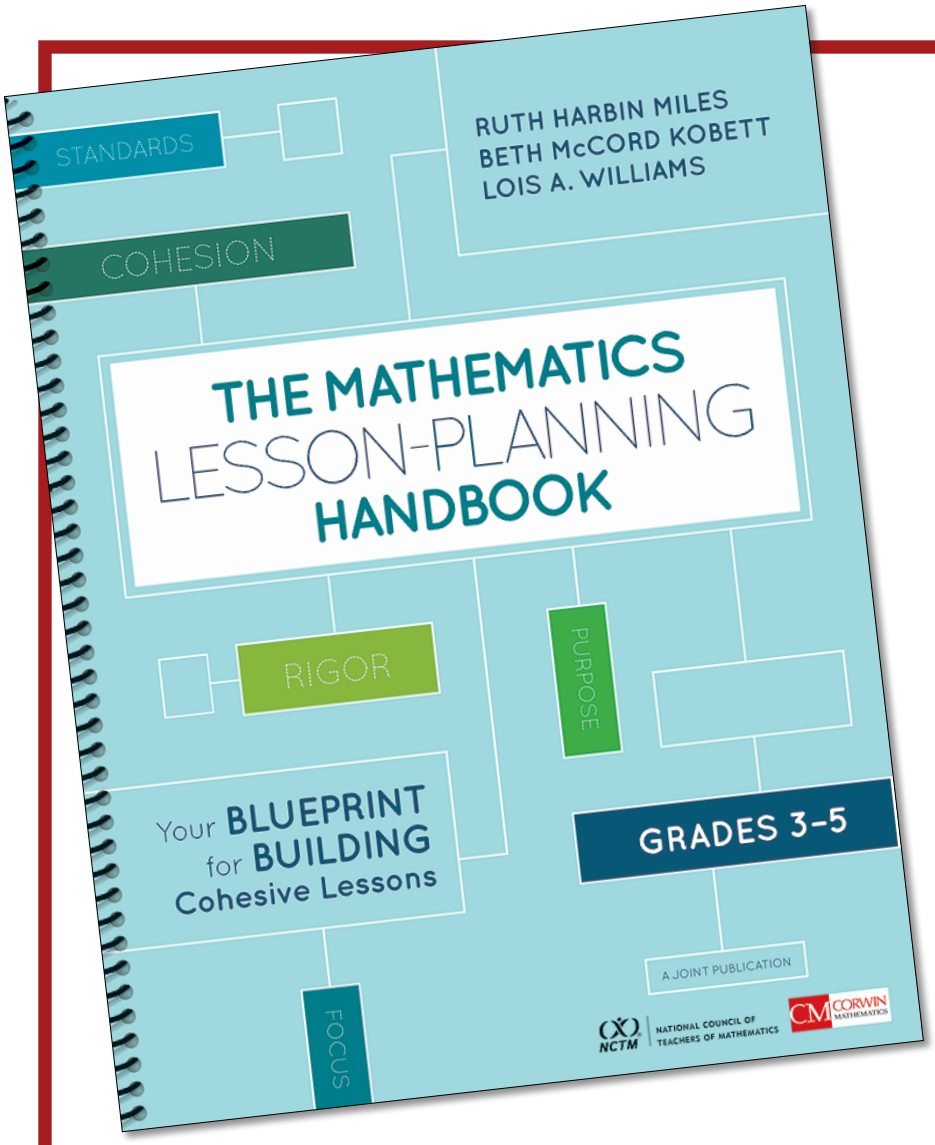


Thank you

FOR YOUR INTEREST IN CORWIN

Please enjoy this complimentary excerpt from *The Mathematics Lesson-Planning Handbook, Grades 3-5*. This chapter introduces and explains how to use learning intentions and success criteria in the math classroom.

LEARN MORE about this title, including Features, Table of Contents, and Reviews.

