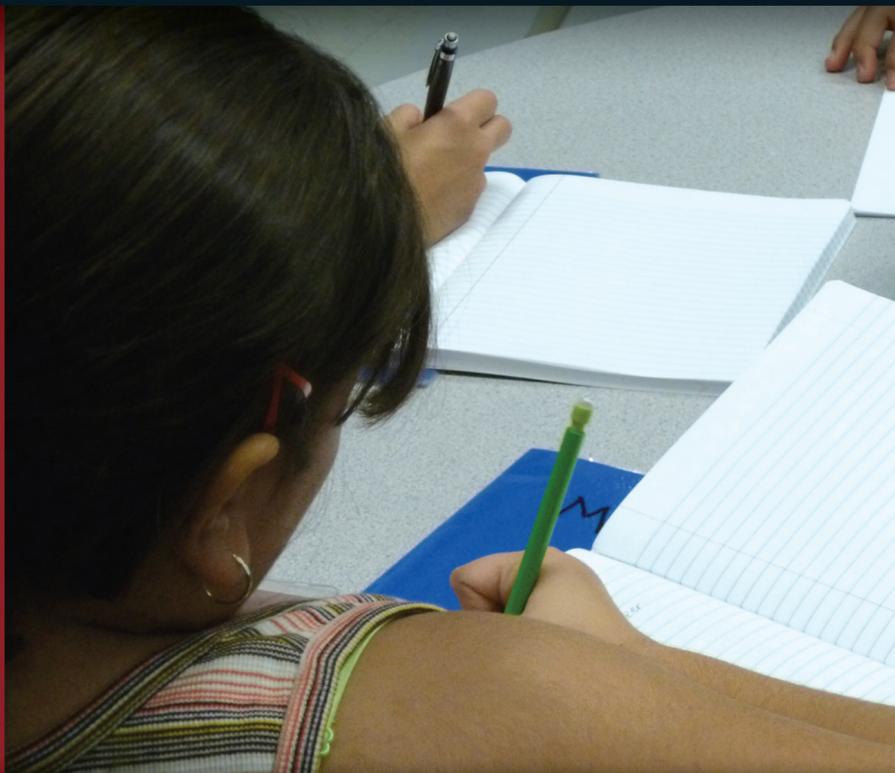


MATH TOOLS *in Action*

Journals



Chris Confer & Marco Ramirez

Viewing Guide

CONTENTS

Introduction	3
Why Math Journals?	4
Getting Started with Math Journals	4
Grade One Lesson	5
Notes About Using Math Journals in Kindergarten, Grade One, and Grade Two	6
Math Journals: Fifth-Grade Lesson	6
Your Turn: Next Steps	7
Figures	8
Time Codes	13

Stenhouse Publishers
www.stenhouse.com

Copyright © 2013 by Stenhouse Publishers.

All rights reserved. This guide may be photocopied for staff development use only.

Introduction

Math Tools in Action: Journals 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.

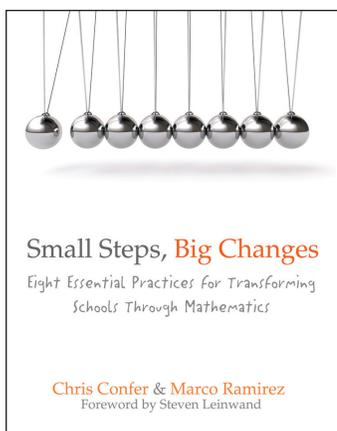
In this DVD, Chris Confer and Marco Ramirez—both of whom are consultants and authors of books and videos on mathematics instruction—show how math journals can be a valuable part of daily math instruction. You will also hear Chris and Marco converse about the different ways they use journals and why their first words in any math lesson are “Please get out your math journals.”

This guide is designed to help you consider how math journals, 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. Chris Confer and Marco Ramirez hope that these glimpses of real math lessons will provide interesting and useful images of students using math journals to engage in 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 this first-grade classroom shows how Chris carefully introduces journals at the beginning of the year, and how she helps students understand their value and structure.

