Building Computational Fluency
Grade 2

Excerpts From Bridges in Mathematics
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Building Computational Fluency, Grade 2

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Building Computational Fluency, Grade 2 Overview

Building Computational Fluency, Grade 2 is a supplement designed to provide you with powerful and flexible tools to assess and support students in developing key computational skills and concepts. Organized into three sections, this supplement enables you to assess some or all of your students on computational skills throughout the school year and provide support to students who need extra help in key areas, including:

- developing and applying strategies for addition and subtraction facts to 20
- developing fluency with addition and subtraction facts to 20
- counting by 10’s and 1’s
- understanding place value
- double-digit addition and subtraction with and without regrouping
- counting by 5’s, 10’s, and 25’s using clocks and money
- computation with money

In Section 1, you’ll find a set of assessments designed to be administered at key points throughout the school year. These assessments serve as a useful complement to any second grade math program, and may also be helpful to third grade teachers seeking to diagnose specific skill deficits among students working below grade level. They also provide tools to check students’ proficiency with basic addition and subtraction facts on a regular basis. In Section 2, you’ll find a collection of Support Activities designed to help students who indicate needs in the specific areas assessed. The games in this section are based around visual models and strategies, and help students develop deep conceptual understandings as well as proficiency. They can be used as instructional resources with your entire group, or as tools to remediate targeted students. Section 3 is a Fact Fluency Supplement that provides the kind of systematic, strategy-based practice students need to master basic addition and subtraction facts. The worksheets and strategy booklets in this section can be used with selected students or with your entire class. Each section is described in more detail below.

Section 1 Assessments

The seven assessments in this collection are designed to help you gauge how your students are doing with key computational skills throughout the year. Assessment 1 is an individual interview intended for use at the beginning of the school year. While it may take a few weeks to interview each one of your students, the insights you’ll gain into your incoming second graders’ addition
and subtraction strategies, as well as their understandings of place value are well worth the time.

Assessments 3 and 5 are written tests of students' fluency with addition and subtraction facts to 20. Assessment 3 is designed to be conducted in the fall and Assessment 5 in the spring, but you can administer either one at the time best suited to your instructional schedule. Checklists are provided with both assessments to track students' proficiency with fact strategies such as counting on, counting backwards, adding and subtracting doubles and neighbors, adding and subtracting 10’s, and others. You'll find a set of fact strategy booklets, worksheets, and activities in the third section of this packet designed to provide students with opportunities to learn and practice these strategies.

Assessments 2, 4, 6, and 7 are quarterly written checkups designed for use at the end of each grading period to support teachers in conferencing with parents and reporting on students' progress. Each of these assessments offers another look at students' proficiency with basic facts and a host of other key math skills typically taught in the fall, winter, and early as well as late spring of the second grade year. These assessments may also be useful to resource room teachers and others working with below-grade-level third graders.

### Assessment 2

<table>
<thead>
<tr>
<th>Add</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 + 1</td>
<td>9</td>
</tr>
<tr>
<td>9 + 7</td>
<td>1</td>
</tr>
<tr>
<td>13 + 3</td>
<td>6</td>
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<tr>
<td>3 + 10</td>
<td>6</td>
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<tr>
<td>6 + 6</td>
<td>10</td>
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<tr>
<td>15 + 8</td>
<td>5</td>
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<td>17 + 7</td>
<td>6</td>
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<td>0 + 10</td>
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<td>5 + 10</td>
<td>5</td>
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<td>3 + 10</td>
<td>3</td>
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<td>10 + 7</td>
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<td>4 + 10</td>
<td>4</td>
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<td>10 + 6</td>
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<td>10 + 10</td>
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<tr>
<td>Subtract</td>
<td></td>
</tr>
<tr>
<td>4 - 1</td>
<td>3</td>
</tr>
<tr>
<td>12 - 1</td>
<td>11</td>
</tr>
<tr>
<td>6 - 0</td>
<td>6</td>
</tr>
<tr>
<td>17 - 10</td>
<td>6</td>
</tr>
<tr>
<td>11 - 1</td>
<td>10</td>
</tr>
<tr>
<td>19 - 6</td>
<td>16</td>
</tr>
<tr>
<td>16 - 5</td>
<td>11</td>
</tr>
<tr>
<td>Write the number to show how many Unifix cubes there are, in each of the four sections below:</td>
<td></td>
</tr>
</tbody>
</table>

1. ![Unifix cubes](image1)
2. ![Unifix cubes](image2)
3. ![Unifix cubes](image3)
4. ![Unifix cubes](image4)

Count the money in each box.

1. ![Money](image5) 26¢
2. ![Money](image6) 26¢
3. ![Money](image7) 26¢

Draw 2 different ways to make 26¢ with coins.

1. ![Coin](image8) 26¢
2. ![Coin](image9) 26¢
Section 2 Support Activities

In the second section of this packet, you’ll find a set of 14 partner or small group games specifically designed to support the skills tested in the assessments described above. These games provide engaging practice with skills including addition and subtraction fact strategies, place value understandings, double-digit addition and subtraction with and without regrouping, and computation with money. Most of these games are based around visual models such as ten frames, ten strips, base 10 pieces, money value pieces, and hundreds grids, and are intended to help students develop conceptual understanding as well as proficiency.

You’ll need
- Make 100 Record Sheet (Blackline, 2 copies run back-to-back per player)
- Make 100 Cards, pages 1-3 (Blacklines, 1 copy, cut apart, for each pair of players)
- crayons

Instructions for Make 100
1. Mix up the Make 100 Cards and place them in a pile, face down. Write your name and your partner’s name at the top of a record sheet. The goal of Make 100 is to be the player who gets closest to 100. You can stay under 100 or go over 100.
2. Take 2 cards and turn them face up. Both players should record the two numbers in the boxes below the Number Chart and color in the amounts on the chart. Use a different color for each amount.
3. The other player takes 2 cards. Both players record the numbers in the boxes and color in the amounts on their Number Charts.
4. Both players should decide whether or not to draw a third card. If you’re close to 100, you may choose not to draw another card. If you’re still far away from 100, you might take a chance and draw a third card. Each player may draw no more than 3 cards.

Although the Support Activities have been designed to complement the assessments in this packet, you can use them as a set of additional instructional resources for your classroom even if you choose not to conduct the assessments. The activities can be used by educational assistants, parent volunteers, resource or title teachers, as well as classroom teachers, and many of them also make effective homework assignments.
Each activity includes:
- instructional considerations
- playing instructions
- blacklines for game components if needed (spinners, gameboards, and/or cards)
- record sheet blacklines if needed

Section 3  Fact Fluency Supplement

The Fact Fluency Supplement is designed to be used in conjunction with the assessments in this packet, but also stands alone as a set of materials that can be used to supplement any second grade math program. This section includes 2 illustrated fact strategy booklets to be used with students at school or home, 23 pages of strategy-related fact practice, and three games and/or worksheets designed for students to take home for extra practice.
Assessment 1

Individual Interview  Addition & Subtraction, Place Value

Overview
This interview enables you to get a sense of students’ strategies for solving addition and subtraction combinations and their understanding of place value.

Timing
September, or any other time of year appropriate for your students

Skills & Concepts
★ solving addition and subtraction facts to 20
★ reading numbers between 11 – 20
★ counting accurately
★ understanding place value

You’ll need
★ Assessment 1 (Blackline page 12, run a class set)
★ 20 buttons, or other small counting objects
★ a pencil and some slips of paper

Conducting Assessment 1

These individual interviews take about 15 minutes per child and consist of two sets of questions. One set revolves around students’ strategies for solving addition and subtraction combinations. The other looks at children’s grasp of place value. To prepare for conducting the interviews, you’ll want to run a copy of the interview sheet for each of your students (Blackline p. 12), label sheets with students’ names, collect some small counting objects, and read through the interview instructions carefully. Plan to pull children aside one by one during the Work Places, or at another time of day when your class is able to work or play independently. Depending on your class size, it may take several weeks to get to all your students. Though this requires extra effort, the information gained is very useful, and the opportunity to interact with each child individually is invaluable.

Looking at Addition & Subtraction Strategies

The top portion of the interview sheet shows 10 addition and 10 subtraction combinations. These problems will allow you see how each child adds and subtracts 0’s, 1’s, 2’s, 10’s (10 + 3, 16 - 10, and 17 - 7), and 9’s (9 + 6 or 16 - 9). You’ll also be able to see how they deal with adding and subtracting doubles (5 + 5 or 8 - 4) and neighbor numbers (6 + 5 or 8 - 7).
Assessment 1 Individual Interview (cont.)

As you point to each addition and subtraction combination, have the child read it aloud and tell you the answer. (If she reads a combination incorrectly, help her read it again.) If she reads the combination and gives the correct answer immediately, just circle the fact. If she answers incorrectly or takes more than a second or two to come up with the answer, don’t correct her or advise her to speed up. Just ask her how she got the answer and jot notes right on the interview sheet. Watch for her strategies—her ways of figuring things out.

\[
\begin{array}{cccccc}
5 & 7 & 2 & 5 & 6 \\
+ 0 & + 1 & + 6 & + 5 & + 5 \\
\end{array}
\]

*Teacher* Let’s look at the addition and subtraction facts on this page. Please read the first one and tell me the answer.

*Child* What if I don’t know the answers to all of them?

*Teacher* That’s okay. I’m eager to see how you figure out some of the things you don’t know already.

*Child* 5 + 0—easy! It’s 5.

*Teacher* What about the next one?

*Child* 7 + 1. That’s 8.

*Teacher* Okay.

*Child* 2 + 6…ummmm…8.

*Teacher* Great! How did you figure that one out?

*Child* I went 6—7, 8.

*Teacher* What about the next one?

*Child* 5 + 5, that’s 10.

*Teacher* And the next?

*Child* 6 + 5. (Child is silent a moment, figuring.) 11.

*Teacher* How do you know?

*Child* Well, if 5 and 5 is 10, 6 is 1 more, so the answer has to be 11.
Assessment 1  Individual Interview (cont.)

Child  What are you doing on that paper?

Teacher  I'm marking your answers. If you know a fact very quickly, I circle it. If you take awhile to figure it out, I write down how you do it. I'm very interested in seeing what you do to figure out the facts you don't already know.

Continue in this fashion until you've worked your way through all the facts on the sheet. At this point, we can see that the child above probably knows about adding 0's, 1's, and at least some of the doubles. She also has some efficient ways to work with facts she doesn't know immediately.

Checking Place Value Understandings

Teacher  (Write the number 14 on a slip of paper.) What number is this?

Child  14. (If the child can't read the number, make a note of it and read it to him.)

Teacher  Please take 14 buttons out of the basket and put them here on the table. (Child counts out 14 buttons.)

Teacher  How can you be sure you really have 14? (Watch how the child checks himself. Does he re-count them by 1's or by 2's? Does he group them in some fashion to show that he has 14? What does he say or do? Make a note of it on the interview sheet.)

Teacher  (Show the child the number 14 on the slip of paper and circle the 4.) Please show me with your buttons what this part of the number means.
Assessment 1  Individual Interview (cont.)

Child  (Pulls aside 4 buttons to show.) 4. (Important: If the child only says 4 and doesn’t use the buttons to show, be sure to remind him to do so.)

Teacher  (Show the child the number 14 on the slip of paper again and circle the 1 this time.) Please show me with your buttons what this part of the number means.

At this point in the year, most children will pull aside 1 button. A few older or very advanced children may show you 10. Either way, you want to explore just a bit further. Let’s look at what to do with the children who show you 1 button.

Teacher  So you are showing me that this part of the number (point to the 4 in the number 14) means 4, and this part of the number (point to the 1 in the number 14) means 1. (Child nods happily.) I’m wondering about all these extra buttons here in the middle. What about them?
Child  Oh, they don’t really matter. I’m not sure what they’re for.

This early in the fall, most second graders will be unconcerned about the remaining 9 buttons. A few will count them and puzzle, but not for long. Every so often, a student may push the 9 and the 1 together and say, “Hey, wait a minute! That doesn’t mean 1—it really means 10!” These children are the fence-sitters, just beginning to understand the nature of our place value system.

Now let’s look at what to do with the children who show you 10 buttons in the first place.

Teacher  So you are showing me that this part of the number (point to the 4 in the number 14) means 4, and this part of the number (point to the 1 in the number 14) means 10. But this number (point again to the 1 in the number 14) says 1! Why are you showing me 10?

Child  Because the 1 doesn’t mean 1 when it’s there. It means 10. It means 1 group of 10 and 4 more!

Most children who show you 10 in the first place aren’t going to be pushed out of their convictions easily. By the end of this year, most, if not all of your children should be at this level.

Using information from Assessment 1

What should you do with these interviews? What can you learn about students as individuals and as a group, and how should that information impact your instruction?
This early in the fall, most of your students will demonstrate lots of counting behavior when they add and subtract. A few children may know some or all of the facts immediately, and many will be quick at adding and subtracting 0's and 1's. Some of your students will set up the problems on their fingers and count by 1's. Others may count on \((6 + 5 = 6—7, 8, 9, 10, 11)\) or backwards \((8 - 5 = 8—7, 6, 5, 4, 3)\).

You may also see the beginnings of more sophisticated strategies. A few children may report that \(8 - 4 = 4\) because \(4 + 4 = 8\). Some may tell you that \(9 + 6 = 15\) because \(10 + 6 = 16\), and 9 is 1 less than 10. The Support Activities and Fact Fluency sheets will help students move from counting behaviors so typical of primary children to more efficient methods as the year progresses.

A few students may be confused about subtraction. It’s not unusual for children to misread subtraction as addition, or to add the numbers instead of subtracting them, even if they read the combination correctly. Sometimes they’ll add the two quantities and then subtract one of them, so the answer to \(6 - 4\) will be 6 \((6 + 4 = 10 - 4 = 6)\). If you encounter students who seem confused about the process of subtraction, you might want to explore a little further. Try posing a subtraction problem in the form of a story—I had 5 goldfish and 3 of them died. How many were left? Most second graders will make sense of this situation and correctly answer 2.

Chances are, few of your students will have solid place value foundations yet. Although most will be able to read the number 14 and count out 14 buttons accurately, few will comprehend the complexities of our number system. The idea that the numeral 1 can mean 1, 10, 100, or 1,000 depending on its placement is quite abstract. This is the year most children will move from counting by 1’s to thinking and working in multiples of 5’s, 10’s, and 100’s. Given many opportunities to make sense of numbers, most students will be well on their way to understanding place value by the end of second grade.

**SUPPORT ACTIVITIES**

Although it’s early in the year to start any remedial work, you might assign one or more of the Support Activities listed below to students who really struggled with the addition and subtraction facts during the interview.

Make the Sum helps students understand the operation of addition, and provides solid work with fact families. Since it can be played at a variety of levels, it might make an effective instructional tool for your entire class.
Doubles Spin and Make Half help students learn the doubles and related halves facts (e.g., $4 + 4$ and $8 - 4$). Since these provide important foundations for learning many other addition and subtraction facts, either game might also be a good choice for your entire class.

