

FROM MARILYN BURNS

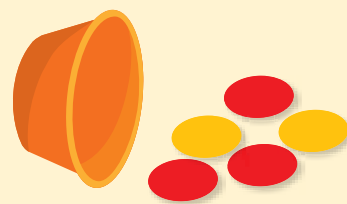
Dear Colleague,

This module has been specifically designed for students who lack a foundation in the very basics. The number 5 is an important benchmark in our base-ten number system, and the first two lessons ease students into the module with a focus on pairs of addends that make 5.

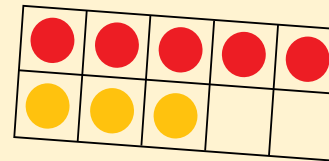
Students use two-color counters as a visual tool. They engage in two activities—*Shake and Spill* and *Race to the Top*. A variety of games and activities like these are woven throughout the module to motivate students' interest and support their learning. In these first two activities, students spill five counters to generate pairs of addends that make 5 and then record the different combinations.

In Lessons 1–5, students...

- Use the benchmark of 5 to represent sums of 6 to 9.
- Identify pairs of addends with sums to 9.
- Communicate ideas with key math vocabulary: *add*, *addend*, *addition*, *equals*, *equation*, *plus*, and *sum*.

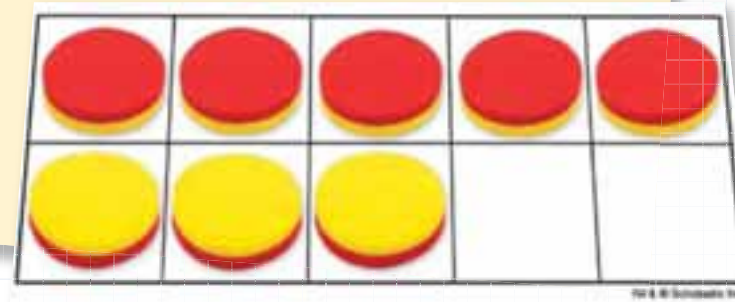


Students are then introduced to another visual tool—the ten-frame. The ten-frame is ideal for providing a structure that helps students use the benchmark number of 5 to build numbers and find sums to 10. The strategy of making a 5 is useful for building students' number sense and skill with sums to 10.



Students use the ten-frames along with the two-color counters for a new activity—*Roll and Add*—which gives them practice figuring sums to 10. Students also revisit *Shake and Spill* and *Race to the Top*, now applying these activities to numbers greater than 5. They also investigate patterns in pairs of addends for sums to 10.

Marilyn Burns



“The number 5 is an important benchmark in our base-ten number system.”

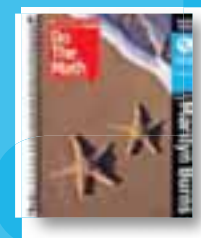
Lessons 1–5



The Benchmark of 5



Addition & Subtraction Number Core
Teacher Guide
Letter: Lessons 1–5



PLANNER

LESSON 1

LESSON 2

LESSON 3

LESSON 4

LESSON 5

Lesson Summary

Students use two-color counters to generate pairs of addends that make 5 and then write them as equations with addition.

Students find and list all pairs of addends that make 5 and then play a game to practice making 5.

Students use a ten-frame and the benchmark of 5 to build numbers and find sums to 10.

Students use the benchmark of 5 to represent sums of 6 to 10.

ASSESSMENT Progress Monitoring

Students demonstrate understanding of the objectives of Lessons 1–4 by completing a *WorkSpace* page independently.

Objectives

- Identify pairs of addends that make 5.
- Introduce key math vocabulary: *add*, *addend*, *addition*, *equals*, *equation*, *plus*, and *sum*.

- Identify all possible pairs of addends that make 5.
- Given a number, figure how many more to make 5.
- Communicate ideas with key math vocabulary: *add*, *addend*, *addition*, *equals*, *equation*, *plus*, and *sum*.

- Identify numbers to 10 using the benchmark of 5.
- Communicate ideas with key math vocabulary: *add*, *addend*, *addition*, *equals*, *equation*, *plus*, and *sum*.

- Use the benchmark of 5 to represent sums of 6 to 10.
- Communicate ideas with key math vocabulary: *add*, *addend*, *addition*, *equals*, *equation*, *plus*, and *sum*.

- Use the benchmark of 5 to represent sums of 6 to 10.
- Identify pairs of addends with sums to 9.
- Communicate ideas with key math vocabulary: *add*, *addend*, *addition*, *equals*, *equation*, *plus*, and *sum*.