CORWIN Mathematics

CHAPTER 4

REINFORCING YOUR PLAN
Learning Intentions and Success Criteria

Johanna, a fifth-grade teacher, felt her throat clench as she stood up to share her opinion. The entire staff at Roosevelt Elementary had gathered together to brainstorm and decide upon goals for the following school year. Teachers had worked all morning deciding upon the language arts goals, and they were starting to get tired. She had been thinking about her idea for a school-wide mathematics focus since a very awkward moment occurred in her classroom over two months ago. She just didn't know if she had the guts to tell the entire school. She looked at the expectant faces, took a deep breath, and began.

> I know that we have been posting objectives for years. I know that most of us also have the kids repeat or read the objective, too. Two months ago, I posted an operations and algebraic standard and read it to the students at the beginning of the lesson. Usually, they just stare at me and we move on. The standard said something like "use brackets or braces in numerical expressions, and evaluate these expressions with symbols."
>
> On this day, Rita raised her hand and said, "What does that mean?" At first I said, "Well, you will find out when we do the lesson." But you know Rita; she wasn't satisfied with that answer. I ended up launching into this whole explanation about how they would evaluate expressions with and without parentheses and they would discover what happens to the value of the expressions when parentheses or brackets are used.
>
> Rita raised her hand again and said, "Why can't you just say that?"

The teachers erupted in laughter, agreeing that elementary students have a special way of making an obvious point for adults. Rita continued,

> About a week later, I ran across a blog about John Hattie's work, specifically regarding the importance of developing learning intentions and success criteria that students can understand. I think this is something we should explore. It just doesn't make sense to me that we are using learning objectives that our kiddos don't understand. Hattie's point is that students need to know what they are going to do and what success looks like. I was thinking about it with our staff meeting today. Right at the start, Julia [the principal] told us what she wanted us to do and what we needed to accomplish before we left. Imagine if we didn't know the purpose of the meeting or what she needed from us before we left. We would be all over the place!

Again, the teachers laughed. One of Leah's colleagues, Jason, said,

> This seems so obvious! Let's think about how we can rewrite our objectives in kid-friendly language, and let's be sure to share them more deliberately in every lesson.

Just as builders decide on the impact of structural changes, upgrades, and the timeline for completion, they must also envision how each of these decisions will affect the completed house. Just as builders need short- and long-term goals, teachers and students need specific learning intentions, or learning goals, that describe what you want the students to know, understand, and be able to do as a result of the learning experiences (Hattie et al., 2016). This chapter will explore the following questions:

- What are learning intentions?
- What are mathematics learning intentions?
- What are language and social learning intentions?
- How do you communicate learning intentions with students?
- What are success criteria?
- How do learning intentions connect to the success criteria?
- When should learning intentions and success criteria be shared with students?

WHAT ARE LEARNING INTENTIONS?

You begin the lesson-planning process by identifying the **learning intention.** The learning intention is "a statement of what students are expected to learn from the lesson" (Hattie et al., 2016). The learning intention serves two purposes. First, it informs your design of the learning experience by focusing you and students on deep learning rather than on completing activities. Second, it provides clarity to your students about their goal for the lesson. When students know the learning intention, they are more likely to focus on the lesson and take ownership for learning (Hattie et al., 2016). To ensure that the learning is rich and purposeful, students need to be active participants in discussing and understanding how the mathematics task or activity connects to the learning intention. Teachers design mathematics, language, and social learning intentions.

WHAT ARE MATHEMATICS LEARNING INTENTIONS?

Mathematics learning intentions are aligned to the content standards. They focus on mathematics knowledge, skills, and/or concepts. The National Council of Teachers of Mathematics' (NCTM's) (2014b) *Principles to Action: Ensuring Mathematical Success for All* identifies the importance of mathematics learning intentions in the first Exemplary Teaching Practice:

> Establish mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions. (p. 10)

The mathematics learning intention is not a restatement of the standard. Rather, it is a scaffolded, student-friendly statement that reflects the part of the standard you are currently teaching. To design a mathematics learning intention, first begin with the standard and then construct one or more learning intentions using student-friendly language written from the students' point of view (see Figure 4.1).

