

# The Mathematics Lesson-Planning Handbook, Grades 3–5 at a Glance

A step-by-step guide to walk you through every facet of planning cohesive, standards-based mathematics lessons, including

## CHAPTER 2

### YOUR 3–5 BLUEPRINT

#### Planning Mathematics Lessons for Coherence, Rigor, and Purpose

Paul, a novice third-grade teacher, looked for his teammates, Lynn and Marcia, all day. He really needed to talk to them about this lesson-planning business. Paul spent the weekend searching for lessons on the Internet to match the scope and sequence the school district provided, but he felt like he was just planning a bunch of discrete lessons that didn't necessarily go together. He had had another lesson fall apart today, even though he had spent hours preparing a game for the students to do during math stations. He kept getting surprised and then sidetracked by the students' misconceptions.

Just then Lynn and Marcia arrived. Paul began telling about his frustration. He said, "I don't know how you do it. I am spending all of my weekends and evenings planning lessons for the next day. What is your secret?"

Lynn replied, "I follow the textbook. It saves a lot of time."

Paul said, "I thought the textbook was just a resource."

Lynn and Paul are examples of both ends of the lesson-planning spectrum. On one end, Paul is planning daily, just keeping his head above water. On the other hand, Lynn is using the textbook, a good resource, but not enough when state standards, student misconceptions, big ideas, and prior student knowledge need to be considered. Neither rigor nor lesson coherence are part of their discussion. Should they be, and why should they be?

As the architect of your instruction, designing your blueprint is perhaps one of the most important jobs you can do. Throughout this book, you will have the opportunity to build coherent mathematics lessons for your grade level by following the many examples presented. Together, we will explore the answers to questions such as these:

- What is coherence?

Asking yourself essential questions about your standards-based learning intentions, lesson purpose, tasks, materials, lesson format, and how to anticipate and assess student thinking

## CHAPTER 3

### LAYING YOUR FOUNDATION

#### It Starts With Big Ideas, Essential Questions, and Standards

As required by a new district policy, two veteran third-grade teachers, Rosemarie and Mike, sat down with their school administrative leader to review their students' benchmark assessments. Rosemarie, who had not yet seen the results, had been nervous all day about this meeting. She knew that Linda, the school principal, supported their work.

Linda pulled up the screen with the results and displayed them.

"Let's just take a few minutes to look at the data before we discuss. Let's start with the successes. I am noticing that the student scores

Rosemarie  
in fact,  
Linda's  
look at  
Rosemarie  
about

fractions, but we never used those representations that were on the test.

Linda replied, "I think you are on to something, Mike. How could we strategically plan for the new standards so that we can create the same kind of success you had with geometry?"

Rosemarie and Mike's surprise about the assessment

Using your curriculum to think about all of your lessons as a cohesive progression across units, throughout the year

## CHAPTER 5

### DECIDING ON PURPOSE

#### Why Are You Building This Lesson?

"They got it!" fifth-grade teacher Brian yelled as he burst into the team planning room. His teammates, Mora and Jeanine, looked at each other and smiled.

"Got what, Brian?" Mora prodded.

"I was just about to give up and move on with my mathematics group, and everything clicked today! I decided I needed to give my students a reason for multiplying fractions. We have done a lot of work with fraction circles, but they seemed to be doing it mechanically and not really understanding how when you multiply by a fraction less than one, the answer gets smaller. So, today, I taught a pretty meaty task where they had to 'package' candy. I gave them a customer order and asked them to figure out how many candy bars they would need to fill an order for  $\frac{2}{3}$  of a box when each box holds 24 candy bars. It was so exciting! You know Jeremy?"

Mora and Jeanine nodded and looked at each other, unsure of what Brian would say. They had all been worried about Jeremy because he was so reserved and seemed

Brian grinned. "I am just so excited that I did this lesson today!"

Writing a series of learning intentions and success criteria from your standards is only the beginning of lesson planning. Your learning intentions inform the purpose of each lesson. As mentioned in Chapter 2, there are three types of mathematics lessons organized by purpose: conceptual understanding lessons, lessons that bring about procedural fluency, and transfer lessons. Think of each of these as a room in the house you are building. Just as each room in a house has a different purpose (e.g., a kitchen is built for food preparation), each lesson should have a purpose (e.g., a transfer lesson is designed to let students pull together and apply the previous learning).

This chapter will focus on answers to the following questions:

Determining whether you're designing a lesson to focus on conceptual understanding, procedural fluency, or transfer of knowledge

## CHAPTER 6

### CHOOSING TASKS

#### The Heart of a Lesson

Third-grade teachers Marvin and James were planning out their next three lessons on fractions. They were both unenthused about what they had written so far. James finally said, "Marvin, our students are really not that engaged in this fraction unit we are doing. In fact, I'm a little bored by the tasks we have been giving them."

Marvin responded, "I feel the same way. Yet the tasks are really getting to the math we want to hit, but the situations are not engaging the students. You know, I was at the movies this weekend and while I was there I saw our students, Jessie, Mayda, and Ruby, leaving that new *Wonder Woman* movie and they were all excited, chatting away. Maybe we could do something with superheroes. They are all the rage with third graders these days."

James exclaimed, "I think you are on to something! You know, we won't even need to write new tasks. The fractions tasks in our text are mathematically rich even though they are boring.

Let's try rewriting those with a superhero theme. Do you think we can do it?"

Marvin replied, "Why not? We can at least give it a try. I am getting more enthused about these lessons already!"

A worthwhile task is the heart of a lesson. In fact, selecting the task is the most important decision teachers make that affects instruction (Lippan & Briars, 1995; Smith & Stein, 2011).

This chapter will address the following questions:

- Why are tasks important?
- What is a worthwhile task?
- How do you adapt a task?
- What are some sources for worthwhile tasks?

## CHAPTER 9

### FRAMING THE LESSON

#### Formats

Imani felt like she had not been meeting all of her students' needs, particularly the stragglers, who were not working unless she was constantly reminding them, and she wanted to try some new things to engage them along with all of her students. They needed more opportunities to talk with one another and learn how to work together on problems. In order to facilitate this kind of shared experience, Imani knew that she would need to be available to monitor the students while they were working; she did not want to be tied up in an instructional group. She still believed in small-group instruction; she just felt that her students needed to be working together more often.

As Imani sat down with her team, Bonnie and Diamond, she shared the following:

"I think we really need to take a look at our lesson format. We have been using the same math rotations. I am not sure we are building enough opportunities for math discourse between the students. I know they are talking to each other in the groups, but I am not hearing much math talk. I think we need to build some more strategic tasks that we could

Diamond agreed. She said, "I would love to try some different formats. Perhaps we can begin with pairs and see how that goes. I think the students will be very excited about solving some problems together. We can also work on the social learning intentions at the same time!"

Bonnie was also on board. She said, "Let's do it!"

Lessons need structure. Lesson formats give you that structure. Lesson formats refer to how you organize your class for the lesson. Some lessons work better when students are in collaborative groups, and some are more effective when students move around to different centers. For instance, rotating stations may be a good decision for a procedural fluency lesson but not for the introductory lesson on a new concept. As you select a lesson format for a particular lesson, you should base your decision on the purpose of the lesson. Lesson format can and should vary depending on the purpose of the lesson as Imani, Diamond, and Bonnie all agree.