Materials

= Teacher Bag
 = Student Bag

All hands-on manipulatives and *WorkSpace* pages are provided on the *Interactive Whiteboard Tools* CD-ROM.

- WorkSpace* pages 2, 64, and 66
- two-color counters
- plastic cups
- chart paper

- WorkSpace* pages 2–5
- two-color counters
- plastic cups
- red and yellow whiteboard markers

- WorkSpace* pages 6 and 7
- ten-frames
- two-color counters
- yellow crayons

- WorkSpace* page 8
- ten-frames
- two-color counters
- red and yellow number cubes (0–5)
- Do The Math Community News*

- WorkSpace* pages 9 and 10
- ten-frames
- two-color counters

Built-in Differentiation

Using a **hands-on manipulative**—two-color counters—to represent various pairs of addends with the same sum helps students connect a concrete experience with a more abstract experience of writing equations.

Playing a game in pairs to identify pairs of addends that make 5 promotes **communication** and **mathematical language** among students.

The **visual representation** of counters on a ten-frame focuses students on the benchmarks of 5 and 10, thus enabling them to compose, decompose, and add numbers flexibly.

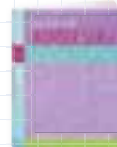
Using **manipulatives**, such as ten-frames, helps students use the benchmark of 5 to name numbers without counting by ones.

Assessing with **visual models** and **symbolic representations** allows students to show their understanding without having to approach the material in an unfamiliar format.

Lessons 1–5



The Benchmark of 5



Teaching Number Sense by Susan Scharton, pages 62–71



TeacherSpace™: Addition & Subtraction CD-ROM contains videos, professional articles, and reproducibles to support teaching these lessons.



LESSON 3 Using 5 as a benchmark

Previous Lesson Students play a game finding pairs of addends that make 5.

Lesson 3 Students use a ten-frame and the benchmark of 5 to build numbers and find sums to 10.

Next Lesson Students use the benchmark of 5 to represent sums of 6 to 10.

Lesson Summary
Students use a ten-frame and the benchmark of 5 to build numbers and find sums to 10.

- Objectives**
- Identify numbers to 10 using the benchmark of 5.
 - Communicate ideas with key math vocabulary: *add, addend, addition, equals, equation, plus, and sum.*

- Materials**
- WorkSpace pages 6 and 7
 - ten-frames
 - two-color counters
 - yellow crayons
- T = Teacher Bag
S = Student Bag

Interactive Whiteboard Tools
WorkSpace pages and manipulatives for Lesson 3 are provided on the Interactive Whiteboard Tools CD-ROM.

Language Development

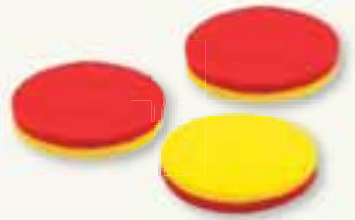
Key Math Vocabulary

ENGLISH	SPANISH
add	sumar
addend	sumando
addition	adición
equals	es igual a
equation	ecuación
plus	más
sum	suma

Academic Vocabulary

ENGLISH	SPANISH
row	fila

Cognates are shown in italics.

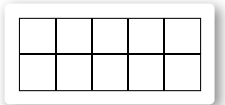


WHOLE GROUP

STEP 1 Introduce the ten-frame.

1 Introduce the lesson.
We have added numbers to make 5. Today we will build numbers to 10.

2 Introduce the ten-frame.
Show students a ten-frame.
This is called a ten-frame.



Slide your finger across each row as you ask the following questions.

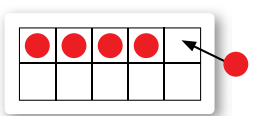
How many rows are there in this frame? (2)

How many boxes are in each row? (5)

How many boxes are there in all? (10)

I will show you how we place counters on the ten-frame.

Place 5 two-color counters, one at a time, red side up, on the ten-frame. Start at the top row with the box on the far left. Have students count with you as you place each counter in the top row—1, 2, 3, 4, 5.

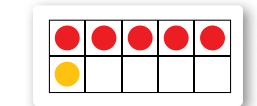


When the top row of the ten-frame is full, you know that there are 5 counters, so you don't have to count them one-by-one.

WHOLE GROUP

STEP 2 Guide students to build on from 5.