**SUPPORT ACTIVITIES**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Name</th>
<th>Skills</th>
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<tbody>
<tr>
<td>Activity 12</td>
<td>Make the Sum</td>
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</tr>
<tr>
<td>Activity 5</td>
<td>Make Half</td>
<td>Basic Subtraction Facts: Half Facts</td>
</tr>
</tbody>
</table>
Assessment 1

Addition and Subtraction Strategies

\[\begin{array}{cccccc}
5 & 7 & 2 & 5 & 6 \\
+ 0 & + 1 & + 6 & + 5 & + 5 \\
\hline
10 & 9 & 8 & 9 & 13 \\
+ 3 & + 6 & + 5 & + 9 & + 4 \\
\hline
6 & 9 & 8 & 9 & 10 \\
- 0 & - 1 & - 2 & - 9 & - 5 \\
\hline
8 & 8 & 16 & 16 & 17 \\
- 4 & - 5 & - 10 & - 9 & - 7 \\
\end{array}\]

Place Value

☐ Can read the number 14__________________________________________

☐ Can count out 14 objects accurately________________________________

☐ Checks counting accuracy by ______________________________________

☐ Shows the 4 in 14 with 4 objects___________________________________

☐ Shows the 1 in 14 with 10 objects___________________________________
Assessment 2

Overview
This assessment can be used to test key math skills toward the end of the first reporting period.

Timing
Late October or early November, or any other time of year appropriate for your students

Skills & Concepts
★ addition facts (+0’s, +1’s, doubles, and neighbors)
★ subtraction facts (– 0’s, 1’s, halves, and neighbors)
★ counting by 10’s and 1’s
★ telling time to the minute
★ counting coins to a dollar

You’ll need
★ Assessment 2 (Blacklines pages 15-16)
★ Unifix cubes or other counters
★ plastic or real coins (quarters, dimes, nickels, and pennies)

Conducting Assessment 2
You may find this assessment useful in assessing your students’ skills in several different key areas before conferencing with parents or writing first quarter report cards. Run overhead copies of the assessment blacklines to preview the items with students, or simply give out copies of the assessment and review it with the class before students begin work. Once they understand what to do, spread children out around the classroom so they can work privately and give them as much time as they need to complete both pages. (Unlike some of the other assessments in this packet, this is not a timed test.) Make Unifix cubes or other counters and plastic or real coins available to those students who want to use them.

Support Activities
After reviewing students’ responses to the items on this checkup, you can assign Support activities for children to work on at school or at home. Although there are 14 Support activities in the second section of this packet, the ones listed below are particularly relevant to the items you just tested.
### SUPPORT ACTIVITIES

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</tr>
</tbody>
</table>

You may also want to use some of the addition and subtraction sheets in the Fact Fluency Supplement to give students more practice adding and subtracting 0’s, 1’s, 2’s, doubles, and neighbors.
Assessment 2

Add

\[
\begin{array}{cccccccc}
9 & 9 & 13 & 1 & 15 & 17 & 0 \\
+ 1 & + 0 & + 1 & + 7 & + 1 & + 0 & + 18 \\
\hline
3 & 3 & 4 & 4 & 6 & 6 & 8 \\
+ 3 & + 4 & + 4 & + 5 & + 6 & + 7 & + 8 \\
\end{array}
\]

\[
\begin{align*}
5 + 10 &= \_\_\_\_ \\
3 + 10 &= \_\_\_\_ \\
10 + 7 &= \_\_\_\_ \\
4 + 10 &= \_\_\_\_ \\
10 + 6 &= \_\_\_\_ \\
10 + 2 &= \_\_\_\_ \\
1 + 10 &= \_\_\_\_ \\
10 + 10 &= \_\_\_\_ \\
\end{align*}
\]

Subtract

\[
\begin{array}{cccccccc}
4 & 12 & 6 & 17 & 11 & 19 & 16 \\
- 1 & - 1 & - 0 & - 0 & - 1 & - 1 & - 0 \\
\hline
4 & 2 & 6 & 4 & 10 & 6 & 16 \\
- 2 & - 1 & - 3 & - 3 & - 5 & - 5 & - 8 \\
\end{array}
\]

Write the number to show how many Unifix cubes there are, in each of the four sections below.
Assessment 2 (cont.)

Finish writing the time for each clock.

1. ________ 2. ________ 3. ________

Count the money in each box.

Draw 2 different ways to make 26¢ with coins.
Assessment 3

Addition Fluency Checkup

Overview
Students are given up to 3 minutes to take a 30-problem addition facts test, working with sums to 20.

Skills & Concepts
★ fluency with addition facts to 20
★ recognizing and using the commutative property for addition

You'll need
★ Assessment 3 (Blackline page 21, class set)
★ Addition Facts Class Checklist (Blackline page 22, 1 copy, optional)
★ clock or watch with a second hand

Timing
Late fall or any other time of year appropriate for your students.

Some Thoughts on Timed Testing
We don't advocate the practice of timed testing for instructional purposes. Daily timed practice with random collections of problems is not productive to the development of computational fluency. Students typically continue to reinforce bad habits (e.g., counting on their fingers) when they are under pressure, and many develop a negative disposition towards mathematics because they cannot compete with their peers or can't work fast enough.

You'll use information from timed tests to guide your instruction, not to generate grades. To meet your students' needs, you'll need information about which facts each child knows and which strategies need to be developed conceptually with explicit practice, number relationship experiences, and word problems. As their number sense and use of strategies are developed, students will become more accurate, flexible, and efficient. When you make time to share the results with students, they will see evidence of their own growth.

Conducting Assessment 3
This assessment will give you some sense of your students' current fluency with addition facts to 20. A student is considered to be fluent if he or she can complete 30 problems in a minute and a half: about 3 seconds per problem. A few students may be able to complete 30 problems in less than 1 minute.

Give each student a copy of Assessment 3. Take a moment to preview the types of problems on the page. Ask volunteers to point out an example of a zero fact, a counting on fact (plus-1, -2, -3), a doubles fact, and a neighbors
Assessment 3  Addition Fluency Checkup (cont.)

(doubles plus-1) fact. This preview is very important, because we always want our students to be aware of the strategies they can use to determine the sums they do not automatically recall.

Ask students to write their names and the date at the top of the page. Explain that they’ll have 3 minutes to complete as much of the page as possible. Let them know that they’ll have to work quickly and that they may want to skip around to facts they know and then come back to the ones that are challenging. Remind them that when they’ve finished, they should wait quietly until everyone else has finished too.

Let students know when they can begin. (They will all need to begin at the same time.) You’ll have to watch the clock as they go, so pick a starting point that’s easy to remember, like when the second hand is on the 12 or the 6. Record the elapsed time in increments of 10 seconds on either the whiteboard or overhead; recording the times on the overhead allows you to watch how students are working (e.g., on their fingers, tapping their feet, etc.). When students are done, they can look at the board or overhead and record the elapsed time in minutes and seconds on their page.

When the last student has finished, or 3 minutes have gone by, collect all their papers. Check students' work later for accuracy and share the results with students as needed. Use this information to set reasonable goals that will help your students achieve fluency.
Using Information from Assessment 3

As you look over students' work, you may want to use the Addition Facts Class Checklist to record notes about what kinds of facts students have mastered and which ones remain challenging. The results will help you monitor their growth so far this year and plan your instruction to meet their evolving needs.

Note  You may notice that some of your students occasionally write a numeral backwards. Don't deduct points for this, but it would be a good idea to practice number writing with those students at a later time.

Here are some things you'll want to think about as you look over each student's work:

1. Time  How much time did it take the child to complete the sheet? If she didn't finish the sheet, how much of it was she able to complete?

Quick, competitive students may memorize the sums and retrieve them quickly without understanding the relationships between numbers well enough to double-check their answers in a flexible way. You may not be able to tell which students are working this way based only on this assessment.

2. Approach  What was the child's approach to completing the problems? Did he complete the ones he knew first and then come back to those that were challenging? Did he complete them in order from left to right or top to bottom, or was his approach random?

If a child is completing facts in order from left to right or top to bottom, it's possible that child has command of all the addition facts and doesn't identify any as particularly easy or difficult. However, if the first two rows are nearly complete, but the third row hasn't been attempted, it could be that the student doesn't understand the idea of skipping around to get more problems finished or doesn't find any of the facts easier than the others. Children who are still counting on with fingers or dots for each problem may have this style.
Assessment 3  Addition Fluency Checkup (cont.)

3. Completed Facts  Which facts did the child complete? Did she complete all the zero facts, counting on for plus one and two, doubles, and neighbors? Which kinds of facts seem more challenging for her than others?

The facts that are completed accurately are generally comfortable for the student and can be used as a teaching starting point: you’ll want to work from the child’s strengths toward new or more challenging facts (e.g., using doubles to master neighbors).

As you look over the students’ work as a group, you’ll want to identify:
• students who have demonstrated computational fluency by completing all 30 problems in under a minute and a half, with only 1 or 2 errors,
• students who have completed 30 problems in about 3 minutes with more than 2 errors, usually on neighbors, fast tens, and fast nines,
• and students who are unfamiliar with addition computation strategies and needed more than 3 minutes to complete the problems and/or have multiple errors.

SUPPORT ACTIVITIES

After reviewing students’ responses to the items on this assessment, you can assign Support activities for children to work on at school or at home. Although there are 14 Support activities in the second section of this packet, the ones listed below are particularly relevant to the items you just tested.

<table>
<thead>
<tr>
<th>SUPPORT ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity</strong></td>
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<tr>
<td>Activity 12</td>
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<tr>
<td>Activity 1</td>
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<td>Activity 2</td>
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<td>Activity 3</td>
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<tr>
<td>Activity 4</td>
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</tbody>
</table>

You may also want to use some of the worksheets in the Fact Fluency Supplement to give students more practice adding 0’s, 1’s, 2’s, doubles, neighbors, fast 10’s, and solving related subtraction problems.
Assessment 3

0 0 4 9 1 1
+ 3 + 8 + 0 + 1 + 4 + 7

5 2 2 3 6
+ 1 + 4 + 5 + 8 + 2 + 2

4
+ 10 + 9 + 3 + 3 + 5 + 5

9
+ 7 + 7 + 2 + 3 + 3 + 4

5
+ 5 + 6 + 8 + 3 + 8 + 4

9
+ 7 + 7 + 2 + 3 + 3 + 4

5
+ 5 + 6 + 8 + 3 + 8 + 4
## Addition Facts Class Checklist

<table>
<thead>
<tr>
<th>Student Names</th>
<th>Zero facts (+0)</th>
<th>Counting On (+1, +2, +3)</th>
<th>Doubles (e.g., 6 + 6)</th>
<th>Neighbors (e.g., 6 + 7)</th>
<th>Make Ten Facts (=10)</th>
<th>Fast Tens (+10)</th>
<th>Fast Nines (+9)</th>
<th>Leftover Facts</th>
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Assessment 4

Overview
This assessment can be used to test key math skills toward the end of the second reporting period.

Timing
Late January or early February, or any other time of year appropriate for your students

Skills & Concepts
- addition facts (+0’s, +1’s, doubles, neighbors, fast 10’s, and fast 9’s)
- subtraction facts (– 0’s, –1’s, –2’s, halves, neighbors, take away 10’s, and runaway 1’s)
- counting by 100’s, 10’s and 1’s
- telling time to minute
- measuring length (centimeters)
- counting coins to a dollar
- adding 2-digit numbers with regrouping

You’ll need
- Assessment 4, (Blacklines pages 25-27)
- rulers that show centimeters
- Unifix cubes or other counters
- plastic or real coins (quarters, dimes, nickels, and pennies)
- base 10 pieces (use Blacklines pages 28-29 to make these if necessary)

Conducting Assessment 4
You may find this assessment useful in assessing your students’ skills in several different key areas before writing second quarter report cards. Run overhead copies of the assessment blacklines to preview the items with students, or simply give out copies of the assessment and review it with the class before students begin work. Once they understand what to do, spread children out around the classroom so they can work privately and give them as much time as they need to complete all 3 pages. (Unlike some of the other assessments in this packet, this is not a timed test.) All students will need a ruler that shows centimeters. Make Unifix cubes or other counters, base 10 pieces, and plastic or real coins available to those students who want to use them.
After reviewing students’ responses to the items on this checkup, you can assign Support activities for children to work on at school or at home. Although there are 14 Support activities in the second section of this packet, the ones listed below are particularly relevant to the items you just tested.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Name</th>
<th>Skills</th>
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<tbody>
<tr>
<td>Activity 12</td>
<td>Make the Sum</td>
<td>Addition Facts to 10 &amp; Problem solving</td>
</tr>
<tr>
<td>Activity 1</td>
<td>Doubles Spin</td>
<td>Basic Addition Facts: Doubles</td>
</tr>
<tr>
<td>Activity 2</td>
<td>Spinning Around Addition</td>
<td>Strategies for Basic Addition</td>
</tr>
<tr>
<td>Activity 5</td>
<td>Make Half</td>
<td>Basic Subtraction Facts: Half Facts</td>
</tr>
<tr>
<td>Activity 6</td>
<td>Spinning Around Subtraction</td>
<td>Strategies for Basic Subtraction</td>
</tr>
<tr>
<td>Activity 13</td>
<td>Place Value War</td>
<td>Counting 100’s, 10’s, and 1’s</td>
</tr>
<tr>
<td>Activity 14</td>
<td>Activity Base 10 Triple Spin</td>
<td>Counting &amp; comparing 100’s, 10’s, and 1’s</td>
</tr>
<tr>
<td>Activity 7</td>
<td>Make 100</td>
<td>2-Digit Addition</td>
</tr>
</tbody>
</table>

You may also want to use some of the addition and subtraction sheets in the Fact Fluency Supplement to give students more practice adding and subtracting using a variety of fact strategies.
Assessment 4

Add

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Subtract

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<td>-5</td>
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</table>

Count by 100's, 10's, and 1's to find the total in each section below.
Assessment 4 (cont.)

Use a centimeter ruler to measure each of these lines.

\[ \phantom{\text{cm}} \]
\[ \phantom{\text{cm}} \]
\[ \phantom{\text{cm}} \]

Write the times..

\[ \phantom{6:15} \]
\[ \phantom{9:25} \]
\[ \phantom{1:50} \]

Draw the hands to show the times.

\[ 6:15 \]
\[ 9:25 \]
\[ 1:50 \]
Assessment 4 (cont.)

Circle the coins you’d need to pay for each item below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>36¢</td>
</tr>
<tr>
<td>Pencil</td>
<td>27¢</td>
</tr>
<tr>
<td>Pen</td>
<td>65¢</td>
</tr>
<tr>
<td>Balloon</td>
<td>25¢</td>
</tr>
</tbody>
</table>

Choose one of the adding problems below. Pick the one that seems best for you—not too hard, and not too easy. Use Unifix cubes, base ten pieces, pictures, or number sentences to solve the problem. Show all of your work in the box.

```
19  +  7  
26  + 27  
35  + 25  
43  + 18  
75  + 17  
```
Assessment 5

Subtraction Fluency Checkup

Overview
Students are given 3 minutes to complete a 30-problem subtraction fluency checkup.

Skills & Concepts
★ using strategies to demonstrate fluency with subtraction facts with minuends to 20
★ using the relationship between addition and subtraction to solve problems

Timing
Spring or any other time of year appropriate for your students

You’ll need
★ Assessment 5 (Blackline page 34, class set)
★ Subtraction Facts Class Checklist (Blackline page 35, 1 copy for teacher’s use)
★ clock or watch with a second hand

Conducting Assessment 5

Give each student a copy of Subtraction Fluency Checkup 1, and take a few minutes to review the kinds of problems on the page. Ask them to find an example of a half fact (12 – 6), a doubles fact (10 – 10), a neighbors fact (15 – 14), a take away tens fact (15 – 10), and a run away ones fact (14 – 4). Identifying a few facts before they begin helps remind students that they have strategies for solving these facts.

