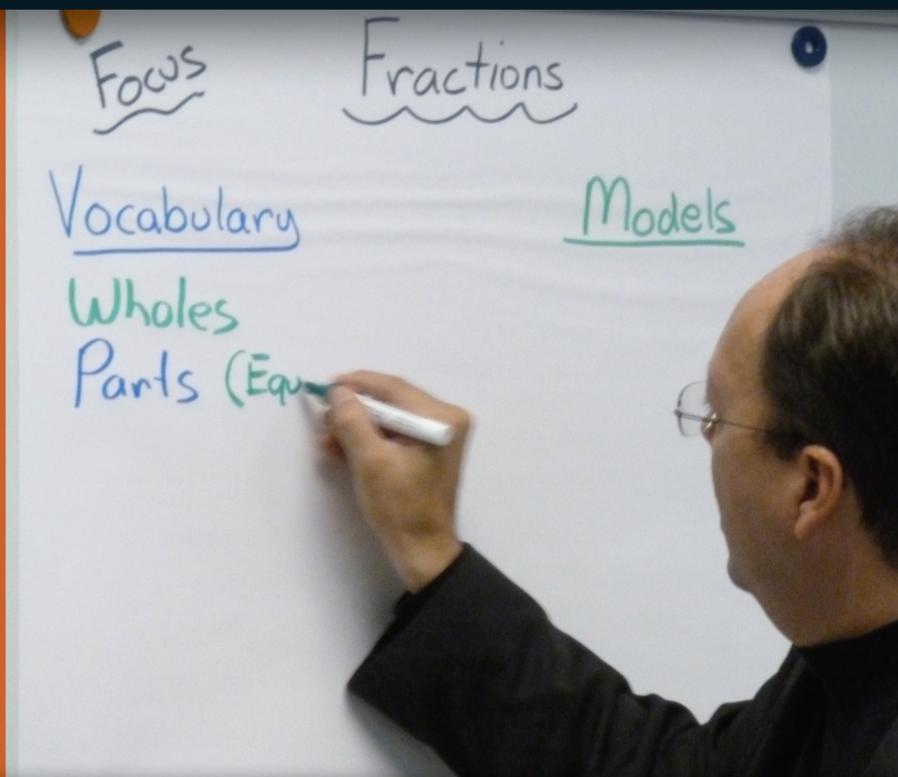


MATH TOOLS *in Action*

Anchor Charts



Marco Ramirez & Chris Confer

Viewing Guide

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Introduction

Math Tools in Action: Anchor Charts was taped in Tucson, Arizona, at Pueblo Gardens Elementary School, which has a diverse population. Many of the students in the video are English language learners and speak Spanish or Vietnamese at home. About 90 percent of the students participate in the free lunch program, and the school receives Title I funds as a result.

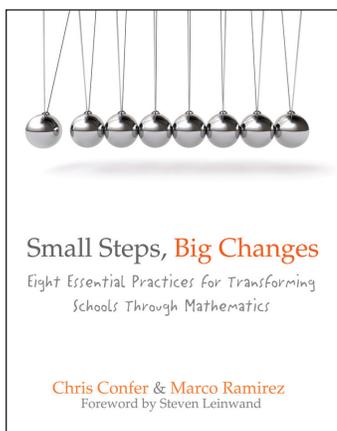
In this DVD, Marco Ramirez and Chris Confer—both of whom are consultants and authors of books and videos on mathematics instruction—show how math anchor charts can be a valuable part of daily math instruction. You will also hear Marco and Chris converse about the different ways they use and develop anchor charts and why anchor charts are a valuable tool for teaching mathematics.

This guide is designed to help you consider how anchor charts, a simple tool, can help create active classrooms where students think, reason, solve problems, and communicate. The Common Core State Standards for Mathematics require instruction that many teachers did not experience when they were students. Marco Ramirez and Chris Confer hope that these glimpses of real math lessons will provide interesting and useful images of students and teachers using anchor charts as a model of the Mathematical Practices—the processes and proficiencies that are an important part of the Common Core State Standards.