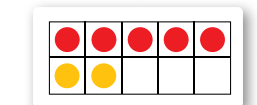
1 Use the benchmark of 5 to build numbers on the ten-frame.
I will place one more counter on the ten-frame.
Place one counter yellow side up on the ten-frame.



Sweep your hand across the top row as you say *five* and then point to the one yellow as you say *six*.

Start with 5 and count on 1 to get 6. I don't have to count the 5 because I know there are 5 counters in the top row.

Place another counter yellow side up on the ten-frame.



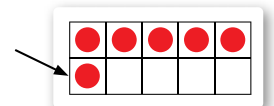
How many counters are on the ten-frame now? (7) Yes, there are 7 counters. I start with 5 and count on two more to get 7. Five...six, seven.

Continue this process for 8 and 9 counters. Be sure to count with students, sweeping your hand across the top row and then pointing as you count on: *five...six, seven, eight* and *five...six, seven, eight, nine*.

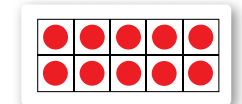
Place the tenth counter on the ten-frame.

How many counters are on the ten-frame now? (10) Remember we don't need to count one-by-one when the ten-frame is full.

3 Continue to place counters on the ten-frame.
I start the next row by placing a red at the left.

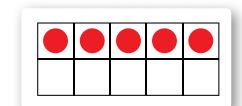


Continue placing the counters red side up one at a time from left to right until the ten-frame is filled. Have students count with you as you place each counter—6, 7, 8, 9, 10.



How many counters are on the ten-frame when it's full? (10)

Remove the counters from the bottom row.



How many counters are there now? (5) If one row is full, we know there are 5 counters. If both rows are full, we know there are 10. We don't have to count them one-by-one.

CONTINUE



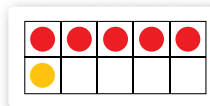
LESSON 3 continued Using 5 as a benchmark

WHOLE GROUP

STEP 3 Demonstrate writing equations.

1 Model writing an equation using the benchmark of 5.

Remove the counters from the bottom row of the ten-frame. Place 1 counter yellow side up on the bottom row of the ten-frame.

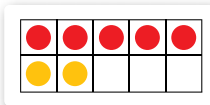


I can write an addition equation for the 6 counters. I can see that 5 plus 1 equals 6.

Write the equation on the board.

$$5 + 1 = 6$$

Place another counter yellow side up on the ten-frame.



What equation can I write for the total number of counters? (5 + 2 = 7)

Continue adding counters one at a time yellow side up to model the equations $5 + 3 = 8$ and $5 + 4 = 9$. Write the equations on the board as shown.

$$\begin{aligned} 5 + 1 &= 6 \\ 5 + 2 &= 7 \\ 5 + 3 &= 8 \\ 5 + 4 &= 9 \end{aligned}$$

WHOLE GROUP

STEP 4 Demonstrate using the benchmark of 5 for sums of 6.

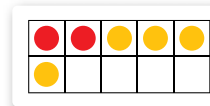
1 Model how to use the benchmark of 5 to find sums.

Now we are going to look at how 5 can help us solve addition problems. For example, 2 plus 4.

Place 2 counters red side up and 4 counters yellow side up on a ten-frame.

First I put two reds on the ten-frame. Then I put on four yellows. This shows the addition problem 2 + 4.

What equation can we write? (2 + 4 = 6)



Erase the board and write the equation.

$$2 + 4 = 6$$

We can also look at the total 6 in a different way. We know that there are 5 in the first row and 1 in the second row.

I can write 5 + 1 = 6.

Write the second equation on the board.

$$\begin{aligned} 2 + 4 &= 6 \\ 5 + 1 &= 6 \end{aligned}$$

We can see two ways to make 6. If we look at the colors we see 2 + 4, and if we look at the rows we see 5 + 1.

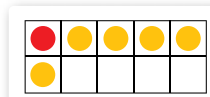
WHOLE GROUP

STEP 5 Students write equations.

1 Guide students through a second example.

Now let's do this for 1 + 5. Place 1 red on the ten-frame. Now place 5 yellows on the ten-frame.

Check to be sure students do this correctly.



What equation can we write if we look at the colors? (1 + 5 = 6) What equation can we write if we look at the rows? (5 + 1 = 6)

Write the equations on the board.

$$\begin{aligned} 2 + 4 &= 6 \\ 5 + 1 &= 6 \\ 1 + 5 &= 6 \\ 5 + 1 &= 6 \end{aligned}$$

2 Partners state two equations.

Now empty the ten-frame and place 3 reds and 3 yellows on it. What equations can you write?