Remind students that they can skip around and do the problems that are easiest for them first and then come back to those that are more challenging. Let them know that they’ll have up to 3 minutes to work on the problems, and then tell them when to begin. You’ll have to watch the clock as they go, so pick a starting point that’s easy to remember, like when the second hand is on the 12 or the 6. Record the elapsed time in increments of 10 seconds on either the whiteboard or overhead; recording the times on the overhead allows you to watch how students are working. When students are done, they can look at the board or overhead and record the elapsed time in minutes and seconds on their page.

When the last student has finished or 3 minutes have gone by, collect all their papers. You’ll want to check them later for accuracy and record some notes about which strategies students have mastered and which ones still present a challenge. This information will help you plan your instruction for the rest of the unit.
Using Information from Assessment 5

As you look over students’ work, you may want to use the Subtraction Facts Checklist to record notes about what kinds of facts students have mastered and which ones remain challenging. The results will help you monitor their growth and plan your instruction to best meet their current needs.

1. **Time**  How much time did it take the child to complete the sheet? If he didn’t finish the sheet, how much of it was he able to complete? Students who can complete the sheet in a minute and a half or less (no more than 3 seconds per fact) are considered to have achieved mastery.

2. **Approach**  What was the child’s approach to completing the problems? Did she complete the ones she knew first and then come back to those that were challenging? Did she complete them in order from left to right or top to bottom, or was her approach random?

3. **Completed Facts**  Which facts did the child complete? Did he complete all the zero, counting back, half, or doubles facts? Which kinds of facts seem more challenging than others? The up to ten and leftover subtraction facts in are the most difficult for most of our students.

In looking over their work as a group, you’ll want to identify:

- students who are computationally fluent and have completed all 30 problems with only 1 or 2 errors in under a minute and a half,
- students who have completed 30 problems in about 3 minutes with minor errors, usually facts with differences between 10 and 20,
- and students who are unfamiliar with subtraction computation strategies and needed more than 3 minutes to complete the problems and/or have multiple errors.

To get more information, you may find that it’s helpful to interview students who seem to be lagging behind with their subtraction facts.

*Teacher*  Omar, can you tell me how you would solve the problem 12 minus 8?

*Omar*  I count 8, 9, 10, 11, 12. (Omar uses his fingers to count starting with 8.) The answer is 5.

Omar’s answer is 1 away from the correct difference, because he is using his fingers to count the numbers themselves rather than the number of “jumps” it takes to get from 8 to 12.
**Teacher**  Okay, how many from 8 to 12? So it sounds like you're starting at 8. Can you put out 8 tile first?

**Omar**  Yeah, I'm starting at 8 and then going to 12. So here's 8.

```
  8  9  10  11  12
```

**Teacher**  So now what would you do to get to 12?

**Omar**  Well, I want to get to 12. So I can add more.

**Teacher**  Can you use another color tile to get to 12? That way it will be easy to see what you had to add to 8 to get to 12.

**Omar**  It's easy to see. It's 4. Hmm, how did I get 5 before?

```
  8  9  10  11  12
```

**Teacher**  When you told me, I remember you went like this 8, 9, 10, 11, 12. (Counting on her fingers.)

**Omar**  Oh! I counted that last tile on the 8. 8, 9, 10, 11, 12. I should have started counting at 9.

Sometimes just a brief interview can clarify students' misconceptions and errors.

---

**SUPPORT ACTIVITIES**

After reviewing students' responses to the items on this checkup, you can assign Support activities for children to work on at school or at home. Although there are 14 Support activities in the second section of this packet, the ones listed below are particularly relevant to the items you just tested.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Name</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 5</td>
<td>Make Half</td>
<td>Basic Subtraction Facts: Half Facts</td>
</tr>
<tr>
<td>Activity 6</td>
<td>Spinning Around Subtraction</td>
<td>Strategies for Basic Subtraction</td>
</tr>
</tbody>
</table>

You may also want to use some of the worksheets in the Fact Fluency Supplement to give students more practice subtracting 0's, 1's, 2's, 10's, doubles, neighbors, and halves and solving related addition facts.
### Assessment 5

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</table>
## Subtraction Facts Class Checklist

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<thead>
<tr>
<th>Student Names</th>
<th>Zero Facts (–0)</th>
<th>Counting Back (–1, –2, –3)</th>
<th>Doubles (e.g., 4 – 4 = 0)</th>
<th>Neighbors (e.g., 5 – 4 = 1, 5 – 3 = 2)</th>
<th>Half Facts (e.g., 4 – 2 = 2)</th>
<th>Take Away (e.g., 16 – 6 = 10)</th>
<th>Run Away Ones (e.g., 15 – 8 = 7)</th>
<th>Comments</th>
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</tbody>
</table>
Assessment 6

Overview
This assessment can be used to test key math skills toward the end of the third reporting period.

Skills & Concepts
★ numeral writing
★ addition facts (+ 0's, +1's, doubles, neighbors, fast 10's, fast 9's, and leftovers)
★ subtraction facts (– 0's, –1's, –2's, halves, neighbors, take away 10's, and runaway 1's)
★ counting by 10's and 1's
★ estimating and measuring length in non-standard units
★ estimating weight in non-standard units
★ adding 2-digit numbers with regrouping
★ subtracting 2-digit numbers (no regrouping)

Timing
Late March or any other time of year appropriate for your students

You’ll need
★ Assessment 6 (Blacklines pages. 39-42)
★ Unifix cubes or other counters
★ base 10 pieces (use Blacklines pages 28-29 to make these if necessary)

Conducting Assessment 6
You may find this assessment useful in assessing your students' skills in several different key areas before conducting spring conferences and/or writing third quarter report cards. Run overhead copies of the assessment blacklines to preview the items with students, or simply give out copies of the assessment and review it with the class before students begin work. Once they understand what to do, spread children out around the classroom so they can work privately and give them as much time as they need to complete all 4 pages. (Unlike some of the other assessments in this packet, this is not a timed test.) Make Unifix cubes or other counters and base 10 pieces available to those students who want to use them.
After reviewing students' responses to the items on this checkup, you can assign Support activities for children to work on at school or at home. Although there are 14 Support activities in the second section of this packet, the ones listed below are particularly relevant to the items you just tested.

### SUPPORT ACTIVITIES

<table>
<thead>
<tr>
<th>Activity</th>
<th>Name</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>Doubles Spin</td>
<td>Basic Addition Facts: Doubles</td>
</tr>
<tr>
<td>Activity 2</td>
<td>Spinning Around Addition</td>
<td>Strategies for Basic Addition</td>
</tr>
<tr>
<td>Activity 3</td>
<td>Triple Spin &amp; Add</td>
<td>Basic Addition with Multiple Addends</td>
</tr>
<tr>
<td>Activity 4</td>
<td>Sorting Addition Facts</td>
<td>Strategies for Addition facts</td>
</tr>
<tr>
<td>Activity 5</td>
<td>Make Half</td>
<td>Basic Subtraction Facts: Half Facts</td>
</tr>
<tr>
<td>Activity 6</td>
<td>Spinning Around Subtraction</td>
<td>Strategies for Basic Subtraction</td>
</tr>
<tr>
<td>Activity 13</td>
<td>Place Value War</td>
<td>Counting 100's, 10's, and 1's</td>
</tr>
<tr>
<td>Activity 14</td>
<td>Activity Base 10 Triple Spin</td>
<td>Counting &amp; comparing 100's, 10's, and 1's</td>
</tr>
<tr>
<td>Activity 7</td>
<td>Make 100</td>
<td>2-Digit Addition</td>
</tr>
<tr>
<td>Activity 8</td>
<td>Race to 100 &amp; Back</td>
<td>2-digit Addition &amp; Subtraction</td>
</tr>
</tbody>
</table>

You may also want to use some of the addition and subtraction sheets in the Fact Fluency Supplement to give students more practice adding and subtracting using a variety of fact strategies.
Assessment 6

Fill in the rest of the calendar markers, all the way to 31. Don't forget to write in the numbers

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>15</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Add

\[
\begin{array}{ccccccc}
8 & 8 & 16 & 9 & 8 & 10 & 8 \\
+1 & +8 & +0 & +9 & +9 & +7 & +10 \\
5 & 7 & 7 & 9 & 7 & 4 & 6 \\
+6 & +7 & +8 & +6 & +5 & +9 & +6 \\
\end{array}
\]
**Assessment 6 (cont.)**

Subtract

\[
\begin{array}{cccccccc}
8 & 17 & 6 & 18 & 12 & 14 & 18 \\
-1 & -7 & -10 & -6 & -2 & -9 \\
15 & 8 & 16 & 14 & 13 & 12 & 25 \\
-10 & -4 & -8 & -7 & -3 & -11 & -25 \\
\end{array}
\]

How many boxes have been colored on each grid?

[Grid images are shown here.]

Color in 74 boxes on this grid.

Color in 56 boxes on this grid.
Assessment 6 (cont.)

This fish is 28 Unifix cubes long in real life.

Estimate:
About how long is this fish in popsicle sticks? ______________________
____________________

About how long is this fish in base ten strips? ______________________
____________________

Estimate:
About how many rhombus pattern blocks would it take to weigh the frog? ______________________
____________________

About how many trapezoid pattern blocks would it take to weigh the frog? ______________________
____________________
Assessment 6 (cont.)

Add

<table>
<thead>
<tr>
<th>34</th>
<th>48</th>
<th>69</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ 34</td>
<td>+ 26</td>
<td>+ 12</td>
</tr>
</tbody>
</table>

Subtract

<table>
<thead>
<tr>
<th>37</th>
<th>25</th>
<th>48</th>
</tr>
</thead>
<tbody>
<tr>
<td>– 9</td>
<td>– 15</td>
<td>– 24</td>
</tr>
</tbody>
</table>
Assessment 7

Overview
This assessment can be used to test key math skills toward the end of the school year.

Timing
Late May or early June, or any other time of year appropriate for your students

You’ll need
★ Assessment 7 (Blacklines pages 45-48)
★ Unifix cubes or other counters
★ plastic or real coins (quarters, dimes, nickels, pennies)
★ base 10 pieces (use Blacklines pages 28-29 to make these if necessary)

Skills & Concepts
★ reading a calendar
★ extending patterns to make predictions and solve problems
★ addition facts (+ 0’s, +1’s, doubles, neighbors, fast 10’s)
★ subtraction facts (– 0’s, –1’s, halves, neighbors, take away 10’s, and runaway 1’s)
★ naming 3-dimensional shapes
★ identifying 3-dimensional shapes in the environment
★ choosing appropriate units for measuring length, weight, and capacity
★ telling time to the minute
★ adding 2-digit numbers with regrouping
★ counting money to $1.25

Conducting Assessment 7
You may find this assessment useful in assessing your students’ skills in a number of key areas before writing year-end report cards. Run overhead copies of the assessment blacklines to preview the items with students, or simply give out copies of the assessment and review it with the class before students begin work. Once they understand what to do, spread children out around the classroom so they can work privately and give them as much time as they need to complete all 4 pages. (Unlike some of the other assessments in this packet, this is not a timed test.) Make Unifix cubes or other counters, coins, and base 10 pieces available to those students who want to use them.
Assessment 7 (cont.)

SUPPORT ACTIVITIES

After reviewing students’ responses to the items on this checkup, you can assign Support activities for children to work on at school or at home. Although there are 14 Support activities in the second section of this packet, the ones listed below are particularly relevant to the items you just tested.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Name</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 7</td>
<td>Make 100</td>
<td>2-Digit Addition</td>
</tr>
<tr>
<td>Activity 8</td>
<td>Race to 100 &amp; Back</td>
<td>2-digit Addition &amp; Subtraction</td>
</tr>
<tr>
<td>Activity 9</td>
<td>Three Turns to Win</td>
<td>Addition of Money Amounts up to $5</td>
</tr>
<tr>
<td>Activity 10</td>
<td>Finish with $4</td>
<td>Addition &amp; Subtraction of Money Amounts up to $4</td>
</tr>
<tr>
<td>Activity 11</td>
<td>Count Down 400</td>
<td>2– and 3–digit Subtraction</td>
</tr>
</tbody>
</table>
Use the calendar pattern to answer these questions:

What shape would you see on the 20th?

What shape would you see on the 23rd?

What shape would you see on the 4th Thursday?

What shape would you see on the 5th Monday?

Add

\[
\begin{array}{cccccccc}
5 & 9 & 29 & & 8 & 8 & 10 & 6 \\
+1 & +9 & +0 & & +8 & +7 & +2 & +1 \\
\end{array}
\]
**Assessment 7 (cont.)**

Subtract

<p>| | | | | | | |</p>
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<tr>
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<tbody>
<tr>
<td>28</td>
<td>18</td>
<td>9</td>
<td>17</td>
<td>14</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>-1</td>
<td>-8</td>
<td>-0</td>
<td>-10</td>
<td>-7</td>
<td>-2</td>
<td>-8</td>
</tr>
</tbody>
</table>

<p>| | | | | | | |</p>
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<tbody>
<tr>
<td>14</td>
<td>80</td>
<td>18</td>
<td>12</td>
<td>43</td>
<td>45</td>
<td>87</td>
</tr>
<tr>
<td>-10</td>
<td>-40</td>
<td>-9</td>
<td>-6</td>
<td>-3</td>
<td>-44</td>
<td>-87</td>
</tr>
</tbody>
</table>

Draw a line from each shape to its name.

- cube
- cylinder
- triangular prism
- pyramid
- rectangular prism
- sphere

Name at least 2 ways in which a pyramid and a triangular prism are alike.

___________________________________
___________________________________
___________________________________
___________________________________

Name 4 things in the world that are shaped like spheres.

___________________________________
___________________________________
___________________________________
___________________________________
___________________________________
___________________________________

___________________________________
___________________________________

___________________________________
Circle the best answer.

Which unit would work best to measure the length of this blackboard in real life?

- centimeters
- feet
- miles

Which unit would work best to weigh the penguin in real life?

- grams
- pound
- tons

Which unit would work best in real life to find out how much water is in this cup?

- ounces
- cups
- gallons

Write the times.

- _______ : _______
- _______ : _______
- _______ : _______
89¢
Circle enough money to pay for 1 duck.

15¢ each
Circle enough money to pay for 3 pencils.

5¢ each
Circle enough money to pay for 11 gumballs.

$1.19
Circle enough money to pay for 1 disguise.
support activities
Support Activities

The Support Activities are listed by skill in the table below, and are designed to supplement any second grade math program. There are 14 games in the collection. Most are intended for partners or small groups, although some can be adapted for use with an entire class. Most involve the use of visual models and strategies, and will help students develop conceptual understandings as they gain increased fluency. As you look through the collection, you may find some games you want to use to help teach key computational skills to your whole class. Some teachers also run the game components on cardstock and laminate them to make a durable set of “learning stations” available for use by students during free time or to check out for home use.

