Instructional Activities and Assessments That Support Learning and Communicating Like a Scientist

Use this table to record your findings when using these instructional activities as formative assessments. See the book chapters indicated for a fuller explanation of each activity.

Instructional Activity		Assessment Findings	Feed Forward	
Chapter 2	***Glogs (pages 69-70).*** As students create these visually represented illustrations, their conceptual understandings of the targeted scientific topics and the depth of their personal interpretations become apparent.			
	Inside/Outside Circles (page 200). While discussing a scientific concept, each student's range of scientific language use and conversational skills becomes transparent.			
	Oral Language Frames (pages 8, 110–111, 179). These language supports activate students' thinking and sharing of their thoughts about a scientific concept while also indicating the depth of their understanding.			
	Four Corners (pages 48-51). As students share the rationale for their agreements and disagreements, they reveal their existing scientific knowledge and language.			
	Discussion Webs (pages 64–66). With this activity, students indicate their understanding of the ideas they have gleaned through close readings of texts.			
	Scientific Investigations (pages 19, 23–24, 43, 137–138). During an investigation, students' developing understandings of scientific concepts and engagement are obvious.			
	Picture It (page 73). Students' conversations while viewing and discussing scientific photos and visuals offer insights regarding their conceptual understandings and language.			

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Chapter 3	***Investigation Collaboration Guidesheet (page 113).*** As students discuss lab ideas with partners in order to document an investigative plan, the teacher can identify content knowledge and inquiry thinking.			
	Language Templates (pages 110–111, 115). When students incorporate appropriate language to write about science concepts in a logical and concise manner, the teacher can assess an understanding of informational science writing.			
	Argumentative Guidesheet (page 119). A review of a student's draft of an argumentative paper can reveal whether or not he or she understands that the paper includes a claim, supporting evidence, counterarguments, and a summary.			
	Brainstorming Map (pages 119–120). When students work with partners to complete the Brainstorming Map for their argumentative essays, teachers can listen in on student discussions and review diagrams to monitor student understanding of the argumentative essay writing process.			
	Graphic Organizer (pages 93, 95, 107–108). As students construct a graphic organizer, they reveal their understanding of conceptual relationships.			
	Timed Writing (pages 78, 195). How much a student writes over time about a particular topic provides insights about his or her developing conceptual and language knowledge and also his or her writing.			
	RAFT (pages 100, 101–104, 200). Student RAFTs display comprehension of science concepts using the tool of perspective to frame the writing. Teachers can determine a student's depth of understanding by reviewing a RAFT.			

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Chapter 4	***Personal Investigation Journals (pages 137–139, 207).*** Through the chronicling of information, students reveal their scientific understandings.			
	Scientific Experimentation (pages 114–115). Participation in scientific inquiry conveys the degree of a student's conceptual knowledge, language learning, and engagement.			
	Self-Assessment Vocabulary Chart (page 176). Completion of this chart conveys students' metacognitive assessments of their knowledge of scientific language.			
	Semantic Feature Analysis (pages 178, 190, 210–211). Students' understanding of the features of various scientifically related words can be accessed through this instructional activity.			
	Sentence Frames (pages 179–181). As students use sentence frames, they convey their understanding of the scientific information that completes the sentence.			
	Shades of Meaning (pages 179–181). As a student arranges words according to subtle nuances, he or she illustrates understanding of the core ideas and crosscutting concepts.			
	Word Cards for Word Sorts (pages 89, 118, 182). This sorting of words conveys students' understanding of the connectedness of meaning in a conceptual word family.			
	Frayer Word Cards (pages 89, 118, 182). As students create word cards, teachers can assess their knowledge and technical terminology.			
	Semantic Maps (pages 183–184, 211). Completion of semantic maps offers insights regarding the connectedness of students' thinking as related to a scientific concept.			

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Chapter 4	***Snapshot of Oral Reading Fluency (pages 172–175, 208).*** Snapshots illustrate the synchronicity of the oral reading of a text.			
	Reciprocal Teaching (pages 168–169). When students ask each other questions and offer statements of clarification, they articulate or indicate the range and depth of their thinking as related to a particular concept.			
	ReQuest (pages 143–146). While engaging in this activity, students' ability to create text-based questions as a way to support "meaning making" indicates the depth of their scientific understandings.			
	Jigsaw (pages 184–188). Participation in this collaborative conversation illustrates the depth of students' scientific knowledge, language, and understanding of a topic.			