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 *Math Tools in Action: Journals* DVD provides examples of these practices as well.



Why Math Journals?

In the DVD's brief introduction, Chris and Marco provide an overview of the benefits of using math journals in the classroom. Use this sequence to give participants a chance to hear Chris and Marco's perspectives and to connect to participants' own ideas about, and experiences with, journals. What is the value of using math journals? How might they be beneficial for lessons and throughout the year?

Discussion questions and activity suggestions:

1. Math journals can provide teachers with a window into what children are thinking. When during a lesson might math journals be useful? Have small groups brainstorm and record their ideas using Figure 1, "Using Math Journals for Lessons."
2. How can math journals help students become aware of their progress over the course of the school year? Use Figure 2, "Math Journals Throughout the Year," to record group ideas.
3. What challenges do you anticipate when incorporating math journals into your instruction? What solutions to these challenges can you come up with? Use Figure 3, "Math Journals: Challenges and Solutions," as a graphic organizer for this discussion.
4. How do you use journals in literacy or other content areas? What is their purpose? How do you structure them? How do you use them during instruction? In what ways might you adapt them for mathematics?

Getting Started with Math Journals

Teachers create many kinds of math journals for their students, and they use them in a variety of ways. The first step is to decide what kind of books or booklets students will use. These could include composition books, spiral notebooks, pocket folders with tabs, or three-ring binders with loose-leaf paper.

Consider the kind of journal you want to have. Again, teachers use journals in a variety of ways. Some teachers simply have students take notes in their journals. Other teachers use journals as a tool for students to interact with information during a lesson. Some teachers use journals as a way to dialogue with their students. Still others primarily use journals as a place for students to practice skills. This DVD shows journals used in all of these ways.

Decide what protocols or procedures you will use with your journals. Will you have students record the date and the lesson objective each day? Will you have students fill each page or begin each new date on a new page? How will you structure your journals? Will you reserve a section of the journal for a glossary?

These first graders spent their first week of school solving math problems—many about Chris’s special rabbit, Popper. During this time, the students learned that they can use manipulatives and drawings to solve problems, and that Chris expects them to record their thinking on paper so that she can understand their answers and how they solved each problem. This video was recorded on the sixth day of school, when the students were ready to learn how to use math journals to record their problem solving and thinking throughout the year.

Chris selected a pocket folder with tabs on the inside for their math journals. The pockets provided a place for students to put loose work pages. The tabs provided a place for the following:

- Resource tools such as a word bank, a hundred chart, and a double ten frame (inserted in a sheet protector, which students could write on using a dry erase marker)
- Blank pages where students could glue problems of the day and record their thinking
- Pages from the student workbook that Chris was sure the students would use during the unit

Discussion questions and activity suggestions:

1. Why do you think Chris selected a pocket chart with tabs for her first graders’ journals? What kind of journal might you choose? Consider the advantages and disadvantages of using composition notebooks, spiral notebooks, and three-ring binders.
2. Why did Chris include math resource tools such as a word bank and a hundred chart in her first graders’ math journals? Would you include resource tools in your journal? Why or why not? If yes, what resources would you include, and how would you include them? Have teachers of similar grade levels meet to discuss options for keeping math resource tools available to students.
3. Examine the “Math Word Bank Brainstorm Sheet” that Chris created for these first graders’ math journals (a blank version is provided in Figure 4). Why do you think she chose the words she selected for their first math unit? Why did she display them on the page the way she did? What other words might you choose for your students, and how might you display them on the page?
4. How can math journals support students in developing the following Mathematical Practices from the Common Core State Standards? Which practices could math journals promote especially well?
 - 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

5. Engagement strategies and strategies for supporting English language learners are important for all math instruction. What strategies did Chris incorporate? What other strategies might she have included? Provide participants with Figure 5, “Engagement and ELL Strategies,” to note their observations.