<table>
<thead>
<tr>
<th>STRATEGIES FOR BASIC ADDITION FACTS</th>
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<tbody>
<tr>
<td>Activity</td>
</tr>
<tr>
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</tr>
<tr>
<td>Support Activity 12</td>
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<tr>
<td>Support Activity 1</td>
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<tr>
<td>Support Activity 2</td>
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<tr>
<td>Support Activity 3</td>
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<tr>
<td>Support Activity 4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>STRATEGIES FOR BASIC SUBTRACTION FACTS</th>
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</thead>
<tbody>
<tr>
<td>Activity</td>
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<tr>
<td>-----------</td>
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<tr>
<td>Support Activity 5</td>
</tr>
<tr>
<td>Support Activity 6</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>PLACE VALUE UNDERSTANDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
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<tr>
<td>-----------</td>
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<tr>
<td>Support Activity 13</td>
</tr>
<tr>
<td>Support Activity 14</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>MULTI-DIGIT ADDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
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<tr>
<td>-----------</td>
</tr>
<tr>
<td>Support Activity 7</td>
</tr>
<tr>
<td>Support Activity 8</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>MULTI-DIGIT SUBTRACTION</th>
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</thead>
<tbody>
<tr>
<td>Activity</td>
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<tr>
<td>-----------</td>
</tr>
<tr>
<td>Support Activity 8</td>
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<tr>
<td>Support Activity 11</td>
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</tbody>
</table>
Support Activities (cont.)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Name</th>
<th>Support Blackline Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support Activity 9</td>
<td>Three Turns to Win</td>
<td>99 – 104</td>
</tr>
<tr>
<td>Support Activity 10</td>
<td>Finish with $4</td>
<td>105 – 108</td>
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</tbody>
</table>

If you plan to use the activities for remediation rather than instructional purposes, you’ll find that they’re most effective when used with targeted students by an educational assistant, parent volunteer, or title/resource teacher. Based on students’ performance on the Building Computational Fluency assessments, you’ll be able to determine which individuals would benefit from a particular Support Activity and can assign them to work with an adult on that activity. You can also send specific activities home with students for extra practice with their families. In order to prepare the Support Activities for use by other adults, we recommend creating a packet that contains the instructional considerations, game instructions, and all the game materials. That way, you can provide an instructional assistant or volunteer with the packet and ask him or her to conduct specific activities with individuals or small groups in need of help in one or more areas.

While you can run game cards and spinners on cardstock, you’ll find that paper copies of the game components work nearly as well for short-term use. Students are generally instructed to use a paperclip and pencil arrangement in lieu of more involved spinner arrows, and we encourage you to have the children cut out their own game cards. Because these games have been designed for use at home as well as school, very few of them involve concrete manipulatives. Those that do include blacklines for making the manipulatives (i.e., base 10 pieces or money value pieces), and you may want to run these sheets on cardstock. A few of the activities call for game markers, but beans, pieces of macaroni, or other small objects will also work.
Support Activity 1 ★ Instructional Considerations

SUPPORT ACTIVITY

Doubles Spin

Overview
Players take turns spinning a number from 1 to 10. They double the number and cover it on their half of the game board. The first player to cover all the doubles sums from 2 to 20 wins.

Skills & Concepts
★ using models for doubles addition facts with sums from 2 to 20
★ fluency with the doubles strategy in addition

You’ll need
★ Doubles Spin & Make Half Game Board (Blacklines, pages 53-54, 1 copy of each, taped together, per pair of players)
★ Doubles & Halves Spinner (Blackline page 55, 1 copy for every 2 pairs of players)
★ Ten-Strips (Blackline page 56, 1 copy per student, optional)
★ 10 game markers per player
★ paperclip and a pencil to use as a spinner (one set per pair of players)

Note  If you are not familiar with the ten-strip model or the addition strategies used in Building Computational Fluency, please review Blacklines page 57 and 58 before playing this game with students.

The doubles strategy for addition is key to fluency with neighbors facts and leftover facts as well. If you have students who are really struggling with doubling numbers, encourage them to build each double using game markers on the ten-strips.

Students may recall that doubles sums are always even, and they might notice that the numbers on the game board increase by 2 each time. These are big ideas that involve algebraic thinking and promote computational fluency. You'll want them to come from the students, though, so don't push it if they're not making these generalizations yet.
Support Activity 1

Doubles Spin

You’ll need

★ Doubles Spin & Make Half Game Board (Blacklines pages 53 and 54, 1 copy of each, taped together, per pair of players)

★ Doubles & Halves Spinner (Blackline page 55, 1 copy for every 2 pairs of players)

★ Ten-Strips (Blackline page 56, 1 copy per student, optional)

★ 10 game markers per player

★ paperclip and a pencil to use as a spinner (one set per pair of players)

Instructions for Doubles Spin

1 Get a partner and sit on opposite sides of the game board.

2 You’ll need to use a pencil and paperclip to create a spinner as shown below.

3 If you get a sum that is already covered, you’ll have to pass.

4 The player who covers all ten numbers on his or her side first is the winner.

Take turns spinning the spinner. Double the number you got and cover the sum. For instance, if you got a 2, you’ll say, “Two plus two equals four,” and cover the 4 on your side of the game board with a marker.
Doubles Spin & Make Half Game Board  page 1

Doubles Make

2  4  6  8  10

12 14 16 18 20
Run 1 copy each of Blacklines p. 53 & 54 and tape together for each pair of players.
Doubles & Halves Spinner

Doubles & Halves Spinner
Ten-Strips
The Ten-Strips Model

You’ll notice that each pair of ten-strips has two columns of 10 squares. Both columns are cut in half with a horizontal bar. This model is an effective way to encourage students to think in chunks of 5’s and 2’s and to use 10 as a landmark number.

In the support games for addition, students may find it helpful to show their thinking on the ten-strips, using colored game markers to add numbers.

Erica  Hmm, 7 plus 4? I can put 7 red markers down and then I’ll add 3 more blue ones. That’s 10. Then 1 more blue marker makes 11. See?
Addition Strategies

Many of the Support Activities encourage students to identify the specific strategies they can use to solve addition facts. Ask students to explain strategies to you as they work, and consult this table to refresh your memory.

Most of the strategies are self-explanatory, and the examples on the table should provide some insight about them. The *make ten facts* are simply combinations whose sum is 10. The *fast tens* are fast, because when you add 10 to any single-digit number, you get a teen number, as in 10 + 6 = 16. The *fast nines* are a little trickier for some second graders, but once they know their fast tens, adding 9 becomes faster. For example, when you know that 10 plus 7 is 17, you can see quickly that 9 plus 7 must be 16, because it’s just 1 less than 10 plus 7.

<table>
<thead>
<tr>
<th><strong>ADDITION STRATEGIES</strong></th>
<th><strong>Examples</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name of Strategy</strong></td>
<td><strong>Examples</strong></td>
</tr>
<tr>
<td>Zero Facts (+0)</td>
<td>7 + 0 = 7</td>
</tr>
<tr>
<td></td>
<td>0 + 14 = 14</td>
</tr>
<tr>
<td>Counting On (+1, +2, +3)</td>
<td>6 + 1 = 7</td>
</tr>
<tr>
<td></td>
<td>4 + 2 = 6</td>
</tr>
<tr>
<td></td>
<td>9 + 3 = 12</td>
</tr>
<tr>
<td>Doubles</td>
<td>7 + 7 = 14</td>
</tr>
<tr>
<td></td>
<td>3 + 3 = 6</td>
</tr>
<tr>
<td>Neighbors</td>
<td>3 + 4 = 7</td>
</tr>
<tr>
<td>(also called Doubles +1)</td>
<td>8 + 7 = 15</td>
</tr>
<tr>
<td>Make Ten (=10)</td>
<td>7 + 3 = 10</td>
</tr>
<tr>
<td></td>
<td>6 + 4 = 10</td>
</tr>
<tr>
<td>Fast Tens (+10)</td>
<td>10 + 5 = 15</td>
</tr>
<tr>
<td></td>
<td>8 + 10 = 18</td>
</tr>
<tr>
<td>Fast Nines (+9)</td>
<td>9 + 5 = 14</td>
</tr>
<tr>
<td></td>
<td>7 + 9 = 16</td>
</tr>
</tbody>
</table>
Support Activity 2 ★ Instructional Considerations

SUPPORT ACTIVITY

Spinning Around Addition

Overview
Players take turns spinning addition facts and naming the strategies that could be used to solve them. They pick one strategy for each fact and write a number sentence in the column labeled with that strategy name. The first player to record at least one fact in each column wins.

Skills & Concepts
★ using models for addition sums to 20
★ fluency with the doubles, neighbors, make ten, fast tens, and fast nines strategies for addition

You’ll need
★ Ten-Strips (Blackline page 56, 1 copy per player)
★ Spinning Around Addition Record Sheet (Blackline page 62, 1 copy per player)
★ Spinning Around Addition Spinner (Blackline page 63, 1 copy for every 2 pairs of players)
★ 20 game markers per player
★ paperclip and a pencil to use as a spinner (one set per pair of players)

Note
If you are not familiar with the ten-strip model or the addition strategies used in Building Computational Fluency, please review Blacklines pages 57 and 58 before playing this game with students.

Four of the strategies in this activity are generally comfortable for second graders: doubles, neighbors, make ten, and fast tens. The fast nines and leftovers tend to present more of a challenge. We included some of the easier facts to provide students with opportunities for success and to help students use the facts they do know to think about those they don't know yet. For example, if a student is comfortable with fast tens, she can begin to use her fast ten facts to help master the fast nines: “I know 7 plus 10 is 17, so 7 plus 9 is 1 less than that. 7 plus 9 must be 16.”

Before finding the sum, students determine what kind of fact they have spun. Then they use the strategy to compute the sum. Guided practice focusing on strategy retrieval will build students’ computational fluency and is consistent with best practice for helping students develop number sense and master the basic facts.

Students will also connect the facts to their symbolic notation when they record number sentences on their record sheets. They may also use the ten-strip model to show the facts, connecting the concrete model to the abstract symbolic notation.
Support Activity 2

Support Activity

Spinning Around Addition

You’ll need

★ Ten-Strips (page 56, 1 copy per player)
★ Spinning Around Addition Record Sheet (Blackline page 62, 1 copy per player)
★ Spinning Around Addition Spinner (Blackline page 63, 1 copy for every 2 pairs of players)
★ 20 game markers per player
★ paperclip and a pencil to use as a spinner (one set per pair of players)

Instructions for Spinning Around Addition

1 You and your partner should each get your ten-strips, game markers, and a record sheet ready. You'll share a pair of numbered spinners.

2 Spin the first and second spinners. Figure out what kind of fact you have spun. For instance, if it's 5 + 5, it's a double. If it's 4 + 7, it's a leftover.

3 Use the game markers to build the fact on your ten-strips. Explain to your partner how you would find the sum.

“I put down 7 markers. Then I added 4 more. It's easy to see that it's 11. 7 plus 3 makes 10, and then there's just 1 more.”
4 Write the number sentence in the appropriate column on your record sheet. Don't forget to include the sum. Some facts might be more than one kind of fact. For example, $5 + 5$ is a doubles fact and a make ten fact. You can choose the column in which you want to write these kinds of facts.

5 The first person to complete a row across wins that round. You might have more than one fact in each box before you are able to write at least one fact in every box.

6 Play 3 rounds.
<table>
<thead>
<tr>
<th>NAME</th>
<th>DATE</th>
</tr>
</thead>
</table>

**Spinning Around Addition Record Sheet**

<table>
<thead>
<tr>
<th></th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fast Nines</td>
<td>Fast Tens</td>
<td>Make Ten</td>
</tr>
<tr>
<td></td>
<td>Doubles Neighbors</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leftovers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Spinning Around Addition Spinner

1. Run 1 copy for every 2 pairs of players.
2. Cut in half.
Support Activity 3 ★ Instructional Considerations

SUPPORT ACTIVITY

Triple Spin & Add

Overview
Students take turns spinning 3 spinners and adding the numbers shown on the spinners. Both players record a number sentence to show the sum of the 3 numbers. If the sum is even, they write the number sentence in the even column. If the sum is odd, they write the number sentence in the odd column.

Skills & Concepts
★ using strategies for addition facts with sums to 20
★ using models, words, and/or numbers to demonstrate the meaning of addition
★ identifying odd and even numbers
★ recording number sentences
★ evaluating the likelihood of specific outcomes for an experiment

You’ll need
★ Triple Spin & Add Record Sheet (Blackline page 67, 2 copies per player, run back-to-back)
★ Ten-Strips (Blackline page 56, 1 copy per player)
★ Triple Spin & Add Spinner (Blackline page 68, 1 copy for every 2 pairs of players)
★ 20 game markers per player
★ paperclip and a pencil to use as a spinner (one set per pair of players)

This game presents the challenge of finding efficient ways to add 3 numbers. For example, if a player spun a 3, 4, and 6 she might want to make a 10 with the 4 and 6, and then use fast tens to add 10 and 3.

You might also ask students to consider which column will fill faster. That is, are they more likely to get an even sum or an odd sum with each spin? Can they explain their thinking?

<table>
<thead>
<tr>
<th>Odd Sums</th>
<th>Even Sums</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 + 7 + 5 = 15</td>
<td></td>
</tr>
</tbody>
</table>
Support Activity 3

SUPPORT ACTIVITY

Triple Spin & Add

You’ll need

★ Triple Spin & Add Record Sheet (Blackline page 67, 2 copies per player, run back-to-back)
★ Ten-Strips (Blackline page 56, 1 copy per player)
★ Triple Spin & Add Spinner (Blackline page 68, 1 copy for every 2 pairs of players)
★ 20 game markers per player
★ paperclip and a pencil to use as a spinner (one set per pair of players)

Instructions for Triple Spin & Add

1 Pick a partner. You should each write your name and today’s date at the top of a record sheet.

2 Take turns spinning a spinner. The player with the lowest number begins.

3 The first player spins all 3 spinners. Both players find the sum of the 3 numbers shown and talk to each other about their strategies. Players can show their thinking using game markers on the ten-strips.
Support Activity 3 (cont.)

“I added 3 plus 7 to make 10. Then I added 10 plus 5 to get 15. That was a fast ten.”

4 If the sum is odd, both partners record a number sentence in the odd column. If the sum is even, both partners record a number sentence in the even column.

5 Players take turns spinning all 3 spinners. For each spin, both players find the sum and record a number sentence in the correct column. Play continues until one column has 10 number sentences.

6 If there’s time, players can turn their pages over to a fresh record sheet and play again.
**Triple Spin & Add Record Sheet**

Write a number sentence for each odd sum you or your partner gets in the odd column. Write a number sentence for each even sum you or your partner gets in the even column. Play a new round when you get 10 number sentences in one of the columns. Which column do you think will get 10 number sentences first?

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<thead>
<tr>
<th>Odd Sums</th>
<th>Even Sums</th>
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Support Activity 4 ★ Instructional Considerations

SUPPORT ACTIVITY

Sorting Addition Facts

Overview
Players take turns drawing cards showing addition facts and sorting them by strategy. When they have sorted all the cards, they go back and practice the facts on all the cards.

Skills & Concepts
★ using strategies to develop and demonstrate computational fluency with addition facts to 20

You’ll need
★ Addition Strategy Labels (Blackline page 71, 1 copy for each pair of players, cut apart and stored in an envelope)
★ Ten-Strip Fact Cards (Blacklines pages 72-76, 1 copy for each pair of players, cut apart and stored in an envelope)

You can adjust this activity to meet students' individual needs by removing the Strategy Labels and Ten-Strip Fact Cards for the facts with which they don't need as much practice or that are still too difficult for them. For example, if a student is frustrated by fast nines and leftovers, you could remove those two Strategy Labels and the corresponding Ten-Strip Fact Cards, allowing the child to focus on doubles, neighbors, make ten, and fast tens until they become more fluent.