Figure 4.1

Standard	Mathematics Learning Intention
Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	I can explain a power of ten. I can explain the pattern of zeros when I multiply a number by a power of ten. I can explain the decimal point patterns when I multiply or divide a decimal by a power of ten. I can use exponents to represent powers of ten.

You can also connect prior knowledge to mathematics learning intentions as you prompt students to share and talk about what they have already learned and how this connects to what they will be learning next. Some elementary teachers prompt students to ask questions and pose "wonders" about what they will be learning on a Mathematics Wonder Wall (Figure 4.2), activating students' prior knowledge and creating curiosity about new learning.

Figure 4.2

I Wonder …

How small is a decimal?

Is there a pattern in decimals?

How can $\frac{1}{2} = \frac{2}{4}$ when the numbers are different?

How many hundreds are in a billion?

WHAT ARE LANGUAGE AND SOCIAL LEARNING INTENTIONS?

Language Learning Intentions

Language learning intentions connect to the Standards for Mathematical Practice (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010), state process standards, and mathematical vocabulary. Students are expected to develop and defend mathematical arguments, understand and explain their reasoning, and critique each other's reasoning.

When you create language learning intentions in addition to the mathematics content learning intentions, you help your students develop and use rich mathematics vocabulary (Hattie et al., 2016). Elementary students need to use new mathematics vocabulary often so it can be learned, integrated, and applied. Furthermore, English Language Learners are better supported with additional opportunities to speak about mathematics.

One way you can prompt language opportunities is to encourage your students to explain and justify their thinking. By providing specific language intentions, you create expectations for all of your students for using mathematical language in your classroom. You can develop the language learning intentions for the unit and then revisit them daily as they align to the mathematics learning intentions (Figure 4.3).

Figure 4.3

Standard	Mathematics Learning Intentions	Language Learning Intentions
Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories.	We are learning that • Data can be represented by drawing picture graphs on a scale • Data can be represented by drawing a bar graph on a scale	We are learning to • Describe, compare, and explain data on picture and bar graphs • Use mathematical words like *picture graph, bar graph,* and *scale*

Social Learning Intentions

Social learning intentions also connect to the Standards for Mathematical Practice (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010) and state process standards. Social learning intentions focus on particular social skills that students need to exhibit as they work together to collaboratively solve problems and communicate their thinking. Elementary students naturally construct learning through play, collaboration, and problem solving in formal and informal settings. Since learning is socially constructed through communication and collaboration with others (Vygotsky, 1978), you can tailor these social learning intentions to reflect what your students need. For instance, you can construct your social learning intentions to highlight the social skills your students need so they can work together to solve problems (Hattie et al., 2016). As with the language learning intentions, you can develop social learning intentions for the unit and specify the particular intentions you want students to work toward.

Example: Anzetta

Anzetta, a fourth-grade teacher, has been steadily working on helping her fourth graders solve problems in cooperative problem-solving groups. She decides to include four social learning intentions (Hattie et al., 2016) to target her fourth graders' listening skills (see Figure 4.4).

Figure 4.4

Learning Intentions for Cooperative Group Problem Solving

We are learning to:

- Listen when others are speaking.
- Look at our group members when they are speaking.
- Ask a question about what our group members shared with us.
- Summarize what we heard our group members say.

Example: Barbara

Barbara is one of many teachers responsible for integrating the Standards for Mathematical Practice (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010) and other state process standards that ask students to "construct viable arguments and critique the reasoning of others" (paragraph 3). To address this, she regularly arranges her third graders in pairs to help solve a "debate" between two fictitious students who cannot agree on a mathematical solution (Figure 4.5).

Figure 4.5

Who wins the debate?

Teddy and Tyree both have $\frac{1}{2}$ of a candy bar. Teddy says that they both have one half of a candy bar so they must have the same amount. Tyree says that his one half is definitely bigger than Teddy's one half. Explain Teddy's and Tyree's reasoning. How can they each be right? How can Teddy or Tyree be wrong? Be prepared to present your thinking to another pair of students.

