annotate text evidence that supports your answer. (Its goal is to **rescue** orphaned elephants so that they can have long, healthy lives. **Highlight:** "young African elephants that are injured and orphaned can't eat and grow into healthy adults.")
2. Annotate that text that tells what the nursery provides to the orphaned elephants. (**Highlight:** "food, shelter, and relationships.")
3. Explain why the word the nursery does is more important than just keeping the baby elephants alive. Annotate text evidence that supports your answer. (Elephants live for a long time, so they need to have life skills that will help when they are adults. The babies need family groups because they are so social throughout adulthood. **Highlight:** "Elephants form strong bonds with their parents that last their whole lives, up to 70 years.")

After partners have worked through the close reading questions, discuss students' answers as a whole group. Ask volunteers to share what they have discovered about the nursery from closely reading the text.

Professional Learning: Learn more about the Close Reading Routine.

Next Generation Science Standards:

5-LS1-1 Analyze and compare the structure and function of the cell as a basic unit of life.

5-LS1-2 Analyze and compare the structure and function of simple organisms.

5-LS1-3 Analyze and compare the structure and function of more complex organisms.

5-LS1-4 Analyze and compare the structure and function of the human body system.

5-LS1-5 Analyze and compare the structure and function of the human body system.

5-LS1-6 Analyze and compare the structure and function of the human body system.

5-LS1-7 Analyze and compare the structure and function of the human body system.

5-LS1-8 Analyze and compare the structure and function of the human body system.

5-LS1-9 Analyze and compare the structure and function of the human body system.

5-LS1-10 Analyze and compare the structure and function of the human body system.

5-LS1-11 Analyze and compare the structure and function of the human body system.

5-LS1-12 Analyze and compare the structure and function of the human body system.

5-LS1-13 Analyze and compare the structure and function of the human body system.

5-LS1-14 Analyze and compare the structure and function of the human body system.

5-LS1-15 Analyze and compare the structure and function of the human body system.

5-LS1-16 Analyze and compare the structure and function of the human body system.

5-LS1-17 Analyze and compare the structure and function of the human body system.

5-LS1-18 Analyze and compare the structure and function of the human body system.

5-LS1-19 Analyze and compare the structure and function of the human body system.

5-LS1-20 Analyze and compare the structure and function of the human body system.

5-LS1-21 Analyze and compare the structure and function of the human body system.

5-LS1-22 Analyze and compare the structure and function of the human body system.

5-LS1-23 Analyze and compare the structure and function of the human body system.

5-LS1-24 Analyze and compare the structure and function of the human body system.

5-LS1-25 Analyze and compare the structure and function of the human body system.

5-LS1-26 Analyze and compare the structure and function of the human body system.

5-LS1-27 Analyze and compare the structure and function of the human body system.

5-LS1-28 Analyze and compare the structure and function of the human body system.

5-LS1-29 Analyze and compare the structure and function of the human body system.

5-LS1-30 Analyze and compare the structure and function of the human body system.

5-LS1-31 Analyze and compare the structure and function of the human body system.

5-LS1-32 Analyze and compare the structure and function of the human body system.

5-LS1-33 Analyze and compare the structure and function of the human body system.

5-LS1-34 Analyze and compare the structure and function of the human body system.

5-LS1-35 Analyze and compare the structure and function of the human body system.

5-LS1-36 Analyze and compare the structure and function of the human body system.

5-LS1-37 Analyze and compare the structure and function of the human body system.

5-LS1-38 Analyze and compare the structure and function of the human body system.

5-LS1-39 Analyze and compare the structure and function of the human body system.

5-LS1-40 Analyze and compare the structure and function of the human body system.

5-LS1-41 Analyze and compare the structure and function of the human body system.

5-LS1-42 Analyze and compare the structure and function of the human body system.

5-LS1-43 Analyze and compare the structure and function of the human body system.

5-LS1-44 Analyze and compare the structure and function of the human body system.

5-LS1-45 Analyze and compare the structure and function of the human body system.

5-LS1-46 Analyze and compare the structure and function of the human body system.

5-LS1-47 Analyze and compare the structure and function of the human body system.

5-LS1-48 Analyze and compare the structure and function of the human body system.