Once students are comfortable with this activity, we like to suggest it for homework practice. Many families have a set of flashcards at home, and students can complete this activity using flashcards in place of Ten-Strip Fact Cards. If they don't have flashcards at home, send along a copy of the Ten-Strip Fact Cards. You'll probably want to have students cut out the cards and store them in a large re-sealable plastic bag that also contains the activity instructions, Strategy Labels, and a few copies of the Ten-Strips blackline.) If you do send Sorting Addition Facts home, be sure to send along a copy of Blacklines pages 70 and 71 so parents can refer to them when helping their children.
Support Activity 4

Sorting Addition Facts

You’ll need

★ Addition Strategy Labels (Blackline page 71, 1 copy for each pair of players, cut apart and stored in an envelope)

★ Ten-Strip Fact Cards (Blacklines pages 72-76, 1 copy for each pair of players, cut apart and stored in an envelope)

Instructions for Sorting Addition Facts

1. Get a deck of Ten-Strip Fact Cards to share, and set out the eight strategy labels.

2. Pick one of the Ten-Strip Fact Cards from the top of the deck. Determine what kind of fact it is and find the sum. Then place the card under the label that shows what kind of fact it is.

   Talk it over with your partner. Does he or she have another way of thinking about that fact? For example, you might think of 5 + 5 as a double, but your partner might think of it as a make ten fact.

3. Repeat this process until you have gone through all of the cards. You’ll end up with many cards beneath each label.

4. When all the cards have been sorted, go back and practice all the cards under each strategy label. Make sure you say each fact out loud, for example, “9 plus 6 equals 15.”
Addition Strategy Labels

<table>
<thead>
<tr>
<th>Zero Facts</th>
<th>Counting On</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Computational Fluency Addition Strategy Label</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Make Ten</th>
<th>Fast Nines</th>
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</thead>
<tbody>
<tr>
<td>Building Computational Fluency Addition Strategy Label</td>
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</tbody>
</table>

<table>
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<th>Neighbors</th>
<th>Doubles</th>
</tr>
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<tbody>
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<td>Building Computational Fluency Addition Strategy Label</td>
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<table>
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<tr>
<th>Fast Tens</th>
<th>Leftover Facts</th>
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</thead>
<tbody>
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<td></td>
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</tbody>
</table>

Run 1 copy for each pair of players. Cut out along lines and store in an envelope.
Run 1 copy for each pair of players. Cut out along lines and store in an envelope.
Run 1 copy for each pair of players. Cut out along lines and store in an envelope.
Ten-Strip Fact Cards  page 3 of 5

Build a ten-frame model for each expression.

Run 1 copy for each pair of players. Cut out along lines and store in an envelope.
Run 1 copy for each pair of players. Cut out along lines and store in an envelope.

### Ten-Strip Fact Cards page 4 of 5

<table>
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<tbody>
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<td><img src="image4.png" alt="Fact Card 4" /></td>
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<td><img src="image6.png" alt="Fact Card 6" /></td>
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<td><img src="image8.png" alt="Fact Card 8" /></td>
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<td><img src="image10.png" alt="Fact Card 10" /></td>
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<td><img src="image13.png" alt="Fact Card 13" /></td>
<td><img src="image14.png" alt="Fact Card 14" /></td>
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© The Math Learning Center
Ten-Strip Fact Cards  page 5 of 5

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</tr>
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</tr>
<tr>
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<td><img src="image6" alt="Building Computational Fluency Ten-Strip Fact Card" /></td>
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<tr>
<td><img src="image7" alt="Building Computational Fluency Ten-Strip Fact Card" /></td>
<td><img src="image8" alt="Building Computational Fluency Ten-Strip Fact Card" /></td>
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Support Activity 5 ★ Instructional Considerations

SUPPORT ACTIVITY

Make Half

Overview
Players take turns spinning a number from 1 to 10. They determine what number that number is half of and then uncover that number on their side of the game board. The first player to uncover all the even numbers from 2 to 20 wins.

Skills & Concepts
★ using models for subtraction combinations  
★ fluency with the subtraction half facts

You’ll need
★ Doubles Spin & Make Half Game Board (Blacklines pages 53-54, 1 copy of each, taped together, per pair of players)  
★ Doubles & Halves Spinner (Blackline page 55, 1 copy for every 2 pairs of players)  
★ 10 game markers per player  
★ paperclip and a pencil to use as a spinner (one set per pair of players)

Students’ fluency with half facts relies on their understanding of doubles. If you find this game frustrating for students, have them go back to Doubles Roll for a warm-up.
Support Activity 5

Make Half

You’ll need

- Doubles Spin & Make Half Game Board (Blacklines pages 53-54, 1 copy of each, taped together, per pair of players)
- Doubles & Halves Spinner (Blackline page 55, 1 copy for every 2 pairs of players)
- 10 game markers per player
- paperclip and a pencil to use as a spinner (one set per pair of players)

Instructions for Make Half

1. Get a partner and sit on opposite sides of the game board. Put a marker on each number on your side of the game board.

2. Take turns spinning the spinner. Identify the number as half of one of the numbers on your game board, and take the marker off that number. If the number is already uncovered, you’ll have to pass.

3. The player who uncovers all of his or her numbers first is the winner.

For example, if you got a 2, you’d say, “Two is half of four,” and uncover the 4 on your side of the game board. If you had already removed the marker from the 4, you would pass, and your partner would get his or her turn.
Support Activity 6 ★ Instructional Considerations

SUPPORT ACTIVITY

Spinning Around Subtraction

Overview
Players take turns spinning subtraction facts and naming the strategies that could be used to solve them. They pick one strategy for each fact and write a number sentence in the column labeled with that strategy name. The first player to record at least one fact in each column wins.

Skills & Concepts
★ using models to solve subtraction facts with minuends to 20
★ fluency with the half facts, run away ones, up to ten, and leftover subtraction facts

While they play, encourage students to show how they found the differences using game markers on the ten-strips, especially for up to ten and leftover facts. When students focus on the strategies they’re using to solve these subtraction facts and connect those strategies to the visual model, they become increasingly aware of the relationships between numbers. This focused practice builds computational fluency and flexibility.

The game of Spinning Around Subtraction focuses on four groups of subtraction facts: half facts, run away ones, up to ten facts, and leftover facts. Students may be familiar with these groups of facts, but we’ve included the following descriptions of them for your information.
Support Activity 6 Instructional Considerations (cont.)

Half Facts
A half fact is any fact in which the number being subtracted is half of the larger number. For example, $10 - 5 = 5$ is a half fact, because 5 is half of 10. $12 - 6 = 6$ is another half fact because 6 is half of 12. Students will begin to notice that with half facts, the difference and the number being taken away are equal.

Run Away Ones
These are facts in which the ones are subtracted from a teen number. The difference is always 10. Some examples of run away ones facts are $13 - 3 = 10$ and $17 - 7 = 10$.

Up to Ten
An up to ten fact is any fact in which 4, 5, 6, 7, 8, or 9 is subtracted from a number that is equal to or greater than 10. It capitalizes on children’s natural inclination to count upward from the number being subtracted to find the answer. Counting up to ten and then on to the larger number is most useful when the number in the ones place of the minuend (the larger number) is less than the subtrahend (the smaller number). The following are both examples of up to ten facts:

\[
\begin{align*}
12 & \quad 15 \\
- 7 & \quad - 8 \\
5 & \quad 7
\end{align*}
\]

“If I go up from 7 to 10, that’s 3. Then 2 more gets me to 12. So I added 5 altogether. 12 minus 7 is 5.”

“If I go up from 8 to 10, that’s 2. Then 5 more gets me to 15. So I added 7 altogether. 15 minus 8 is 7.”

Leftover Facts
The leftover facts are facts that don’t fit into the categories above. Students will use their own strategies or combinations of familiar strategies to solve them.
Support Activity 6

SUPPORT ACTIVITY

Spinning Around Subtraction

You’ll need

★ Ten-Strips (Blackline page 56, 1 copy per player)
★ Spinning Around Subtraction Spinner (Blackline page 83, 1 copy for every 2 pairs of players)
★ Spinning Around Subtraction Record Sheet (Blackline page 84, 1 copy per player)
★ 20 game markers per player
★ pencil and paperclip to use as a spinner (1 set per pair of players)

Instructions for Spinning Around Subtraction

1 Each player needs a copy of the ten-strips, game markers, and a record sheet with his or her name and today’s date.

2 The first player spins both spinners and figures out what kind of subtraction fact is shown. Players can help each other if they can’t remember what kind of fact it is.

Omar 12 minus 8. Hmm, I think that’s an up to ten fact. Those are hard to remember, though.

Leela I think you’re right Omar. We’ll go from 8 up to 10 and then from 10 to 12.

The player uses game markers to build the fact on his ten-strips and explains to his partner how he would find the difference.
Support Activity 6 (cont.)

Omar I put down 8 markers and then I added 2 more. 8 plus 2 makes 10, and then I need just 2 more to equal 12. See, the 8 is blue, and then the red markers show what the difference is. It’s 4. So 12 minus 8 is 4.

3 The player writes the number sentence for that fact in the appropriate column. Some facts might be more than one kind of fact. For example, 12 – 6 could be a half fact or an up to ten fact. Players can choose the column in which they want to write those facts.

4 The player who completes a row across first wins. A player might have more than one fact in each box before she is able to write at least one fact in every box.

5 Play 3 rounds.
Spinning Around Subtraction Spinner

18 12
17 13
16 14
15

5
4 6
9 7
8

Spinning Around Subtraction Spinner

18 12
17 13
16 14
15

5
4 6
9 7
8

Run 1 copy for every 2 pairs of players. Cut in half.
<table>
<thead>
<tr>
<th>Round</th>
<th>Round</th>
<th>Round</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Spinning Around Subtraction Record Sheet

Leftovers
Up to Ten
Run Away Ones
Half Facts

NAME
DATE
Support Activity 7 ★ Instructional Considerations

Make 100

Overview
Players take turns drawing cards showing double-digit numbers and coloring the numbers on a Number Chart. Each player can draw no more than 3 cards. Players find their sums, and the player closest to 100 (over or under) wins.

Skills & Concepts
★ using models, words, and numbers to demonstrate the meaning of addition and subtraction
★ adding and subtracting 2-digit numbers with and without regrouping using models and strategies

You’ll need
★ Make 100 Record Sheet (Blackline page 88, 2 copies run back-to-back per player)
★ Make 100 Cards, pages 1 to 3 (Blacklines, pages 89-91, cut apart, for each pair of players)
★ crayons

Make 100 provides students with more opportunities to add 2-digit numbers and use a visual model to find the difference between 100 and other numbers. Students also use estimation skills when they choose whether or not to take a third card.

Although there are many different ways to color in the amounts, we prefer to model coloring in the 10's first and then the 1's. Remind students to fill in the Number Chart completely before they use the 10's and 1's on the side so they can see their total in relationship to 100.
Support Activity 7

SUPPORT ACTIVITY

Make 100

You'll need

★ Make 100 Record Sheet (Blackline page 88, 2 copies run back-to-back per player)

★ Make 100 Cards, pages 1–3 (Blacklines pages 89-91, 1 copy, cut apart, for each pair of players)

★ crayons

Instructions for Make 100

1 Mix up the Make 100 Cards and place them in a pile, face down. Write your name and your partner’s name at the top of a record sheet. The goal of Make 100 is to be the player who gets closest to 100. You can stay under 100 or go over 100.

2 Take 2 cards and turn them face up. Both players should record the two numbers in the boxes below the Number Chart and color in the amounts on the chart. Use a different color for each amount.

3 The other player takes 2 cards. Both players record the numbers in the boxes and color in the amounts on their Number Charts.

4 Both players should decide whether or not to draw a third card. If you’re close to 100, you may choose not to draw another card. If you’re still far away from 100, you might take a chance and draw a third card. Each
player may draw no more than 3 cards.

5 If you draw a third card, write the number below the Number Chart and then color in that amount in a new color on the Number Chart. Be sure to color in the entire grid before you use the 10’s and 1’s pictured to the right. Those are there in case you go over 100.

6 Add up the totals and compare to see who came closest to 100. Circle the winner, turn the record sheet over, and play again.
Make 100 Record Sheet

Player 1

Player 2

I was under 100 / over 100 by (circle one)

My partner was under 100 / over 100 by (circle one)
## Make 100 Cards

Run 1 copy for each pair of players. Cut cards apart and store in an envelope.

<table>
<thead>
<tr>
<th>Building Computational Fluency Blackline</th>
<th>Make 100 Card</th>
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<tbody>
<tr>
<td>Run 1 copy for each pair of players. Cut cards apart and store in an envelope.</td>
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Make 100 Cards  page 2 of 3

Run 1 copy for each pair of players. Cut cards apart and store in an envelope.
Run 1 copy for each pair of players. Cut cards apart and store in an envelope.

Make 100 Cards
Support Activity 8 ★ Instructional Considerations

**Support Activity**

**Race to 100 & Back**

**Overview**
Players take turns spinning two single-digit numbers, adding them together, and adding that total to their collections of base ten pieces. Players add to their collections until they reach 100 when they begin subtracting each total from their collections. The first player to make it back to 0 wins.

**Skills & Concepts**
- using models, words, and numbers to demonstrate the meaning of addition and subtraction
- adding and subtracting 2-digit numbers with and without regrouping using models and strategies

Most second graders, especially with use of the base ten pieces, will find addition with regrouping easier than subtraction with regrouping. For example, when students are asked to remove 18 from a collection of 62, many will take 10 away but ponder how to get 8 more from the remaining 52. With some encouragement, a student might trade 1 ten for 10 ones and then remove 8 of them, leaving 4 tens and 4 ones altogether. Another student might simply remove a ten and then put 2 ones back into the collection, in effect making the trade and subtracting at the same time.

![Diagram](image)

Encourage students to explain their strategies and reasoning as they use the pieces to complete the computations. Do not press students to use symbolic recording or teach them the traditional algorithm for regrouping. Simply invite students to show and tell you what they are thinking, at which point you may show them the symbolic notation that goes along with their strategy as shown below.
**Teacher** So I notice that you took away 2 tens and then put 2 ones back in. Can you tell me what you were thinking?

**Andre** Well, I know 18 is like 10 plus 8. So first I took 1 ten away from 62.

**Teacher** Ah, I see. I’ll write what I’m hearing you say in numbers. Okay, you said 18 is like 10 and 8. So I’ll write 18 equals 10 plus 8. And then you took that 10 away from 62, so I’ll write 62 minus 10 equals 52.

\[18 = 10 + 8 \quad 62 - 10 = 52\]

Okay, then what did you do next and why? I’ll keep writing these number sentences to show what I hear you saying.

**Andre** Well, then I needed to take away 8 more. I couldn't do that, because all I had was 52. So I took away 10. That was 2 too many, so I put 2 ones back in.

\[52 - 10 = 42 \quad 42 + 2 = 44\]
Support Activity 8

Race to 100 & Back

You’ll need

★ Race to 100 & Back Spinner (Blackline page 96, 1 copy for every 2 pairs of players)
★ 1 set of base ten pieces for each pair of players (Use Blacklines pages 97-98 to make your own base ten pieces if needed.)
★ paperclip and pencil for use as a spinner (1 set for each pair of players)

Instructions for Race to 100 & Back

1. You and your partner each need 1 hundred, 10 tens, and 20 ones from the set of base ten pieces. You’ll share a pair of spinners and will use a pencil and paperclip as a spinner.

2. Take turns spinning the spinners, adding the 2 numbers, and getting that many tens and ones from your collection of base ten pieces. Each time you collect ten or more ones, trade them in for another ten, and set the ten on top of the hundred piece. Keep the ones off to the side.

“I got 9 plus 7. That’s a fast nine. I know it’s 16. So that’s 1 ten and 6 ones. I’ll put this ten on the hundred, and then I’ll put these 6 over to the side, because when I get more ones, I can trade them in for another ten.”