The key questions and activity suggestions in this study guide also offer workshop facilitators and viewers the opportunity to engage with the ideas at a deeper level. By making connections to a teacher’s own classroom and aiming to move “good ideas” to “consistent practice,” the suggestions in the guide will help create professional learning communities with significant outcomes.

It is interesting to note that this DVD was taped during the second week of the school year. Although this schedule could make any teacher nervous, it was not a problem at Pueblo Gardens Elementary School. The teachers and students of Pueblo Gardens have been working hard on mathematics for more than a decade, and the school’s culture of mathematical problem solving carried the students through the lessons. The glimpse into these classrooms shows how Chris and Marco use anchor charts in a variety of ways. In particular, you will see Marco use an anchor chart throughout a lesson on multiplication to unwrap, highlight, and reinforce key mathematical ideas. Through experiences like these, students come to understand the value and structure of anchor charts while developing a deeper understanding of the mathematics they are investigating.

To learn more about Pueblo Gardens Elementary School and the essential practices that helped this high-poverty school, and other schools, move from “underperforming” to “highly performing,” you may wish to read *Small Steps, Big Changes: Eight Essential Practices for Transforming Schools Through Mathematics* by Chris Confer and Marco Ramirez (Stenhouse 2012). This short, readable book is filled with stories from teachers, coaches, and principals—engaging stories that breathe life into the doable, simple practices that can fundamentally change a school. The other two DVDs in the *Math Tools in Action* series, *Journals* and *Manipulatives*, provide examples of these practices as well.



Why Anchor Charts?

In this brief introduction, Marco and Chris provide an overview of the benefits of using anchor charts in the classroom. Use this sequence to give participants a chance to hear Marco and Chris’s perspectives and to connect to participants’ own ideas and experiences with anchor charts. What is the value of using math anchor charts? How can they develop student engagement and confidence with math content and vocabulary? How might they be beneficial during instruction and as references throughout the year?

Discussion questions and activity suggestions:

1. Math anchor charts provide teachers with a tool to support student thinking, reasoning, and problem solving. How might an anchor chart be organized, introduced, constructed, and used throughout a math lesson? Have small groups brainstorm and record their ideas using Figure 1, “Organizing and Using Anchor Charts.”
2. How might anchor charts support students in developing accurate concepts and precise mathematical language? How does math language support student conceptual development? Use Figure 2, “Developing Accuracy and Precision with Anchor Charts,” to record group ideas.
3. What challenges do you anticipate when including math anchor charts in your instruction and then incorporating them into your classroom environment? What solutions can you come up with? Use Figure 3, “Anchor Charts: Challenges and Solutions,” as a graphic organizer for this discussion.
4. Anchor charts are sometimes used during literacy instruction. Why would it make sense to adapt this instructional strategy to mathematics? How can you use other literacy instructional strategies, such as the use of graphic organizers, to support student thinking in math?
5. How are anchor charts and math journals related? How are their instructional roles similar and different?

Getting Started with Anchor Charts

Teachers often use word walls and graphic organizers to support student learning in literacy. The world of mathematics is highly dependent on literacy—more new words and concepts are encountered in mathematics than in any other subject throughout students’ academic careers. Because of this, it is imperative to build instructional patterns that develop skills and concepts along with the ability to accurately communicate mathematical understandings.

The first step is to examine your classroom and choose a focal point from which you will be teaching your mathematics lessons. You will often add to your anchor chart as you teach your lesson, so make sure that it is visually accessible to all students.

Second, examine your classroom for additional wall space. Some anchor charts might need to be referenced throughout the year, and these will need to be placed in

an area that is visible to all students. Younger students may need to go up to the anchor chart to find words or review concepts; rather than hanging them up high, try putting anchor charts where students can reach them. Also consider that you—the teacher—may want to reference previous anchor charts as you teach. Are they in a location that will allow you to do this?

Last, decide on the protocols or procedures that you will use with your anchor charts. How will you structure your anchor charts? Will you create them before the lesson or during the lesson? What size print and drawings will be needed so that they can be seen by everyone in the classroom? Do you plan to have students record the information on the anchor chart in their journals?