5-LS1-49 Analyze and compare the structure and function of the human body system.

5-LS1-50 Analyze and compare the structure and function of the human body system.

5-LS1-51 Analyze and compare the structure and function of the human body system.

5-LS1-52 Analyze and compare the structure and function of the human body system.

5-LS1-53 Analyze and compare the structure and function of the human body system.

5-LS1-54 Analyze and compare the structure and function of the human body system.

5-LS1-55 Analyze and compare the structure and function of the human body system.

5-LS1-56 Analyze and compare the structure and function of the human body system.

5-LS1-57 Analyze and compare the structure and function of the human body system.

5-LS1-58 Analyze and compare the structure and function of the human body system.

5-LS1-59 Analyze and compare the structure and function of the human body system.

5-LS1-60 Analyze and compare the structure and function of the human body system.

5-LS1-61 Analyze and compare the structure and function of the human body system.

5-LS1-62 Analyze and compare the structure and function of the human body system.

5-LS1-63 Analyze and compare the structure and function of the human body system.

5-LS1-64 Analyze and compare the structure and function of the human body system.

5-LS1-65 Analyze and compare the structure and function of the human body system.

5-LS1-66 Analyze and compare the structure and function of the human body system.

5-LS1-67 Analyze and compare the structure and function of the human body system.

5-LS1-68 Analyze and compare the structure and function of the human body system.

5-LS1-69 Analyze and compare the structure and function of the human body system.

5-LS1-70 Analyze and compare the structure and function of the human body system.

5-LS1-71 Analyze and compare the structure and function of the human body system.

5-LS1-72 Analyze and compare the structure and function of the human body system.

5-LS1-73 Analyze and compare the structure and function of the human body system.

5-LS1-74 Analyze and compare the structure and function of the human body system.

5-LS1-75 Analyze and compare the structure and function of the human body system.

5-LS1-76 Analyze and compare the structure and function of the human body system.

5-LS1-77 Analyze and compare the structure and function of the human body system.

5-LS1-78 Analyze and compare the structure and function of the human body system.

5-LS1-79 Analyze and compare the structure and function of the human body system.

5-LS1-80 Analyze and compare the structure and function of the human body system.

5-LS1-81 Analyze and compare the structure and function of the human body system.

5-LS1-82 Analyze and compare the structure and function of the human body system.

5-LS1-83 Analyze and compare the structure and function of the human body system.

5-LS1-84 Analyze and compare the structure and function of the human body system.

5-LS1-85 Analyze and compare the structure and function of the human body system.

5-LS1-86 Analyze and compare the structure and function of the human body system.

5-LS1-87 Analyze and compare the structure and function of the human body system.

5-LS1-88 Analyze and compare the structure and function of the human body system.

5-LS1-89 Analyze and compare the structure and function of the human body system.

5-LS1-90 Analyze and compare the structure and function of the human body system.

5-LS1-91 Analyze and compare the structure and function of the human body system.

5-LS1-92 Analyze and compare the structure and function of the human body system.

5-LS1-93 Analyze and compare the structure and function of the human body system.

5-LS1-94 Analyze and compare the structure and function of the human body system.

5-LS1-95 Analyze and compare the structure and function of the human body system.

5-LS1-96 Analyze and compare the structure and function of the human body system.

5-LS1-97 Analyze and compare the structure and function of the human body system.

5-LS1-98 Analyze and compare the structure and function of the human body system.

5-LS1-99 Analyze and compare the structure and function of the human body system.

5-LS1-100 Analyze and compare the structure and function of the human body system.

After Reading

Once students have finished a selection, they can begin to make connections to other texts, confirm or disconfirm their predictions, marvel at the plot, appreciate a character's traits, or recognize new ideas that have extended their thinking about a scientific topic. All these mental processes can be shared with others orally and in writing. We know from research on language development that strengthening one domain strengthens others (August & Shanahan, 2006). So if students write about what they have read, they increase their understanding of the text (Graham & Hebert, 2010). If students read more and read diverse genres, they are exposed to models that can improve their writing. While talking about a text beforehand may stimulate students' interest in the topic or build knowledge that will help guide them through the article or story, talking after reading can help solidify their ideas, perhaps confirming a prediction or changing an opinion (Baker et al., 2010).