Have students think, pair, share. Model 3 + 3 with counters on a ten-frame. Choose students to state the equations. Write the equations on the board.

$$\begin{aligned} 2 + 4 &= 6 \\ 5 + 1 &= 6 \\ 1 + 5 &= 6 \\ 5 + 1 &= 6 \\ 3 + 3 &= 6 \\ 5 + 1 &= 6 \end{aligned}$$

INDIVIDUALS

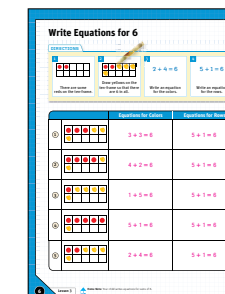
STEP 6 Students write two equations for sums of 6.

1 Explain the directions for *WorkSpace* page 6.

Have students turn to *WorkSpace* page 6. Explain the directions. Each student will need a yellow crayon to draw counters in the ten-frames to make 6.

To make a total of 6, you will use a yellow crayon to draw counters in the boxes on the ten-frames. Then you will write two equations for each ten-frame.

2 Students complete *WorkSpace* page 6.



When you finish page 6, you may play Race to the Top with 6 counters. Use WorkSpace page 7.

SUPPORTING INSTRUCTION

Think, pair, share is a routine that will be used throughout this module. Explain the routine to students. They should think first and then talk with their partners, taking turns listening and speaking, and finally discussing what they will say when they are called on to share with the whole group. Having students talk in pairs provides them with a "safe" way to share ideas that they may not be quite sure of, think of words to articulate their ideas, brainstorm, and practice what they will say when they share with the larger group.

STOP



LESSON 5 Assessing student understanding

Lesson Summary

Students demonstrate understanding of the objectives of Lessons 1–4 by completing a *WorkSpace* page independently.

Objectives

- Use the benchmark of 5 to represent sums of 6 to 10.
- Identify pairs of addends with sums to 9.
- Communicate ideas with key math vocabulary: *add*, *addend*, *addition*, *equals*, *equation*, *plus*, and *sum*.

Materials

- *WorkSpace* pages 9 and 10
 - ten-frames
 - two-color counters
- T = Teacher Bag
S = Student Bag

Interactive Whiteboard Tools

WorkSpace pages and manipulatives for Lesson 5 are provided on the *Interactive Whiteboard Tools* CD-ROM.

Language Development

Key Math Vocabulary

ENGLISH	SPANISH
add	sumar
addend	sumando
addition	adición
equals	es igual a
equation	ecuación
plus	más
sum	suma

Academic Vocabulary

ENGLISH	SPANISH
row	fila

Cognates are shown in italics.

WHOLE GROUP

STEP 1 Students use the benchmark of 5 to add.

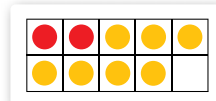
1 Introduce the lesson.

Today, we'll write two equations for sums of 7, 8, and 9. Then you will show me how much you know about using 5 to help you add numbers with sums to 9. When you have finished, if you have time, you can play Shake and Spill for 7, 8, and 9 counters.

2 Write two equations for a sum of 9.

First let's add 2 plus 7. On your ten-frame place 2 reds and then 7 yellows.

Check to be sure students do this correctly.



If we look at the colors, we see the addition problem 2 + 7. If we look at the rows, we see the addition problem 5 + 4. Use the five counters in the first row to help you find the sum of 2 + 7. (9)

We can write two equations. Looking at the colors, we write 2 + 7 = 9. Looking at the rows, we write 5 + 4 = 9.

Write the equations on the board.

$$2 + 7 = 9$$

$$5 + 4 = 9$$

Point to each equation as you say:

Both 2 + 7 and 5 + 4 are equal to 9.

WHOLE GROUP

STEP 2 Students use the benchmark of 5 to add.

1 Write two equations for a sum of 8.

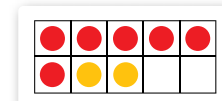
Write 6 + 2 on the board.

$$2 + 7 = 9$$

$$5 + 4 = 9$$

$$6 + 2$$

Place counters on your ten-frame to show this addition problem.



Use the first row of 5 to help you figure out the answer. What did you get? (8) What equations can you write? (6 + 2 = 8 and 5 + 3 = 8)

Write the equations on the board.

$$2 + 7 = 9$$

$$5 + 4 = 9$$

$$6 + 2 = 8$$

$$5 + 3 = 8$$

SUPPORTING INSTRUCTION

Since this is the first written assessment, explain to students that the purpose of the assessment is to let you know what they have learned and what more they need to learn. Explain that although we usually encourage them to work together, for the assessments they will work by themselves without conferring with a partner.