Barbara's students must work together to understand the reasoning presented by the students in the example, explain their own reasoning to each other, come to an agreed-upon decision, and present their solution to another pair of students. Without such clear social and language learning intentions, the students might become confused about Barbara's expectation for this learning activity and miss out on important learning.

HOW DO YOU COMMUNICATE LEARNING INTENTIONS WITH STUDENTS?

As you think about how to share learning intentions with your students, consider the way in which you communicate how the learning intentions reflect your beliefs about your students. By using positive and accessible language to frame what the students will learn, you can use learning intentions "as a means for building positive relationships with students" (Hattie et al., 2016, p. 48).

Consider two ways in which you might discuss the following place value standard and learning intentions.

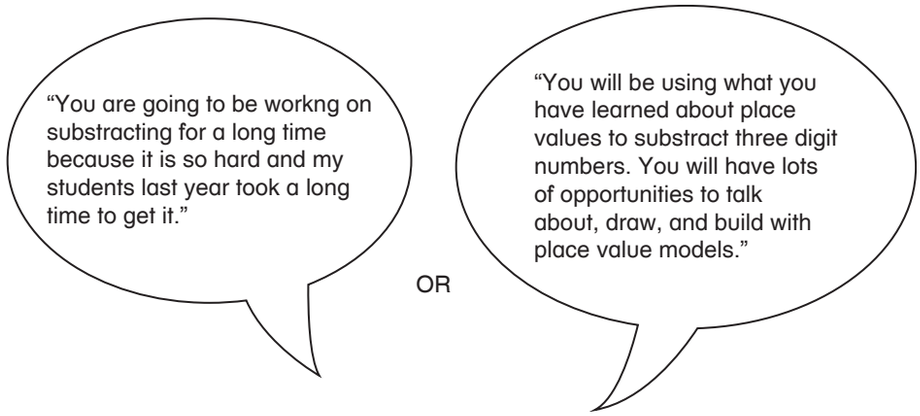
Standard: Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Learning Intentions: We are learning to:

- Use place value strategies to add and subtract.
- Use place value algorithms to add and subtract.
- Use properties of operations to add and subtract.
- Use what we know about relationship between addition and subtraction to add and subtract.

Now look at Figure 4.6. Which dialogue would you use to convey the intentions to students?

Figure 4.6



You can develop and post the language and social learning intentions for a series of lessons or the unit. Some teachers like to post the language and social learning intentions as they introduce the unit to the students. It can be particularly beneficial to focus on these learning intentions at the beginning of the year as you develop students' collaborative problem-solving and communication skills.

How does the way in which you communicate learning intentions support a positive environment for learning mathematics? Are there particular topics in your grade level that invite more positive discussions with students? Record some of your thoughts on this topic below.

WHAT ARE SUCCESS CRITERIA?

Students also need to know how to tell when they have learned the mathematics. While learning intentions provide the purpose of the learning, the **success criteria** describe what the learning looks like when students understand and can do the mathematics they are learning. Clear success criteria can increase learner motivation because students know when they have learned and do not need to rely on a sticker, smiley face, or checkmark to tell them. Success criteria also prompt deeper, more meaningful learning because teachers can make sure that the success criteria mirror the learning intentions and their students' learning needs. While all students are guided by the same learning intentions, you can differentiate the success criteria to match your learners (Wiliam, 2011).

HOW DO LEARNING INTENTIONS CONNECT TO THE SUCCESS CRITERIA?

It is also critical for you to include the students in understanding, monitoring, and celebrating achievement of the success criteria. Hattie and Yates (2013) identify five learning components that are valuable to determining learning intentions and success criteria. These include the following:

1. *Challenge*. Teachers must construct learning experiences that appropriately mix what students know with what they do not know.
2. *Commitment*. Teachers should also develop lessons that engage students' commitment to the learning.
3. *Confidence*. Students and teachers need to have confidence that the students will be able to learn the material. Confidence can be generated from the students' prior learning experiences, the teacher's skill in listening and providing targeted feedback, the selection of appropriate lesson tasks, and appropriate peer feedback.
4. *High expectations*. Teachers need to have high expectations for all students and believe that they can and will learn.
5. *Conceptual understanding*. Students need to be able to develop rich understanding of mathematics content.