3. Continue taking turns spinning and adding to your collections. When you or your partner reaches 100 or goes over 100, you’ll get to start subtracting each sum from your collection. For example, if you had 94 and your partner had 87 and you spun the sum 13, you would collect 1 ten and 3 ones for a total of 107. The next time you
Support Activity 8 (cont.)

have a turn, you'll start subtracting each sum from your collection, but your partner will have to keep adding until she gets up to 100. When she does, or when she goes over 100, she can begin subtracting pieces too.

4 Continue playing until you get to 9 or fewer units. At that time, use just one spinner to get to 0. The first player to get exactly to 0 wins the game.
Race to 100 & Back Spinner

Race to 100 & Back Spinner

Run 1 copy for every 2 pairs of players. Cut in half.
Base Ten Pieces page 2 of 2
Support Activity 9 ★ Instructional Considerations

Three Turns to Win

Overview
Each player gets 3 spins to generate a collection of mixed coins. The players determine how much money they have each collected. The player with the most money wins.

Skills & Concepts
★ counting, adding, subtracting, and estimating money amounts up to $5
★ counting by 1's, 5's, 10's, and 25's
★ adding and subtracting 2- and 3-digit numbers

You’ll need
★ Three Turns to Win Game Board (Blackline page 101, 1 copy for each pair of players)
★ 1 set of money value pieces for each pair of players (Use Blacklines pages 102-104 to make your own money value pieces if needed.)
★ 1 money kit for each player (containing real or plastic and paper money)
★ pencil and paperclip to use as a spinner (one set for each pair of players)

As you play this game with the student, invite her to tell you how much money she has so far. You can also ask her to compare her collection to yours. First, ask her to estimate who has more money and about how much more that player has. Then, ask her to find the exact difference between the two collections.

Some students may not be ready to compare the collections as they play this game. If a student is having trouble, give him a set of money value pieces to keep track of how much money you and he collect. Each money value piece shows the coin and its value together. Students who are struggling often find it easier to understand the value of money when it is represented on this visual model.

Player 1 3 dimes plus 1 quarter
Player 2 2 quarters plus 3 dimes
Support Activity 9

Three Turns to Win

You’ll need

- Three Turns to Win Game Board (Blackline page 101, 1 copy for each pair of players)
- 1 set of money value pieces for each pair of players (Use Blacklines pages 102-104 to make your own money value pieces if needed.)
- 1 money kit for each player (containing real or plastic and paper money)
- pencil and paperclip to use as a spinner (one set for each pair of players)

Instructions for Three Turns to Win

1. Get your own money kit and a game board to share.

2. Take turns spinning both spinners. They will tell you how many and what kind of coin to collect. Place those coins in the appropriate box. You have a separate box for each spin.

3. When both players have taken 3 turns, find the total value of each player’s coin collection. Then compare the collections. Who has more money? How much more money does he or she have than the other player?
Three Turns to Win Game Board

Player 1

First Spin
Second Spin
Third Spin

Player 2

First Spin
Second Spin
Third Spin

Run 1 copy for each pair of players.
Run 2 copies on cardstock for each pair of players. Cut out along solid lines.
Support Activity 10 ★ Instructional Considerations

Finish with $4

Overview
In this narrative game, players each begin with $2 and travel around a game board where each space has them add or subtract money to or from their collections. The first player to make it around the board with at least $4 wins.

Skills & Concepts
- counting, adding, subtracting, and estimating money amounts up to $5
- identifying and applying the operation needed to solve a problem
- using models, pictures, and/or numbers to demonstrate the meaning of addition and subtraction
- translating problem-solving situations into expressions and equations

You'll need
- Finish with $4 Game Board (Blacklines pages 107-108, 1 copy of each page taped together for each pair of players)
- 1 set of money value pieces for each pair of players (Use Blacklines pages 102-104 to make your own money value pieces if needed.)
- 1 game marker for each player
- pencil and paperclip to use as a spinner (1 set for each pair of players)
- money kits (1 for each player or pair of players)
- pencil and scratch paper for writing number sentences and computing

Encourage students to keep track of their money during this game using real or plastic and paper coins and bills. Some students might prefer to use the money value pieces to keep track of their money.

This game is not meant to be a test of students' reading skills. Encourage them to read the words on their own, but don't hesitate to read out loud for them if needed. Each time you or the student lands on a new space, invite the student to explain what's happening. Will she add money to her collection or subtract money from her collection? How could the problem be written as a number sentence? We want students to develop the ability to translate situations into appropriate and meaningful mathematical problems.
Support Activity 10

Finish with $4

You'll need

★ Finish with $4 Game Board (Blacklines pages 107-108, 1 copy of each page taped together for each pair of players)

★ 1 set of money value pieces for each pair of players (Use Blacklines pages 102-104 to make your own money value pieces if needed.)

★ 1 game marker for each player

★ pencil and paperclip to use as a spinner (1 set for each pair of players)

★ money kits (1 for each player or pair of players)

★ pencil and scratch paper for writing number sentences and computing

Instructions for Finish with $4

1 Begin by placing your game markers on the start space. Each player begins with $2.00.

2 Take turns spinning the spinner. The player with the higher spin goes first.

3 Take turns spinning the spinner and moving ahead. Whenever a player lands on a space, he reads the words and decides whether he should add money to his collection or take money away from his collection. He decides what the problem is and shows it with a number sentence.

4 Players keep track of their money using coins and bills, numbers, or money value pieces if they have them.

5 The first player to get to the last space with at least $4.00 wins.
Finish with $4 Game Board

**START**
Begin with $2.00.

**STOP**
Do you have $4.00 or more?
If so, you win!
If not, keep going.

You find a quarter on the ground and pick it up.

Your brother pays back the 85¢ he borrowed from you.

You find 3 quarters and 4 dimes in your jacket pocket.

You unload the laundry and find 2 quarters, 4 dimes, and 2 nickels.

Finish With $4

Your mom gives you $1.50 for your allowance.

You earn $1.85 for washing the dishes.

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Bridges Breakouts 107
Finish with $4 Game Board  page 2 of 2

You drop 50¢ on the ground.

You buy an apple for 25¢.

Your neighbor pays you $1.00 for feeding his cat.

Your grandpa gives you $1.65 as a gift.

You buy a candy bar for $0.55.

You find 2 quarters and a nickel on the sidewalk.

You buy a pack of gum for $0.45.

You find 3 quarters and 2 nickels in the sofa.

Move ahead

spaces
Support Activity 11 ★ Instructional Considerations

**Count Down 400**

**Overview**
Players subtract 4 two-digit numbers from 400 using Number Charts as a visual model. The player who gets closest to 0 after 4 turns wins.

**Skills & Concepts**
- Subtracting with and without regrouping using models and a variety of efficient paper/pencil and mental strategies
- Using estimation strategies to solve problems

**You’ll need**
- Count Down 400 (Blackline page 111, 1 copy per player)
- Count Down 400 Spinner (Blackline page 112, 1 copy for every two pairs of players)
- Base ten pieces (optional) (Use Blacklines pages 97-98 to make your own base ten pieces if needed.)
- Pencil and paperclip to use as a spinner (1 set for each pair of players)
- Colored pencils or crayons in 4 colors

Before students actually compute the difference between 400 and the number they spun, remind them to estimate a reasonable answer and explain their thinking. They can use base ten pieces or any paper/pencil or mental math strategies they prefer to compute the difference. Then, ask them to check their thinking using the grids on the record sheets.
Support Activity 11

SUPPORT ACTIVITY

Count Down 400

You’ll need

- Count Down 400 (Blackline page 111, 1 copy per player)
- Count Down 400 Spinner (Blackline page 112, 1 copy for every two pairs of players)
- base ten pieces (optional) (Use Blacklines pages 97-98 to make your own base ten pieces if needed.)
- pencil and paperclip to use as a spinner (1 set for each pair of players)
- colored pencils or crayons in 4 colors

Instructions for Count Down 400

1. You and your partner will each get your own record sheets. You’ll share a spinner.

2. Spin both spinners and arrange the 2 numbers to make the largest 2-digit number you can. Estimate how much you’ll have left when you subtract that number from 400.

3. Subtract your number from 400. Sketch the amount you subtracted on the grids and record a number sentence to show what’s left. (See illustration.)

4. Now it’s your partner's turn. Share your computation strategies and double-check each other’s work. Use the base ten pieces if you’d like. Record each turn in a different color crayon or pencil on the grids.

5. After 4 turns, compare how much you both have left on your grids. Estimate and then compute the difference. Share your thinking. The player who is closest to 0 after 4 turns wins the game.
Count Down 400 Spinner

Count Down 400 Spinner
Support Activity 12  ★  Instructional Considerations

SUPPORT ACTIVITY

Make the Sum

Overview
Students learn to play a card game that can be easily tailored to provide practice with specific addition combinations for 5 through 15.

Skills & Concepts
★ practicing addition combinations for the numbers 5 through 15
★ problem solving

You’ll need
★ Make the Sum Cards (Blackline page 115, 2 copies for every pair of players)

The purpose of Make the Sum is to provide practice with addition combinations for the numbers 5 through 15. There is an element of problem solving involved because children are continually searching for the combinations to make a particular number rather than responding to the numbers facts in a rote fashion.

After each pair of players has cut out their cards, they should have 4 sets of cards numbered from 1 to 10. They’ll need to decide on a “target sum” between 5 and 15. If students are working with you on a remedial basis, you may want to have them identify a target of 10 or lower. If you’re working with a whole class, some students may well be ready to play for a target sum between 10 and 15. Once a pair of players has identified their target sum, they need to go through their stack of cards and remove any that are higher than the target sum. If they choose 7 as a target, for instance, they’ll need to pull out all the 8’s, 9’s, and 10’s before they play the game. Students playing for 10 or higher should leave all the cards in the stack.

The fact that each card presents the number of dots in a 10-frame as well as showing the numeral lends visual support to children who need it. If some students need to count the dots to find target sums, encourage them to count on rather than counting every dot.

**Student**  We’re playing for 7’s and those first two cards make 7 if you put them together. The first one is 5, and then the next one goes 6, 7. They make 7 in all, so I get to take both of those cards. Your turn!
Support Activity 12

Make the Sum

You’ll need

★ Make the Sum Cards (Blackline page 115, 2 copies for every pair of players)

Instructions for Make the Sum

1 Start by talking with your partner about your target sum. You can play for 5's all the way through 15's. Once you've agreed on a sum, prepare the deck by setting aside all the cards higher than your target. If you play for 10's or above, you'll need the full deck—no discards are necessary.

2 Once your deck is set, take turns drawing cards and placing them face up beside the deck. The object of the game is to combine cards to make your target sum. If the sum you've chosen is 8, and you draw an 8, you may keep it. If you draw a 3, you'll have to place it face up beside the deck where it will be available to you or your partner. (Once a card is turned face up, it's “community property.”) If your partner then draws a 5, she may combine it with your 3 and take both cards.

3 Play continues back and forth until no more cards can be combined to make the target sum. It's important to note that no one gets extra turns—if you win a set of cards, play still goes back to your partner. It's also important to know that combinations can be made with more than 2 cards. 8 for instance might be made with a 4 and a 4, but also with a 1, a 2, and a 5 or even a 1, a 2, a 3, and another 2.

4 When you have used as many cards as you can, count them to determine the winner. It is possible that a few cards will remain unused at the end because they can't be combined to make the sum.

Child: I got a 3. Then Dad got a 4. I hope I draw a 1 this time!

Dad: Our target number is 8.
# Make the Sum Cards

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Support Activity 13 ★ Instructional Considerations

SUPPORT ACTIVITY

Place Value War

Overview
In this game, children work with pictures of base ten pieces – mats, strips, and units – to practice place value counting.

Skills & Concepts
★ counting by 100’s, 10’s, and 1’s
★ comparing and ordering 2- and 3-digit numbers

You'll need
★ Place Value War cards, sheets 1-3 (Blacklines pages 119-121, 1 copy for each pair of players)

This is a very simple game based on a common visual model for place value counting. Although the base 10 pieces shown on the game cards can take on any value they’re assigned, for this game, the little square, or “unit,” stands for 1. The strip stands for 10, and the large square, or “mat,” stands for 100.

Place Value War is designed to help students understand and compare 2- and 3-digit numbers. As student pairs are playing, you'll want to ask individuals to tell you how many units they see on various cards and explain their counting methods. If you find that some are still counting every small square on the card one by one, you'll want to have them remove the cards that show mats and just work with the cards that show strips and units for a little while. Work with them to count the strips by 10’s and then count on the units rather than counting every small square on a card one by one.

Teacher  My card shows 10, 20, 21, 22, 23, 24. How many units do you have on yours?

Student  I got more than you, so I get to take both cards. I have 10, 20, 30, 40….oops, I mean 31.

Students who are counting and comparing the quantities on all the cards easily can be encouraged to select 10-15 cards from the stack after they’ve finished playing the game and work together to arrange them in order from least to most.
Support Activity 13

Place Value War

You'll need
★ Place Value War cards, sheets 1-3 (Blacklines pages 119-121, 1 copy for each pair of players)

Instructions for Place Value War

1 Cut out the cards on the 3 attached sheets. Mix them thoroughly and place them in a stack, face down.
2 Take turns drawing a card and reporting how many units you see. The person with the card that's worth more gets to take both.
3 Continue until there are no cards left. The player with the most cards wins.
4 Shuffle the cards and play again.

Child  I got 122. What did you get, Dad?
Dad    I only got 116. You get this pair!
**Place Value War** cards, sheet 1

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This card shows 13 units—1 strip of 10 and three 1’s.
Place Value War cards, sheet 2
Place Value War cards, sheet 3

[Grid of place value cards]

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Support Activity 14 ★ Instructional Considerations

SUPPORT ACTIVITY

Base Ten Triple Spin

Overview
This is a deceptively simple strategy game that may puzzle some children at first, but provides good opportunities for building triple-digit number sense.

Skills & Concepts
★ counting by 100's, 10's, and 1's
★ understanding place value
★ comparing 3-digit numbers

You’ll need
★ Base Ten Triple Spin Spinner (Blackline page 126, 1 copy for every 2 pairs of players)
★ Base Ten Triple Spin Pieces (Blackline page 127, 1 copy for each player)
★ The Triple Spin & More Record Sheet (Blacklines pages 128-129, 1 copy of both sheets per player; run extras if you want to have students play the game more than once)
★ pencil and paperclip to use as a spinner (1 set per pair of players)

If you're introducing this game to a group of students, you may want to have the group work as a team to play against you the first time, and then let pairs of students play independently. To play the game, the players take turns spinning a number spinner 3 times. Each of the three times a player spins, he or she has to decide whether to take the spin in 100's, 10's, or 1's. Base Ten Triple Spin is a game of strategy because the players spin a More/Less spinner before they start spinning for pieces to determine whether they're trying to make a number that's more or less than that of the other player.

It may take several rounds of the game for some children to understand that they only get three spins and that each spin must be taken in a different denomination. That is, they can't take two of the spins in 100's. They must spin once for 100's, once for 10's, and once for 1's. They can choose which of the three denominations they want to use their spin for on their first turn and which of the remaining denominations they wish to use their spin for on the second turn. (The denomination of the third spin is determined by their first two choices.)

Be sure to show students how to show their results on their record sheets by drawing a small square to represent each mat, a line to represent each strip, and a dot to represent each unit. See Round 0 on the record sheet for an example.
Support Activity 14

Base Ten Triple Spin

You’ll need

- Base Ten Triple Spin Spinner (Blackline page 126, 1 copy for every 2 pairs of players)
- Base Ten Triple Spin Pieces (Blackline page 127, 2 copies for each player)
- The Triple Spin & More Record Sheet (Blacklines pages 128-129, 1 copy of both sheets per player; run extras if you want to have students play the game more than once)
- Pencil and paperclip to use as a spinner (1 set per pair of players)

Instructions for Base Ten Triple Spin

1. Cut out the base ten pieces on the accompanying 2 sheets. Then find this week’s worksheet, which includes a place to record several rounds of this game, and you’re in business.