In *Panorama* students collaboratively converse with their teacher and classmates and refer to the text to show how it generated new knowledge or justified an opinion they had. Because they have a Big Question and a Focus Question to consider, the completion of the reading gives them material to craft a response aided by prompts from the teacher and academic language frames. Writing activities are an integral part of the learning process too. Students learn to write to sources and to write responses to the key questions, based on evidence in texts.

The tasks we ask students to accomplish after they have completed the reading can be differentiated in several ways. Depending on the purpose, the task may be written, oral, pictorial, kinesthetic, or a combination of these. A writing task can be adjusted for a student with low proficiency in English, for example, with home language supports, word and phrase banks, pre-writing organizers, and partner pairing. The writing task for an above-level student might be the same but omit the supports because that student does not need them.

How we group students to participate in post-reading activities can also be varied. At times, students clustered by reading levels may make sense for targeted teacher interventions, but at other times grouping the learners by interest (who wants to make a poster? who wants to record a public service announcement?), by native language (so they can research information in that language), or by a skill that needs more practice can be more productive. The decisions should always be based on the learning objectives and the students' learning needs.

Conclusion

Our school systems demand academic rigor in the classroom in order to prepare all students for colleges and careers. Each state has standards for language arts and literacy, mathematics, science, and English language development that teachers develop lessons around. Our goal with *Panorama* is to help students develop academic literacy skills using authentic and meaningful text. Students explore science topics that link to national and state science standards and build standards-based language and literacy skills at the same time. They have the opportunity to develop the habits of mind of scientists and to strengthen their critical thinking skills.

Panorama is designed to be engaging and flexible, a reading program that joins authentic literature with informational text to address grade-appropriate science topics. We know that some students, English learners and struggling readers for instance, need supports to access these texts. Therefore, this program offers teachers specific guidance on how to differentiate lessons for students at multiple ability levels and stages of English language development. As students make progress in mastering reading skills and strategies, the scaffolds can be adjusted until, ideally, they are no longer needed.

References

- August, D., & Shanahan T. (Eds.).** (2006). *Developing literacy in second-language learners: A report of the National Literacy Panel on Language-Minority Children and Youth*. Mahwah, NJ: Erlbaum.
- Baker, S., Lesaux, N., Jayanthi, M., Dimino, J., Proctor, C.P., Morris, J., Gersten, R., Haymond, K., Kieffer, M.J., Linan-Thompson, S., & Newman-Gonchar, R.** (2014). *Teaching academic content and literacy to English learners in elementary and middle school* (NCEE 2014–4012). Washington, DC: National Center for Education Evaluation and Regional Assistance (NCEE), Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc/publications_reviews.aspx.
- Bruner, J.** (1983). *Child's talk: Learning to use language*. New York, NY: W.W. Norton.
- Echevarria, J., Vogt, M.E., & Short, D.J.** (2017). *Making content comprehensible for elementary English learners: The SIOP Model*. 3rd ed. Boston: Pearson Allyn & Bacon.
- Fisher, D., & Frey, N.** (2008). *Better learning through structured teaching*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Fisher, D., & Frey, N.** (2014). Content area vocabulary learning. *The Reading Teacher*, 67(8), 594–599.
- Graham, S., & Hebert, M.A.** (2010). *Writing to read: Evidence for how writing can improve reading*. A Carnegie Corporation Time to Act Report. Washington, DC: Alliance for Excellent Education.
- Kamil, M.** (2011). Current and historical perspectives on reading research and instruction. In Harris, K. R., Graham, S., & Urdan, T. (Eds.), *APA educational psychology handbook* (Vol. 3, Application to teaching and learning; pp. 161–188). Washington, DC: American Psychological Association.
- NGSS Lead States.** (2013). *Next generation science standards: For states, by states*. Executive Summary. Washington, DC: The National Academies Press. Retrieved from https://www.nextgenscience.org/sites/default/files/Final%20Release%20NGSS%20Front%20Matter%20-%206.17.13%20Update_0.pdf.
- Serafini, F.** (2014). Close readings and children's literature. *The Reading Teacher*, 67(4), 299–301.
- Vygotsky, L.** (1978). *Mind and society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds. and trans.). Cambridge, MA: Harvard University Press.