Notes About Using Math Anchor Charts in Kindergarten, Grade One, and Grade Two

Many teachers of young children are surprised by how effective anchor charts can be in supporting their students' mathematics development. They notice that their children come to rely on anchor charts as a useful tool and gain confidence with the fluency, skills, and concepts that bring success in mathematics. Creating word banks in their math journals with current anchor chart words helps students learn key vocabulary and supports them when they write.

Young children also benefit from anchor charts that include both words and pictures, especially because math vocabulary can be abstract. Anchor charts include important mathematics vocabulary and labels for manipulatives. Anchor charts can also be used to practice sight words, and choral reading strategies can help develop this facility. As you reflect on this video, what strategies do you see that you can implement with young children? What benefits do you expect as a result of using anchor charts with your students?

As children in first and second grade are poised to develop stronger literacy skills, anchor charts serve as a critical tool in developing mathematical literacy. As you watch and consider this video, note how anchor charts support the mathematical content and language that students need to be successful in mathematics. How can younger children benefit from the instructional strategies used with these fourth and fifth graders? What do you expect children in first and second grade to be able to communicate about their thinking in mathematics? How might you organize your anchor charts to accomplish your mathematical goals?

Grade Five: Introducing Anchor Charts

The majority of the fifth-grade students in the video have had several years of experience with anchor charts, due to the support that Marco and Chris have provided to the teachers at Pueblo Gardens Elementary School. This is the second week of school and, because the mobility rate is about 40 percent, both Chris and Marco are especially intentional about setting the stage for student roles and responsibilities, as well as their expectations for student learning.

Discussion questions and activity suggestions:

1. Chris began the lesson by asking the students, “Why do we call this an *anchor chart*?” What is the value of asking this question at the beginning of the school year?
2. As a result of this discussion, what are students who are new to the school learning about anchor charts? Which student responses caught your attention? Why?
3. Time is a critical factor in the teaching of mathematics. Why should you take time to review the vocabulary words with the class, as Chris did, at the beginning of the lesson? When would you choose to do this? When might you not?

Grade Four: Multiplication Lesson

Discussion questions and activity suggestions:

1. Marco started the lesson by directing the students’ attention to the anchor chart. How did using the anchor chart in this manner support the students in this mathematics lesson? How might you use an anchor chart to begin a mathematics lesson?
2. Why does Marco have the students do a quick-write? What support does he offer the students in writing their responses?
3. How does Marco help the students understand and use specific mathematical terminology?
4. When does Marco ask students to refer to past anchor charts?
5. Daneya seems to have difficulty coordinating the parts of an array. Why might that challenge her? How does Marco respond?
6. In what ways does Marco use the anchor chart to engage students throughout the lesson? How might you use an anchor chart to have students interact with the math content?
7. Consider how Marco used the math journals along with the anchor chart throughout the lesson. What is the function of the anchor chart in comparison to the math journals?
8. Why does Marco continually refer to the anchor chart throughout the lesson? What is Marco’s goal when he has the students refer to the anchor chart?
9. This fourth-grade classroom includes many English language learners. What do you notice about language production in this classroom? How does Marco use the anchor chart to support English language learners throughout the mathematics lesson? What engagement strategies does he use? Provide participants with Figure 4, “Engagement and ELL Strategies,” to note their observations.
10. What evidence do you see that Marco’s language support strategies are working for these students?
11. As students work independently, what role do the anchor charts play in supporting their learning of mathematics? What instructional strategies did Marco use to develop the academic vocabulary in the classroom?
12. How do the anchor charts support students during their independent work and discussions with each other?

13. As Marco begins to close the lesson, how does he use the anchor chart to refocus the students on the goals for the lesson? What expectations does Marco have of his students when they present their thinking? How do you know?
14. How can math anchor charts support students in developing the following Mathematical Practices from the Common Core State Standards? Which practices were emphasized in this lesson? How could anchor charts be used to address the other practices during a mathematics lesson?
 - a. Make sense of problems and persevere in solving them
 - b. Reason abstractly and quantitatively
 - c. Construct viable arguments and critique the reasoning of others
 - d. Model with mathematics
 - e. Use appropriate tools strategically
 - f. Attend to precision
 - g. Look for and make use of structure
 - h. Look for and express regularity in repeated reasoning

Your Turn: Next Steps

1. What key insights did you gain from viewing this video and participating in these discussions?
2. If you already use anchor charts in your teaching, what validated your decision to use them? If you don't yet use math anchor charts, why might you give them a try?
3. What is your next step in incorporating math anchor charts into your teaching? What benefits do you anticipate? What challenges might you encounter? How might you deal with these challenges? Figure 3 provides a graphic organizer for this discussion.