2. Spin the More/Less spinner to determine whether you’re playing the first round for more or less. Indicate which it is on the record sheet by circling the appropriate word at the top.

3. Each of you will spin 3 times, alternately. You have to take one spin in 100’s (mats), one in 10’s (strips), and one in 1’s (units). Be sure to take a different denomination for each of your 3 spins. (You can’t take 2 of your spins in 100’s and none in 1’s, for instance.)

Each time you spin and decide which denomination to take your spin in, take that many base ten pieces and lay them out in front of you. By the time you and your partner have both had 3 turns, you should each have some mats, some strips, and some units.
Support Activity 14 (con’t)

“Oh, golly! I wish I’d taken that 5 in 100’s instead of 10’s!”

4. After you and your partner have both taken your 3 spins, collected your base ten pieces, and counted up your totals, take turns recording your results on the record sheet. Then play the game again. Remember to spin the More/Less spinner before each new round so you know if you’re playing for more or less.
Base Ten Triple Spin spinner

```
less

more
```

```
2  3  4
7  6  5
```

Base Ten Triple Spin spinner

```
less

more
```

```
2  3  4
7  6  5
```
Base Ten Triple Spin pieces

Cut apart on thick black lines.
The Triple Spin & More worksheet

Record the results of your Base Ten Triple Spin games by drawing what you got each time and writing your score. Be sure to indicate whether you played for more or less each time, and don't forget to circle the winner. (See example below.)

<table>
<thead>
<tr>
<th>EXAMPLE</th>
<th>Did you play for</th>
<th>More or Less?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round 0</td>
<td>100's</td>
<td>10's</td>
</tr>
<tr>
<td>0</td>
<td>[]</td>
<td>[ ] [ ]</td>
</tr>
<tr>
<td></td>
<td>[]</td>
<td>[ ] [ ] [ ]</td>
</tr>
<tr>
<td>Round 1</td>
<td>100's</td>
<td>10's</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Run 1 copy for every player, more if you want the students to play the game more than once.
The Triple Spin & More worksheet (cont)

<table>
<thead>
<tr>
<th>Round</th>
<th>Did you play for</th>
<th>More or Less?</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100's</td>
<td>10's</td>
</tr>
<tr>
<td></td>
<td>My score</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Round</th>
<th>Did you play for</th>
<th>More or Less?</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100's</td>
<td>10's</td>
</tr>
<tr>
<td></td>
<td>My score</td>
<td></td>
</tr>
</tbody>
</table>
Fact Fluency Supplement  Addition and Subtraction

There is a considerable body of research to support the idea that teaching basic fact strategies helps students move from less to more efficient methods and is more effective than asking children to memorize facts by rote. In a seminal article written for *Teaching Children Mathematics* magazine (Vol.5 Number 9, May 1999, p.508 – 515) researchers Andrew C. Isaacs and William M. Carroll suggest that teachers propose and model basic fact strategies as well as asking students to share their own. Teachers are also encouraged to supplement class discussions with games and exercises designed to facilitate more sophisticated strategies.

The materials in this supplement are designed to help you do just that. The fact strategy booklets, worksheets, and take-home activities are built around the following strategies for addition and subtraction facts:

### ADDITION STRATEGIES

<table>
<thead>
<tr>
<th>Name of Strategy</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Facts (+0)</td>
<td>7 + 0 = 7 0 + 14 = 14</td>
</tr>
<tr>
<td>Counting On (+1, +2, +3)</td>
<td>6 + 1 = 7 4 + 2 = 6 3 + 8 = 11</td>
</tr>
<tr>
<td>Doubles</td>
<td>7 + 7 = 14 3 + 3 = 6</td>
</tr>
<tr>
<td>Neighbors</td>
<td>3 + 4 = 7 7 + 8 = 15</td>
</tr>
<tr>
<td>(also called Doubles +1)</td>
<td></td>
</tr>
<tr>
<td>Make Ten (=10)</td>
<td>7 + 3 = 10 6 + 4 = 10</td>
</tr>
<tr>
<td>Fast Tens (+10)</td>
<td>10 + 5 = 15 8 + 10 = 18</td>
</tr>
<tr>
<td>Fast Nines (+9)</td>
<td>9 + 5 = 14 7 + 9 = 16</td>
</tr>
</tbody>
</table>

### SUBTRACTION STRATEGIES

<table>
<thead>
<tr>
<th>Name of Strategy</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Facts (–0)</td>
<td>7 – 0 = 7 15 – 0 = 15</td>
</tr>
<tr>
<td>Counting Back (–1, –2, –3)</td>
<td>6 – 1 = 5 9 – 2 = 7 15 – 3 = 12</td>
</tr>
<tr>
<td>Doubles</td>
<td>7 – 7 = 0 12 – 12 = 0</td>
</tr>
<tr>
<td>Neighbors (1 or 2 apart)</td>
<td>4 – 3 = 1 8 – 6 = 2</td>
</tr>
<tr>
<td>Halves</td>
<td>10 – 5 = 5 16 – 8 = 8</td>
</tr>
<tr>
<td>Take Away Tens (–10)</td>
<td>19 – 10 = 9 14 – 10 = 4</td>
</tr>
<tr>
<td>Run Away Ones</td>
<td>19 – 9 = 10 14 – 4 = 10</td>
</tr>
<tr>
<td>Up to Ten</td>
<td>15 – 8 = 7 17 – 9 = 8 13 – 5 = 8 12 – 7 = 5</td>
</tr>
</tbody>
</table>

Once children have started to use the strategies listed above, there aren’t many facts left to learn. If you examine all the addition facts for numbers through 20, for instance, you’ll find that there are only 16 combinations that aren’t covered by one of these strategies, and 8 of them are reverse of the others (3 + 5, 3 + 6, 3 + 8, 4 + 7, 4 + 8, 5 + 7, 5 + 8, 6 + 8, and their reverses). The picture is slightly more complex for subtraction, but the strategies above
Fact Fluency Supplement  Addition and Subtraction (cont.)

cover most of the facts to 20 and also help students understand the relationship between addition and subtraction.

The Fact Fluency Supplement includes two fact strategy booklets, Solving Addition Facts, and Solving Subtraction Facts. You can use these at school or send them home for students to share with their families at any time of the year that best suits your instructional needs. Each booklet describes the strategies listed above, gives examples, and asks students to both solve and pose their own related story problems. If you choose to send these booklets home, you’ll find a letter to accompany each one on page 145 and 159. There are also 20 practice worksheets in which students are asked to identify the strategies they can apply before solving the problems. Like all the rest of the materials in the Building Computational Fluency packet, you can use these with some or all of your students at your discretion. Finally, there are two games and related worksheets designed for use at home, one that involves addition strategies and the other subtraction strategies. Each is accompanied by a note of explanation to families if you choose to use them as homework assignments.

Section 3  Fact Fluency Supplement

Follow copy instructions on blacklines to run as needed.

- Fact Fluency Supplement: Addition and Subtraction  page 131-132
- Solving Addition Facts  page 133-144
- Note to Families: Instructions for Solving Addition Facts Booklet  page 145
- Solving Subtraction Facts  page 147-158
- Note to Families: Instructions for Solving Subtraction Facts Booklet  page 159
- Scout Them Out Addition and Subtraction Worksheets  page 161-170
- 2’s to the Rescue!  page 171
- Double It!  page 172-173
- Adding & Subtracting 10’s  page 174
- Cutting Numbers in Half  page 175
- Double It or Cut It in half  page 176
- Leapfrog Subtraction  page 177-178
- Addition Facts Challenge: A Take-Home Activity  page 179-185
- Subtraction Facts: A Take-Home Activity  page 187
- Up to Ten: A Take-Home Activity  page 188-195
Solving Leftovers

How do you solve the leftovers? Can you show your thinking on the ten-strips? Can you show your thinking with a number sentence or two? Can you make a story problem about a leftover fact?

What Are Ten-Strips?

Ten-strips are models we use to see numbers. They help us see groups, instead of counting one by one. Where do you see groups of 2 in the ten-strips? How about groups of 5 or 10?
Solving Leftovers

Using the Ten-Strips

They are the same? How are they different?

How many dots do you see on each pair of ten-strips? How are they different?

How do you solve the leftovers? Can you show your thinking on the ten-strips? Can you show your thinking with a number sentence or two? Can you make a story problem about a leftover fact?

How many dots do you see on each pair of ten-strips? How are they different?

Using the Ten-Strips

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How many dots do you see on each pair of ten-strips? How are they different?

How do you solve the leftovers? Can you show your thinking on the ten-strips? Can you show your thinking with a number sentence or two? Can you make a story problem about a leftover fact?

Using the Ten-Strips

They are the same? How are they different?

How many dots do you see on each pair of ten-strips? How are they different?

How do you solve the leftovers? Can you show your thinking on the ten-strips? Can you show your thinking with a number sentence or two? Can you make a story problem about a leftover fact?
Leftovers

We call these facts leftovers. These last ten facts can be solved in many ways. Knowing doubles, neighbors, and make ten facts can really help.

- $7 + 4 = 11$
- $4 + 7 = 11$
- $7 + 5 = 12$
- $5 + 7 = 12$
- $8 + 4 = 12$
- $4 + 8 = 12$
- $8 + 5 = 13$
- $5 + 8 = 13$
- $8 + 6 = 14$
- $6 + 8 = 14$

For $7 + 5$, some people might think, “7 plus 3 is 10. Then 10 plus 2 is 12.” Someone else might think, “5 plus 5 is 10, and then 2 more is 12.” How do you think about some of these facts?

Using the Ten-Strips

Choose a number to show on these ten-strips. Can you show the number in more than one way?

![Ten-Strips Diagram](image-url)
Zero Facts

When you add 0 to any number, the sum (the answer) is always that number. This works with larger numbers too!

26 + 0 = 26
0 + 387 = 387

Zero Facts Story Problems

1. If you had 7 cookies and someone gave you 0 cookies, how many cookies would you have in all?
2. If you had 0 cookies and someone gave you 6 cookies, how many cookies would you have in all?

Your Fast Nines

What are some other fast nine facts you know? Can you draw them and show them using number sentences? Can you make a story problem about a fast nine fact?

Zero Facts

When you add 0 to any number, the sum (the answer) is always that number.

\[ 7 = 7 + 0 \]
\[ 7 = 7 + 0 \]

This works with larger numbers too!
**Fast Nines**

When you know how to make ten and do fast tens, adding 9 is a snap! If the fact is $9 + 4$, you can think about making ten ($9 + 1 = 10$) and then adding 3 more. $9 + 4$ is the same as $10 + 3$. Where do you see the make tens and fast tens on the ten-strips below?

![Ten-strips](image)

$9 + 3 = 12$  $8 + 9 = 17$

Do you ever use fast nines with larger numbers? If so, can you think of some examples and explain how?

**Fast Nine Story Problems**

1. If you had 9 pencils in your case, and got 5 more, how many pencils would you have in all?

2. If you had 7 pencils in your case and got 9 more, how many pencils would you have in all?

**Your Zero Facts**

What are some other zero facts you know? Can you draw them and/or show them using number sentences? Can you make a story problem about a zero fact?
Counting On

You can count on when you add just 1, 2, or 3 to another number. Start with the larger number and count up.

No matter how big the number, if you add 1, 2, or 3, it’s fast to count up!

1 If you had 3 cookies and someone gave you 1 more, how many would you have in all?

2 If you had 4 cookies and someone gave you 2 more, how many would you have in all?

Counting On Story Problems

1 If you had 4 cookies and someone gave you 2 cookies, how many would you have in all?

2 If you had 3 cookies and someone gave you 5 cookies, how many would you have in all?

Your Fast Tens

What are some other fast ten facts you know?

Can you draw them or show them using number sentences?

Can you make a story problem about a fast ten fact?
**Fast Tens**

It’s fast to add 10 to any single-digit number. You’ll always get a teen number!

\[
\begin{align*}
10 + 2 &= 12 \\
8 + 10 &= 18
\end{align*}
\]

You can apply fast tens to larger numbers too.

\[
\begin{align*}
29 + 10 &= 39 \\
247 + 10 &= 257
\end{align*}
\]

**Fast Tens Story Problems**

1. If I have 10 playing cards and you give me 4 more, how many will I have in all?

2. If you have 9 playing cards and I give you 10 more, how many will you have in all?

**Your Counting On Facts**

What are some other counting on facts you know? Can you draw them and/or show them using number sentences? Can you make a story problem about a counting on fact?
When you add a number to itself, it's a double!

Doubles are always even. Can you see why when you look at the ten-strips below?

Doubles can work with larger numbers. Maybe you can think of some more doubles with large numbers like these. Maybe you can think of some more doubles with large numbers like these.

1. If you had 6 eggs and someone gave you 6 more, how many eggs would you have in all?

2. If you had 9 bouncy balls and someone gave you 9 more, how many would you have in all?

Doubles Story Problems

1. If you had 6 eggs and someone gave you 6 more, how many eggs would you have in all?

2. If you had 9 bouncy balls and someone gave you 9 more, how many would you have in all?

Doubles with large numbers.

Doubles can work with larger numbers like these. Maybe you can think of some more doubles with large numbers like these.

Your Make Ten Facts

What are some other make ten facts you know?

Can you draw them and/or show them using number sentences? Can you make a story problem about a make ten fact?

4 + 4 = 8 7 + 7 = 14

400 + 400 = 800

30 + 30 = 60
**Make Ten Facts**

These pairs of numbers make ten: $9 + 1$, $8 + 2$, $7 + 3$, $6 + 4$, and $5 + 5$. These are important facts because they help us think in groups of 10. What do you notice when you see make ten facts on the ten-strips?

![Ten-strips diagrams](image)

$7 + 3 = 10$  
$4 + 6 = 10$

When we work with larger numbers, make tens can help. For example $20 + 80 = 100$. That’s a make 100 fact! And $300 + 700 = 1000$. What would you call that fact?

**Make Ten Story Problems**

1. If I had 8 cookies and you gave me 2 more, how many would I have in all?
2. If you had 3 cookies and I gave you 7 more, how many would you have in all?

---

**Your Doubles**

What are some other doubles you know? Can you draw them and/or show them using number sentences? Can you make a story problem about a doubles fact?

![Number sentence and diagram](image)
Neighbors

When two numbers are right next to each other, we call them neighbors. When you know the doubles, neighbors are easy. Just double the smaller number and add 1 more. Or double the larger number and take 1 away.

Neighbors like these can be easy when you understand place value.

Neighbors Story Problems

1. If I had 4 cookies and you gave me 5 more, how many would I have in all?

2. If you had 7 flowers and I gave you 8 more, how many would I have in all?

30 + 40 = 70
500 + 400 = 900

Your Neighbors

What are some other neighbors facts you know? Can you draw them and/or show them using number sentences? Can you make a story problem about a neighbors fact?
Fact Fluency Addition

FACT FLUENCY ADDITION – NOTE TO FAMILIES

As a classroom teacher, I appreciate the role families play in their children’s success at school. When you take the time to review your child’s schoolwork, talk about your child’s day, and practice concepts and skills, you play a very important part in your child’s education.