Notes About Using Math Journals in Kindergarten, Grade One, and Grade Two

Math journals pose an interesting challenge to students with emerging literacy concepts and skills. Kindergarten students use simple journals with a lot of empty space for recording what they discover. Students communicate with drawings and invented spellings, and teachers often take dictation. Teachers in kindergarten, first grade, and second grade incorporate think-alouds along with shared writing to help students learn how to record their thinking and use vocabulary and phrases that communicate strategies and ideas.

Math Journals: Fifth-Grade Lesson

Discussion questions and activity suggestions:

1. In what ways does Chris use the journal to engage students throughout the lesson? How might you use math journals to make sure that your students interact with math content?
2. Why do Chris and her students use abbreviations and symbols in their math journals? Would you do the same? What variations might make sense for you and your students?
3. Consider the anchor chart that Chris uncovers throughout the lesson. Why might she have created this anchor chart ahead of time rather than create it along with the students? What is the function of the anchor chart in comparison to the function of the math journal?
4. Why do you think Chris selected a composition book for the fifth graders’ journals? What kind of journal might you choose? Consider the advantages and disadvantages of using composition notebooks, spiral notebooks, and three-ring binders.
5. Why does Chris share her personal journal with the students? In what other ways are journals used outside of school?
6. What are some commonalities between how the first graders used journals and how the fifth graders used journals? How does it help a school to have students use tools such as journals in a consistent manner? How might you encourage this kind of consistency at your own school?
7. Engagement strategies and strategies for supporting English language learners are important for all math instruction. What strategies did Chris incorporate? What other strategies might she have included? Provide participants with Figure 5, “Engagement and ELL Strategies,” to note their observations.

8. How can math journals support students in developing the following Mathematical Practices from the Common Core State Standards? Which practices were emphasized in this lesson? How could math journals promote other practices?
 - 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 math journals, what validated your decision to use them? If you don't yet use math journals, why might you give them a try?
3. What new way will you incorporate math journals into your instruction? 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: Using Math Journals for Lessons