As with learning intentions, as you write success criteria, be sure to use student-friendly language that focuses specifically on indicators of success.

Example: Rodrigo

When Rodrigo writes success criteria for his fifth graders, he uses the same success criteria stem ("I know I am successful when I can …") to purposely trigger students' ownership. He also revisits the same success criteria in individual progress conferences with students. During these conferences, he first focuses the students on the successes they have achieved. Then he identifies one or two criteria they have not *yet* achieved. Rodrigo emphasizes the word *yet* to help his students understand that they are on their way. Together, Rodrigo and his students determine strategies for improvement.

WHEN SHOULD LEARNING INTENTIONS AND SUCCESS CRITERIA BE SHARED WITH STUDENTS?

Your decisions about when to share the learning intentions and success criteria with your students should depend solely on the purpose of your lesson. If you are presenting a problem or task for students to investigate because you want them to explore mathematics concepts first, then you can withhold the mathematics learning intention until later in the lesson. Once the mathematics learning intention is revealed, you can and should refer to the learning intention throughout the lesson.

Example: Emily

Emily, a third-grade teacher, posts the mathematics learning intention for problem-solving lessons but keeps it covered up until the point in the lesson when students begin to develop conceptual understanding and make connections. When her students see that a new learning intention has been posted and covered up, they get very excited because they know they will be exploring and problem solving. In a very strategic way, Emily is communicating to the students that they are expected to solve the problem using multiple solutions, representations, and explanations. Once you have revealed the mathematics learning intention, you can and should refer to the learning intention throughout the lesson.

How can you communicate success criteria with your students? Record a few of your ideas below.

Building Unit Coherence

The focus on learning intentions and success criteria provides another good way to construct coherence across your lesson plans. Many of your learning intentions, particularly the language and social learning intentions, will be reflected over a longer time period, making this an ideal way to support coherence across your unit plan. As you design your lesson, keep a running list of those learning intentions and success criteria that students accomplish throughout the unit. Many teachers post the success criteria for the entire unit to help students see and understand what they are working toward.

Example: Christina

Christina, a fourth-grade teacher, uses a system of stars to signal to the students what they have achieved and an arrow to indicate the current success criteria (Figure 4.7). This approach creates a coherent vision for both the teacher and her students.

Figure 4.7

Unit: Represent and interpret data

Success Criteria:

- ★ I can collect, organize, and sort objects into groups.
- ★ I can show what I have sorted on a graph.
- ★ I can put labels and title on my graph.
- → I can talk about the information on a graph using math words.

Notes

Third-Grade Snapshot

Learning Intentions and Success Criteria

Saida, Julian, and Kimi are talking about their lesson on comparing fractions and want their students to uncover the concepts. Julian says, "You know, having the students talk about the ideas will really help them figure out how fractions compare." Saida pipes in, "And if they are talking to one another we can encourage the use of the words *numerator* and *denominator!*" Kimi adds, "Sounds like we have some good learning intentions here. Let's write them down so we don't forget!"

Learning Intention(s):

Mathematical Learning Intentions

We are learning to:

- Compare fractions when the numerators are the same
- Compare fractions when the denominators are the same
- Know that sometimes fractions are equivalent
- Know that to compare fractions, they must come from the same whole

Language Learning Intentions

We are learning to:

- Explain how fractions compare using the words numerator, denominator, and equivalent

Social Learning Intentions

We are learning to:

- Listen to each other's explanations about fraction comparisons
- Ask questions about other students' thinking
- Politely challenge or disagree with explanations
- Stick to a problem to solve it

Success Criteria (written in student voice):

I know that I am successful when I can:

- Determine which fraction is greater than another
- Determine if two fractions are equivalent
- Talk about fractions using the words numerator, denominator, and equivalent correctly
- Listen to my classmates' explanations about fractions
- Politely offer a different way of thinking about comparing fractions
- Stick to a problem to solve it

See the complete lesson plan in Appendix A on page 186.