Figure 1: Organizing and Using Anchor Charts

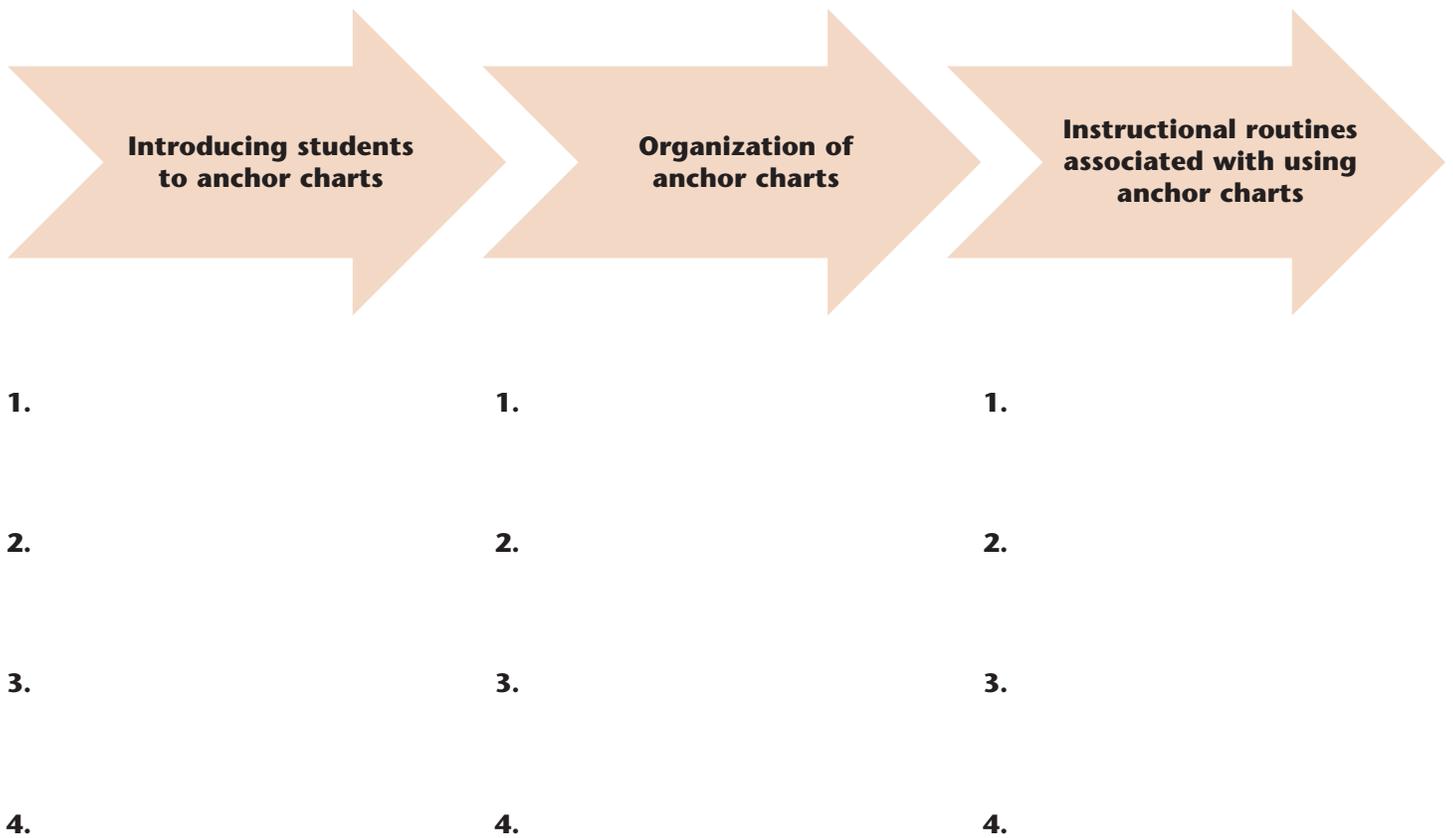


Figure 2: Developing Accuracy and Precision with Anchor Charts

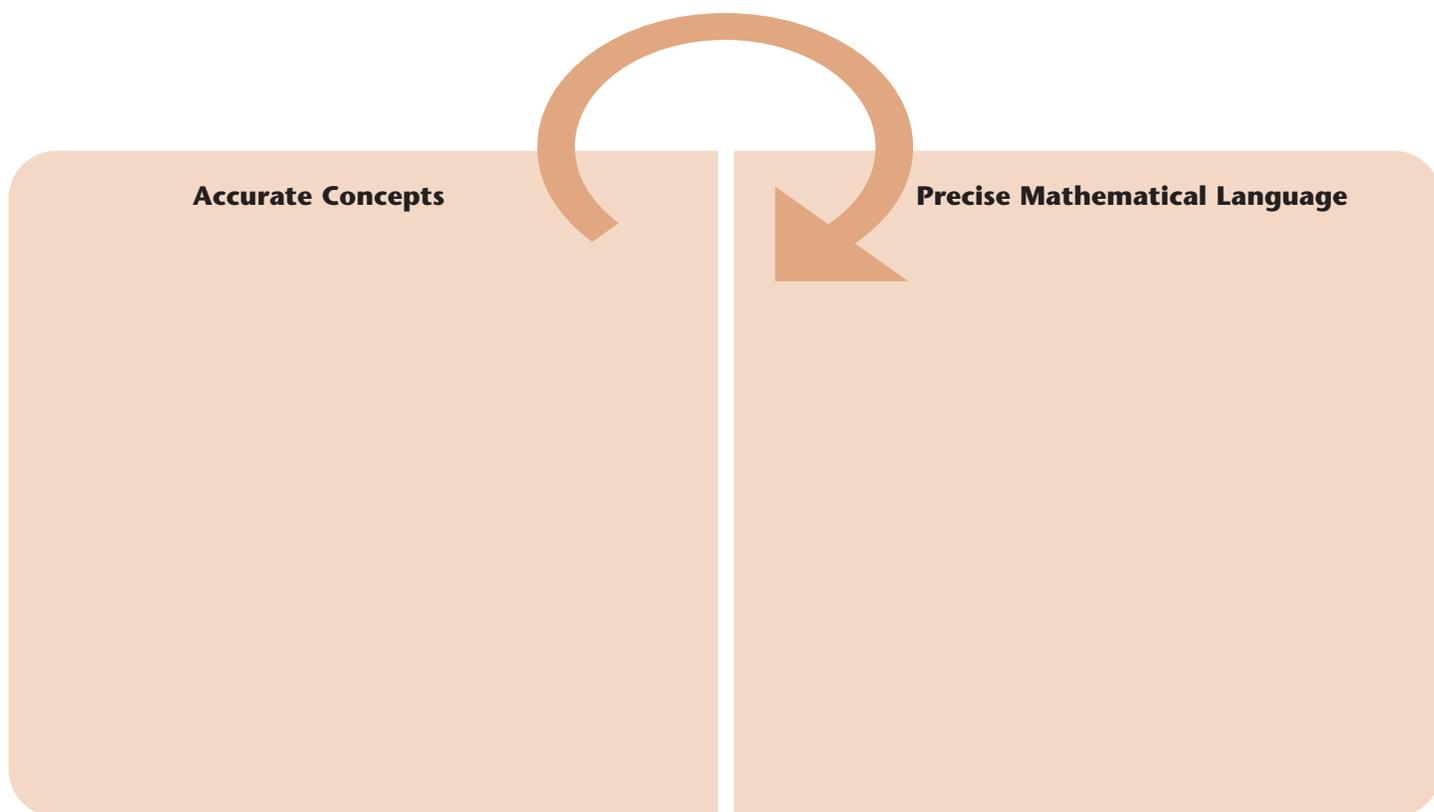


