

## Study Guide—Complete Step 5 before teaching Investigation 5 of the Grade 4 Curriculum

Use the Step 5 “Independent Web Study” and “In Your Classroom” to prepare for a productive study group meeting and discussion.

### INDEPENDENT WEB STUDY



#### Study the Scientist Case: Chris Swan—Heavy for Size Investigations

The second section of the curriculum—Heavy for Size—focuses on the idea that some materials are heavier for their size than others. In their investigations students consider weight, volume, heaviness for size (density) and weight lines. Look at the learning goals for Investigations 2.1-2.4. to become familiar with the concepts highlighted. Based on your review of the goals and the Scientist Case, what understandings will you emphasize during class discussion?



#### Study the Classroom Case: The Role of Data Discussions

In this video case students tackle the following question: *If samples of different materials have the same volume, do they have the same weight?* How do the teacher and students use student-generated data to debate and answer the question? This discussion is an opportunity for students to make sense of their measurements and reflect on what these data tell them about properties of earth materials. Can you find evidence that students are really thinking about what they can learn from this data set? What strategies does Aadina use to encourage students to look critically at the data? What strategies do you think would be particularly helpful in encouraging your students to generate explanations based on data?



#### Study the Talk Strategy: Listen Carefully

Students learn from each other by critiquing and building on each other’s ideas. But, for this to happen, they first need to hear and understand each other’s ideas. What strategies support deeper listening? Identify one or more strategies from “Listen Carefully” that you’d like to build into your own teaching.

### IN YOUR CLASSROOM



#### Audiotape an All-class Discussion

Tape a science data discussion. (Place the recorder so that it will pick up both your voice and the students’ voices.) After class, listen to sections of the tape. Were all students able to stay engaged during discussion of the data? If not, what can you do to ensure that some don’t get lost? Can you catch yourself using a strategy that encourages students to listen to each other? How do your students respond when you use the move?

Identify a question or dilemma that arose from your independent study and your experience in the classroom. Plan to talk about your experience in the study group. You may want to identify a short interchange from the tape (~30 seconds) to share during the study group meeting.

### STUDY GROUP MEETING



#### Learn with Colleagues: Share classroom evidence, successes, and challenges

What did you do differently to encourage students to listen to each other? Prepare for a 5-minute discussion of your experience. (There may or may not be time for everyone to share experiences in every study group meeting, but preparing to discuss your own experience will contribute to discussion of others’ experiences.)

#### Possible Discussion Protocol

1. Plan a core question for discussion.
2. Share your experience (2 or 3 minutes). If feasible, share a short audio or video clip to anchor the discussion (~30 seconds).
3. Respond to colleagues questions
4. Listen while colleagues discuss the issue.
5. Summarize how you are thinking now. What are the implications for your teaching?