How could you communicate learning intentions and success criteria with your students? Record some of your ideas below.

Fourth-Grade Snapshot

Learning Intentions and Success Criteria

Adrienne and Davante are discussing their success criteria. They feel very strongly that students should know when they have achieved the objectives. Adrienne says, "Last year we wrote our success criteria and let the students know what they were but I don't feel like we really made use of them throughout our teaching." Davante responded, "I know what you mean. It is like we talked about them and then forgot we had them. How about we post them this year at the start of our unit? Since our social learning intentions are similar for several topics, it will help us stay focused and let students see some continuity." Adrienne agrees, "Let's try it!"

Learning Intention(s):

Mathematical Learning Intentions

We are learning to:

- Use a model to demonstrate how two fractions are equivalent
- Create fractions that are equivalent to another fraction

Language Learning Intentions

We are learning to:

- Explain why two fractions are equivalent using the words for the parts of the fraction (numerator, denominator)

Social Learning Intentions

We are learning to:

- Listen to each other's explanations about equivalence
- Ask questions about other students' thinking
- Politely challenge or disagree with explanations
- Apply my reasoning about equivalence to different kinds of fraction models

Success Criteria (written in student voice):

I know I am successful when I can:

- Show equivalent fractions with models
- Recognize that two fractions are equivalent
- Find a fraction that is equivalent to another fraction
- Use the correct words to describe why two fractions are equivalent
- Participate in a class discussion about equivalent fractions
- Use the rules I found for equivalent fractions with several different models

See the complete lesson plan in Appendix A on page 191.

How could you communicate learning intentions and success criteria with your families? Briefly write some ideas below.

Fifth-Grade Snapshot

Learning Intentions and Success Criteria

Fifth-grade teachers Boton, Chelsea, and Rodrigo have always posted mathematical learning intentions. Boton asks, "I think we should add some learning intentions and success criteria that include the Standards for Mathematical Practice (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010) that we want students to exhibit while learning mathematics." Chelsea responds, "Yes, let's do this! I think this will also help the students understand what we want to see them exhibit as they learn the mathematics." Rodrigo agrees, "I know that thinking about the success criteria for the Standards for Mathematical Practice will help us think about how we will frame our **instructional decisions** to align with these learning intentions and success criteria. This will also help the students think about how they can be successful!" Take a look at this team's work for this specific content standard.

Learning Intention(s):

Mathematical Learning Intentions

We are learning to:

- Multiply a fraction by a fraction
- Multiply fractional side lengths to find areas of rectangles

Language Learning Intentions

We are learning to:

- Explain what happens to the product when multiplying fractions

Social Learning Intentions

We are learning to:

- Listen to each other's explanations and provide feedback
- Ask questions about other students' thinking
- Politely challenge or disagree with explanations
- Apply my reasoning about multiplication of fractions to other situations

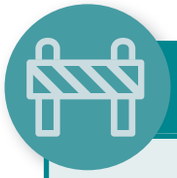
Success Criteria (written in student voice):

I know I am successful when I can:

- Use a model to show multiplication of fractions
- Use a model to multiply fractional side lengths to find the area
- Use mathematics vocabulary to explain my reasoning
- Convince others of my thinking
- Work with my classmates to solve mathematics problems
- Communicate with others to solve mathematics problems
- Create and use a representation to explain my thinking to others

See the complete lesson plan in Appendix A on page 195.

Consider the process standards that you are required to use. How could you communicate the success criteria to your students? Write some of your ideas below.



Under Construction

Your turn! Construct learning intentions and success criteria for the standard you previously identified.

Learning Intentions (mathematical/language/social):	Success Criteria (written in student voice):

online resources Download the full Lesson-Planning Template from resources.corwin.com/mathlessonplanning/3-5
Remember that you can use the online version of the lesson plan template to begin compiling each section into the full template as your lesson plan grows.