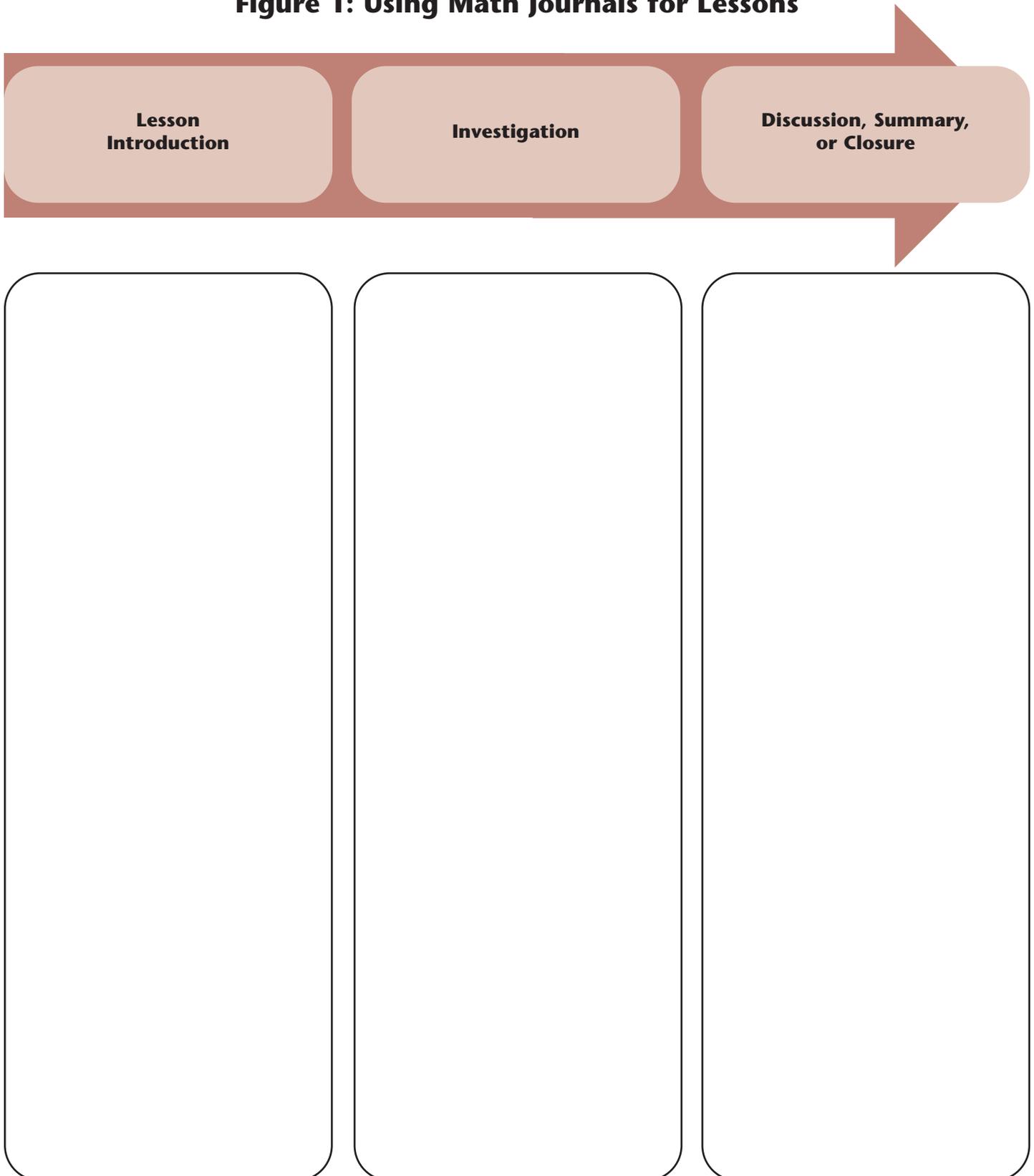
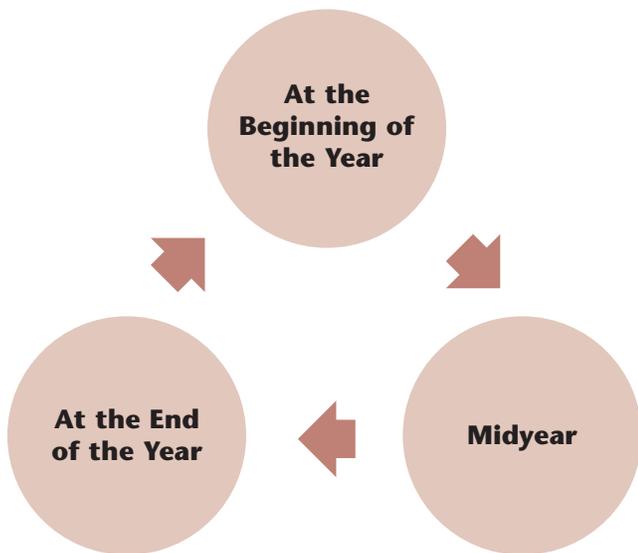


Figure 2: Math Journals Throughout the Year

Beginning:



Middle:

End:

Figure 3: Math Journals: Challenges and Solutions

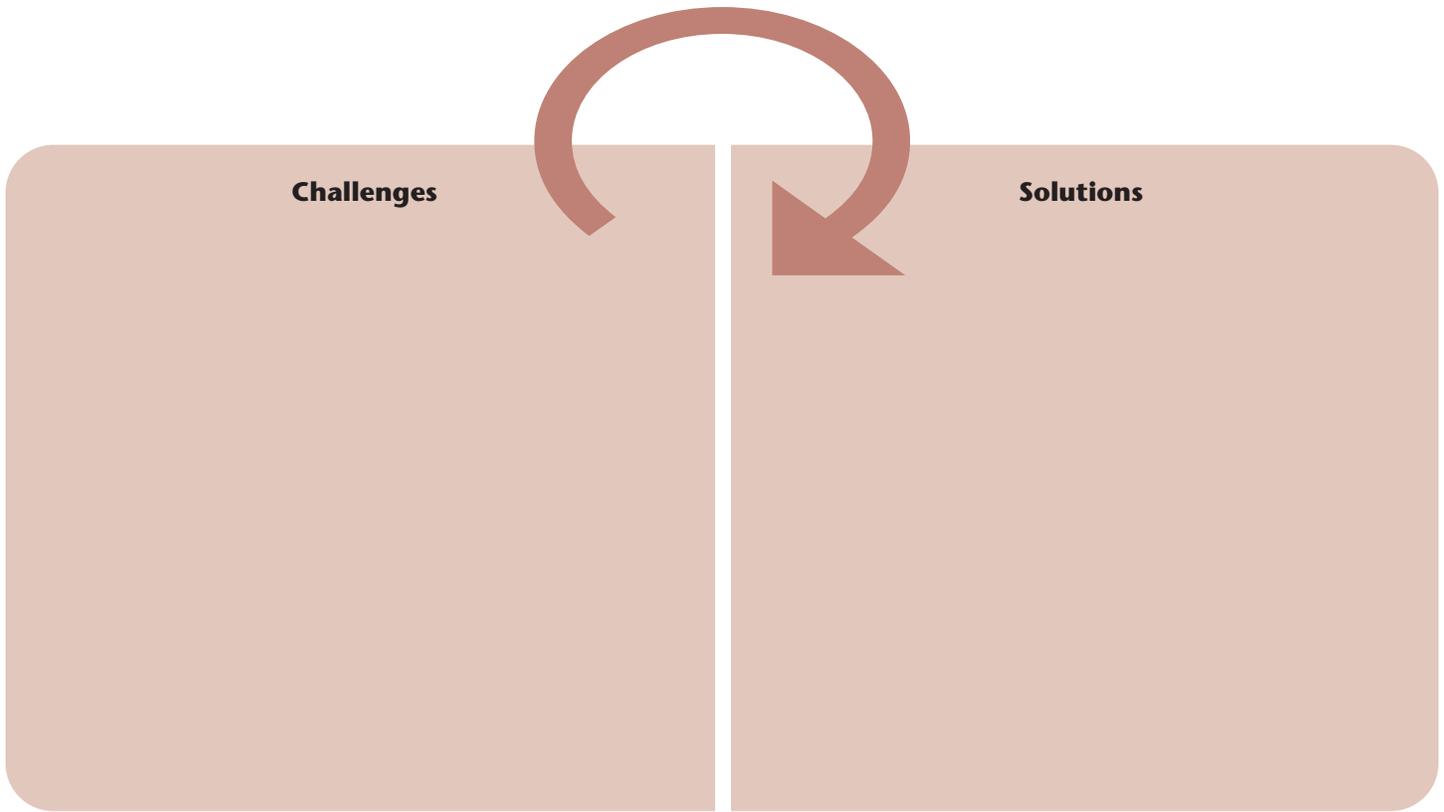
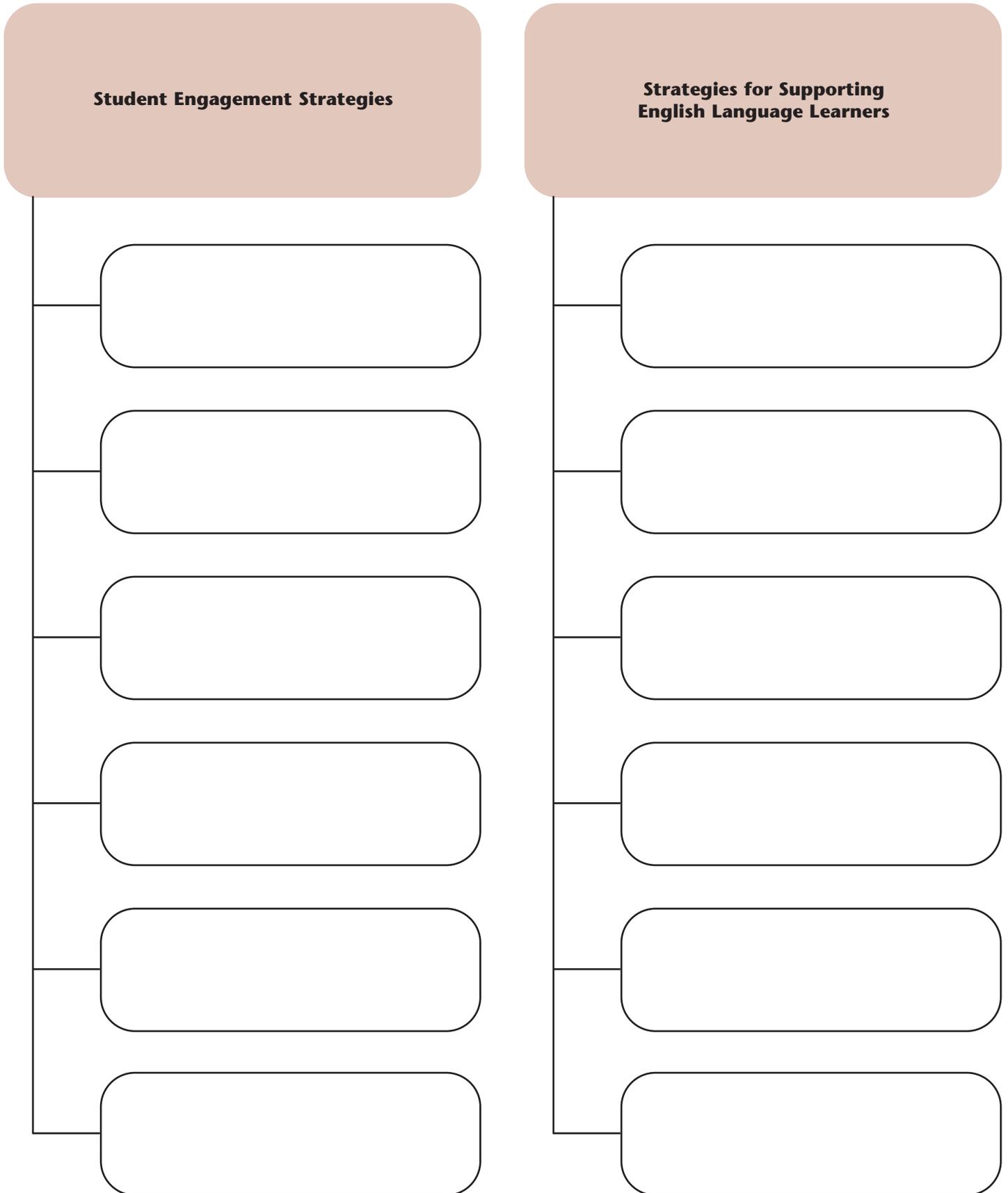


Figure 4: Math Word Bank Brainstorm Sheet

Math Word Bank



Figure 5: Engagement and ELL Strategies



Time Codes

Welcome	00:00–05:43
Journals, First Grade	05:44–15:18
Journals, Fifth Grade	15:19–16:24
Tracking Ideas in Journals	16:25–18:39
Lesson Focus: Mathematical Arguments	18:40–21:16
Journal Quick-Writes	21:17–22:19
Developing Vocabulary and Definitions in Journals	22:20–29:31
Sharing a Journal Quick-Write	29:32–36:44
Using Journals to Promote Thinking	36:45–38:24
Making Convincing Mathematical Arguments	38:25–40:22
Using Journals to Summarize the Lesson	40:23–42:33