INDIVIDUALS

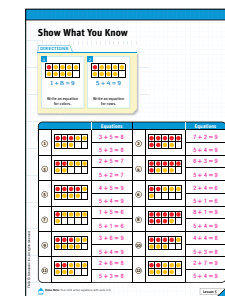
STEP 3 Students complete an assessment.

1 Explain the directions for *WorkSpace* page 9.

Have students turn to *WorkSpace* page 9. Explain the directions.

Usually you work with a partner, but for this page you'll work by yourself so that I know what you've learned and what you still need to learn.

2 Students complete *WorkSpace* page 9.



When you finish page 9, you may play Shake and Spill for 7, 8, or 9 counters. Use *WorkSpace* page 10 to write your equations.

SUPPORTING INSTRUCTION

Give students as much time as they need to complete the assessment page. Some students may want to rush through the assessment so that they can play the game, especially if they see others playing. Assure students that they will get some time in the following week to play the game if they don't get to do it today.

AFTER THE LESSON



LESSON 5 continued Assessing student understanding

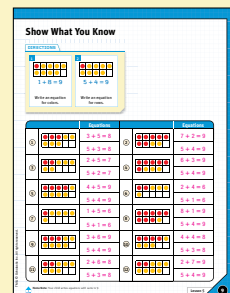
ASSESSMENT **Progress Monitoring**

Objectives

- Use the benchmark of 5 to represent sums of 6 to 9.
- Identify pairs of addends with sums to 9.
- Communicate ideas with key math vocabulary: *add, addend, addition, equals, equation, plus, and sum.*

Assess

Use the annotated page to correct *WorkSpace* page 9.



Note the progress of each student in the appropriate rows of the tracking chart on page 151.

Evaluating Your Students After the First Assessment

You may find that a student is not successful after these five lessons are assessed. Use the Interview Assessment questions found on page 143 to evaluate whether the student will need additional guidance before moving on to Lesson 6. The resources on page 144 provide additional ways to support student learning.

Differentiating Instruction

Although the lessons are carefully scaffolded and paced at a rate to give students a chance for optimal learning, there will be instances when students are still struggling and need extra support. Also, there will be instances when students would benefit from additional challenges or practice. Try the teaching ideas below.

For Students Who Need More Support

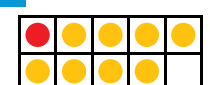
- As students complete the *WorkSpace* page, observe them to identify students who count all counters on a ten-frame, one by one, to get the answer. If you see a student doing this, model for the student how to count on from 5, sweeping your finger above the top row of 5 counters in the ten-frame, and then counting on the remaining counters, one by one, to get the sum—e.g., 5...6, 7, 8. Have the student repeat, sweeping and counting. Ask him or her to do the same for other numbers of counters on the ten-frame until you are sure he or she can use the benchmark of 5 in this way.
- Play *Shake and Spill* with the student. This will let you guide the student to place counters correctly on the ten-frame, determine the sum using the benchmark of 5, and write the addition equations.

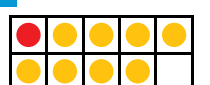
For Students Ready for a Challenge

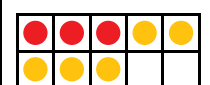
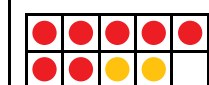
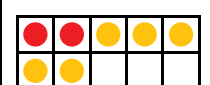
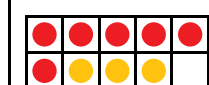
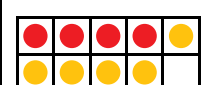
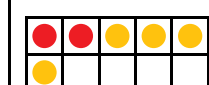
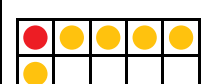
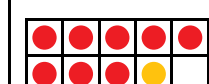

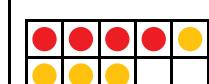


- Have students play *Shake and Spill* with 10 counters. This will prepare them for the next section of lessons—finding pairs of addends that make 10.

Show What You Know

DIRECTIONS

1 
 $1 + 8 = 9$
 Write an equation for colors.

2 
 $5 + 4 = 9$
 Write an equation for rows.

	Equations		Equations	
1			2	
3			4	
5			6	
7			8	
9			10	
11			12	

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Home Note: Your child writes equations with sums to 9.