Figure 3: Anchor Charts: Challenges and Solutions

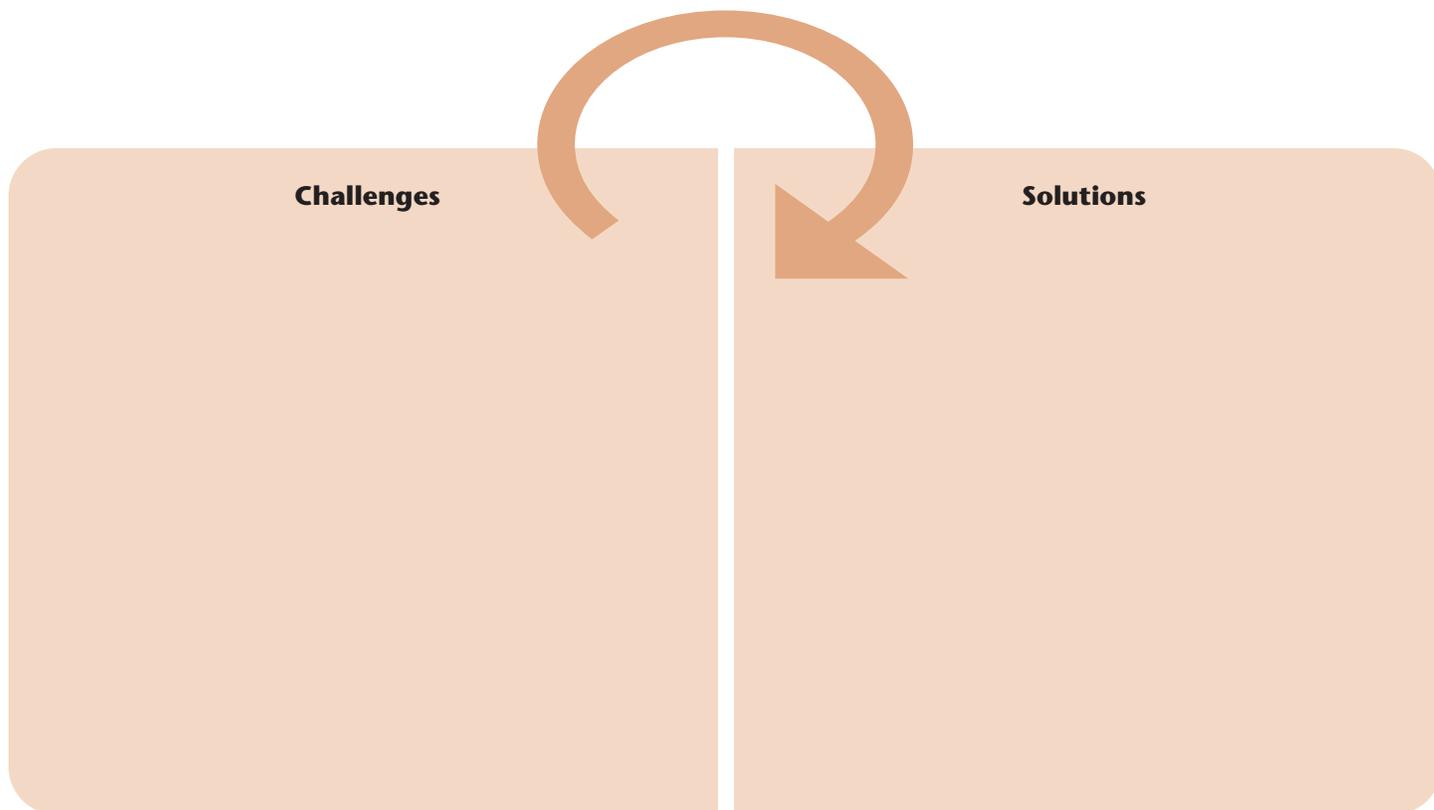
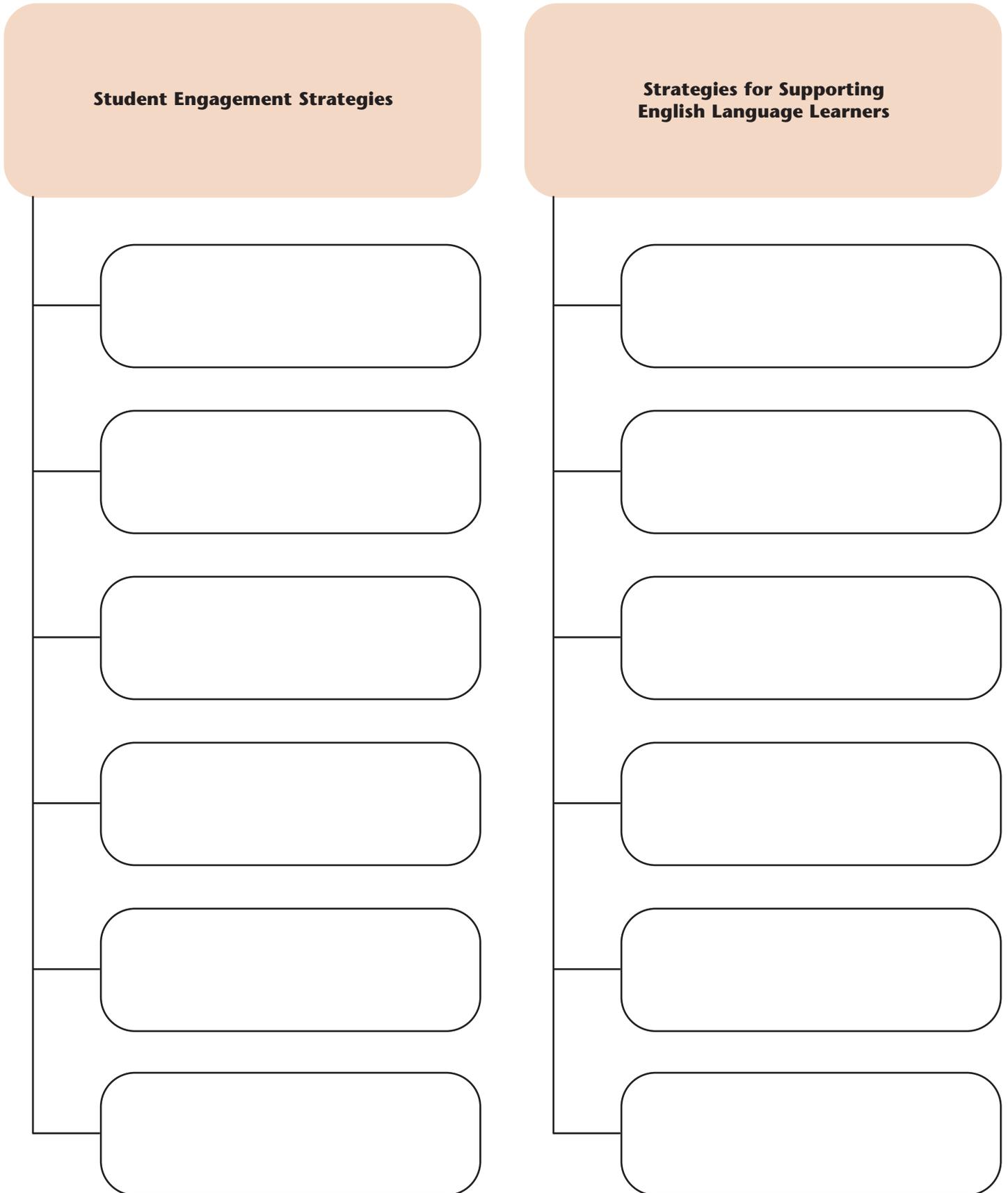


Figure 4: Engagement and ELL Strategies



Time Codes

Welcome	00:00–05:27
Discussing Anchor Charts in a Fifth-Grade Classroom	05:28–09:40
Anchor Charts Used in a Fourth-Grade Classroom	09:41–15:05
Introducing the Mathematics Investigation	15:06–20:18
Decomposing Arrays Investigation	20:19–22:02
Sharing Initial Strategies	22:03–26:31
Assessing Student Understanding with a New Problem	26:32–29:59
Summarizing the Lesson, Reflecting on Solutions	30:00–36:26
Capturing Student Learning in Math Journals	36:27–40:51