Please read with your child the book he or she brought home called Solving Addition Facts. This book is about some different ways to solve basic addition facts. Many of us learned our addition facts by memorizing them and then practicing them while playing card games and board games with dice. Over the past 20 years or so, research has found that many students do better when they see pictures of the facts and think about specific ways to solve them. Your child may have already mastered these addition facts or have other ways of thinking about them. In that case, thinking about new ways to solve the facts helps your child be flexible. These ways of adding numbers can also help children work with larger numbers.

Please keep this book in a safe place in your home so that you can refer to it in the coming weeks. If you have any questions, please contact me at school.

Instructions for Solving Addition Facts Book

Please read the book Solving Addition Facts with your child. The book invites you and your child to think of addition facts and draw them or write word problems about them. These activities are meant to get you and your child involved and talking with each other about mathematics. Please sign and return this sheet when you have read the book.

Sign here:_______________________________    Date:________________
Leftovers

There are many leftover subtraction facts. These leftover facts can be solved using a combination of strategies. For example, to solve 18 - 12 some people may think, “10 minus 10 is 0, and 8 minus 2 is 6, so 18 - 12 is 6.” Other people may think, “12 plus what would make 18?” Someone else could count up from 12 to 18. The answer is the same, but the strategies we choose depend on how we like to think about the numbers.

How would you solve 18 - 12? Show how you would solve the other two facts on the ten-strips.

18 - 12 = 6
17 - 4 = ______
16 - 11 = ______

The Take-Away Model for Subtraction

One way to think about subtraction is to think about taking one group away from another. For example, if you have the problem 12 - 5, you could think about taking 5 away from 12 as shown below. The difference is what's left over. Can you see the difference between 12 and 5?

12 - 5 = ______

Page 20

© The Math Learning Center
Another way to think about subtraction is difference between $14$ and $6$. To get to $14$, the amount you added is the smaller number. In the example below, what do you need to add to think about when you need to add to the larger number? Can you draw them and/or show them using number sentences? Can you make a story problem about an up to ten fact? What are some other up to ten facts you know? Your Up to Ten Facts.

The Adding Up or Difference Model for Subtraction.
Up to Ten

When you know how to make ten, up to ten can be a snap. If the fact is $17 - 9$, you can think about making a ten ($9 + 1 = 10$) and then adding 7 more to get to 17 ($10 + 7 = 17$). The difference is the total amount you added ($1 + 7 = 8$ so $17 - 9 = 8$). When you go up to ten, you are using addition to find the difference between the two numbers.

\[
\begin{array}{c}
\begin{array}{c}
\text{9} \\
+ 1 \\
\hline
\text{10}
\end{array} & \begin{array}{c}
\text{10} \\
+ 7 \\
\hline
\text{17}
\end{array} & \begin{array}{c}
\text{7} \\
+ 3 \\
\hline
\text{10}
\end{array} & \begin{array}{c}
\text{10} \\
+ 6 \\
\hline
\text{16}
\end{array} \\
\begin{array}{c}
\text{7} \\
+ 1 \\
\hline
\text{8}
\end{array} & \begin{array}{c}
\text{6} \\
+ 3 \\
\hline
\text{9}
\end{array}
\end{array}
\]

$17 - 9 = 8$  
$16 - 7 = 9$

Up to Ten Story Problems

1. Sam had 8 cards in his collection. He got some more for his birthday and now he has 15. How many cards did Sam get for his birthday?

2. We need 16 points to win the game. We only have 7 points right now. How many more points do we need to win?

The Pictures in This Book

The pictures in this book will show both the take-away and difference models for subtraction. One group is shown in white, and the rest is shown in black. You could imagine taking away all the white dots, or you could add on the black dots to see the difference.

\[
\begin{array}{c}
\begin{array}{c}
\text{12} \\
- 4 \\
\hline
\text{8}
\end{array} & \begin{array}{c}
\text{12} \\
- 4 \\
\hline
\text{8}
\end{array}
\end{array}
\]

Begin with 12 dots. Take away the 4 white dots. You have 8 black dots left.

If you begin with the 4 white dots, you must add 8 black dots to get up to 12.
Your Run Away Ones Facts

What are some other run away ones you know?

Zero Facts

When you subtract 0 from any number, the difference is always the number you started with.

1. If you had 8 cookies and you didn’t eat any, how many cookies would you have?

2. If your team had 0 points, and the other team had 8 points, how many points would your team need to score to tie the game?

35 - 0 = 35
467 - 0 = 467

This works with larger numbers too!

8 - 0 = 8

Your Run Away Ones Facts

Can you draw them and/or show them using number sentences?

Can you make a story about a run away one fact?
Run Away Ones

When you take all the ones away from a teen number, all you have left is 10.

\[ 12 - 2 = 10 \quad 17 - 7 = 10 \]

When we work with larger numbers, we can use run away ones too.

\[ 509 - 9 = 500 \quad 868 - 8 = 860 \]

Run Away Ones Story Problems

1. I bought 12 eggs but 2 of them broke on the way home. How many are not broken?

2. I need 17 points to win the soccer ball. I have 7 already. How many more points do I need to win the ball?

Your Zero Facts

What are some other zero facts you know? Can you draw them and/or show them using number sentences? Can you make a story problem about a zero fact?
What are some other take away tens you know? Can you draw them and/or show them using number sentences? If you subtract 1, 2, or 3, it's easy to count back:

- 7 – 3 = 4
- 15 – 2 = 13
- 18 – 2 = 16

No matter how big the number, if you subtract 1, 2, or 3, it's fast to count back!

Counting Back Story Problems

1. If you had 7 cookies and someone ate 3 of them, how many would you have left?
   • 7 cookies – 3 cookies = 4 cookies

2. If you had 7 cookies and your sister had 18, how many more cookies would you need to have the same number of cookies as your sister?
   • 15 – 8 = 7 cookies

Your Take Away Tens

You can count back when you subtract 1, 2, or 3.
Take Away Tens

Remember how easy the fast tens were for you in addition? Well, take away tens are fast too. Just think about taking away the whole ten, and all you have left is the group in the ones column. What do you notice when you look at the ten-strips below?

\[
\begin{align*}
13 - 10 &= 3 \\
18 - 10 &= 8
\end{align*}
\]

When we work with larger numbers, take away tens can help.

\[
\begin{align*}
736 - 10 &= 726 \\
419 - 10 &= 409
\end{align*}
\]

Take Away Tens Story Problems

1. I have 13 pencils. I put 10 of them in my supply box. How many do I have left?

2. I need 18 pencils. I have 10 right now. How many more do I need?

Your Counting Back Facts

What are some other counting back facts you know? Can you draw them and/or show them using number sentences? Can you make a story problem about a counting back fact?
Doubles

When you see a number minus itself, the answer is always 0!

If you took away all of the white dots, how many would be left?

$17 - 17 = 0$  
$8 - 8 = 0$

Doubles work with larger numbers like these.

$58 - 58 = 0$  
$208 - 208 = 0$

Doubles Story Problems

1. If you had 17 eggs and someone bought all of them, how many eggs would you have left?
2. If there were 8 boys in the club and 8 girls, what's the difference between the number of boys and girls?

If you had 17 eggs and someone bought all of them, how many eggs would you have left?

Your Half Facts

What are some other half facts you know?

What are some other half facts you know?

Boys and girls?

When you see a number minus itself, the answer is always 0! If you look away all of the white dots, how many would be left?

Can you draw them and/or show them using number sentences? Can you make a story about a half fact?
Half Facts

When the smaller number is half of the larger number, it's a half fact! For example, 12 – 6 is a half fact, because 6 is half of 12. Can you see what the difference is?

\[
\begin{align*}
12 - 6 &= 6 \\
18 - 9 &= 9 \\
100 - 50 &= 50 \\
200 - 100 &= 100 \\
250 - 125 &= 125
\end{align*}
\]

Half facts work with larger numbers too. Can you think of some more?

12 – 6 = 6  18 – 9 = 9  100 – 50 = 50  200 – 100 = 100  250 – 125 = 125

Half Facts Story Problems

1. If you had 14 apples and you gave 7 to your neighbor, how many apples would you have left?

2. If your team had 8 points and you needed 16 points total to win the game, how many more points would your team need to score?

Your Doubles

What are some other doubles you know? Can you draw them and/or show them using number sentences? Can you make a story problem about a doubles fact?
Neighbors

Your neighbors live close to you. In subtraction, neighbors are just 1 or 2 away from each other. One example is 7 – 6 = 1 and 854 – 852 = 2.

Neighbors work with larger numbers too.

Neighbors Story Problem

1. If you had 7 toys and gave away 6, how many would you have left?
2. If you had 11 fish and your friend had 9, how many fish would you have more than your friend?

Can you make a story problem about a neighbor fact?

Turn blackline pages 147-158 back to back, fold all together to make booklet.

Your Neighbors

What are some other neighbor facts you know?
Fact Fluency Subtraction

FACT FLUENCY SUBTRACTION - NOTE TO FAMILIES

As a classroom teacher, I appreciate the role families play in their children’s success at school. When you take the time to review your child’s schoolwork, talk about your child’s day, and practice concepts and skills, you play a very important part in your child’s education.

Please read the booklet Solving Subtraction Facts with your child. You could read it aloud to your child, or your child might read it aloud to you. You could read half the book one night and half another night if it seems too long for one sitting. This book explains the ways we’ve been solving subtraction facts in class. Subtraction is more difficult than addition for most primary students, and we find that talking about ways to solve subtraction problems is very helpful.

Instructions for Solving Subtraction Facts Book

The activities in the book are designed to get you and your child talking about how you solve subtraction problems. Work through the tasks with your child as you have time. Please keep this book in a safe place so that you and your child can refer to it while he or she works on the basic subtraction facts. Please sign and date here when you have read the book.

Signature______________________________ Date________________
Scout Them Out 1, Addition

1. Circle all the +0's in blue. Then take a pencil and go back and do them.
2. Circle all the +1's in red. Then take a pencil and go back and do them.

\[
\begin{array}{cccccccc}
7 & 6 & 9 & 10 & 0 & 1 & 5 \\
\hline
+1 & +1 & +0 & +1 & +4 & +8 & +1 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
1 & 12 & 0 & 17 & 0 & 11 & 1 \\
\hline
+3 & +1 & +13 & +0 & +4 & +1 & +1 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
2 & 14 & 1 & 13 & 1 & 13 & 1 \\
\hline
+1 & +0 & +15 & +1 & +4 & +1 & +9 \\
\end{array}
\]

Scout Them Out 1, Subtraction

1. Circle all the –0's in blue. Then take a pencil and go back and do them.
2. Circle all the –1's in red. Then take a pencil and go back and do them.

\[
\begin{array}{cccccccc}
7 & 5 & 9 & 10 & 12 & 6 & 7 \\
\hline
-1 & -1 & -0 & -1 & -0 & -1 & -1 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
9 & 4 & 18 & 17 & 14 & 8 & 12 \\
\hline
-1 & -0 & -0 & -1 & -1 & -1 & -1 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
3 & 15 & 1 & 13 & 6 & 11 & 8 \\
\hline
-1 & -1 & -1 & -0 & -0 & -1 & -1 \\
\end{array}
\]
Scout Them Out 2, Addition

1. Circle all the +2's in blue. Then take a pencil and go back and do them.
2. Circle all the +10's in red. Then take a pencil and go back and do them.

\[
\begin{array}{cccccccc}
7 & 2 & 9 & 10 & 2 & 2 & 5 \\
+ & 2 & + & 6 & + & 10 & + & 1 \\
\hline
& & & & & & & \\
\end{array}
\]

\[
\begin{array}{cccccccc}
10 & 10 & 6 & 10 & 2 & 11 & 2 \\
+ & 3 & + & 4 & + & 10 & + & 7 \\
\hline
& & & & & & & \\
\end{array}
\]

\[
\begin{array}{cccccccc}
7 & 10 & 2 & 10 & 3 & 10 & 2 \\
+ & 2 & + & 0 & + & 15 & + & 8 \\
\hline
& & & & & & & \\
\end{array}
\]

Scout Them Out 2, Subtraction

1. Circle all the 2's in blue. Then take a pencil and go back and do them.
2. Circle all the –10's in red. Then take a pencil and go back and do them.

\[
\begin{array}{cccccccc}
7 & 5 & 19 & 14 & 12 & 6 & 9 \\
- & 2 & - & 2 & - & 10 & - & 10 \\
\hline
& & & & & & & \\
\end{array}
\]

\[
\begin{array}{cccccccc}
11 & 13 & 18 & 17 & 14 & 8 & 16 \\
- & 2 & - & 10 & - & 10 & - & 2 \\
\hline
& & & & & & & \\
\end{array}
\]

\[
\begin{array}{cccccccc}
3 & 15 & 2 & 20 & 6 & 11 & 8 \\
- & 2 & - & 2 & - & 10 & - & 2 \\
\hline
& & & & & & & \\
\end{array}
\]
Scout Them Out 3, Addition

1. Circle all the doubles in blue. Then take a pencil and go back and do them.
2. Circle all the neighbor number facts in red. Then take a pencil and go back and do them.

\[
\begin{array}{cccccccc}
7 & 6 & 9 & 10 & 3 & 8 & 5 \\
+ 7 & + 6 & + 10 & + 9 & + 4 & + 8 & + 5 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
3 & 4 & 6 & 10 & 2 & 3 & 2 \\
+ 3 & + 4 & + 7 & + 10 & + 2 & + 2 & + 2 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
7 & 7 & 6 & 9 & 3 & 8 & 8 \\
+ 8 & + 6 & + 5 & + 9 & + 2 & + 7 & + 9 \\
\end{array}
\]

Scout Them Out 3, Subtraction

1. Circle all the subtract doubles in red. Then take a pencil and go back and do them. (like 7–7)
2. Circle all the subtract neighbors in red. Then take a pencil and go back and do them. (like 5–4 or 8–7)

\[
\begin{array}{cccccccc}
7 & 5 & 10 & 14 & 12 & 6 & 9 \\
- 7 & - 4 & - 10 & - 14 & - 11 & - 6 & - 8 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
11 & 13 & 8 & 10 & 3 & 8 & 16 \\
- 11 & - 12 & - 8 & - 9 & - 2 & - 7 & - 16 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
6 & 15 & 2 & 20 & 9 & 11 & 7 \\
- 5 & - 14 & - 2 & - 20 & - 9 & - 11 & - 6 \\
\end{array}
\]
Scout Them Out 4, Addition

1. Circle all the doubles in blue. Then take a pencil and go back and do them.
2. Circle all the neighbor number facts in red. Then take a pencil and go back and do them.

\[
\begin{array}{cccccccc}
7 & 9 & 9 & 10 & 3 & 8 & 9 \\
+7 & +9 & +10 & +9 & +4 & +8 & +8 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccccc}
3 & 7 & 6 & 10 & 6 & 5 & 5 \\
+3 & +8 & +7 & +10 & +6 & +5 & +6 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccccc}
5 & 8 & 8 & 2 & 3 & 4 & 9 \\
+4 & +7 & +9 & +2 & +2 & +4 & +9 \\
\hline
\end{array}
\]

Scout Them Out 4, Subtraction

1. Circle all the halves in blue. Then take a pencil and go back and do them. (like 4–2 or 10–5)
2. Circle all the doubles in red. Then take a pencil and go back and do them. (like 6–6 or 3–3)

\[
\begin{array}{cccccccc}
6 & 6 & 10 & 10 & 12 & 12 & 9 \\
-3 & -6 & -5 & -10 & -6 & -12 & -9 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccccc}
4 & 4 & 18 & 18 & 8 & 8 & 2 \\
-4 & -2 & -9 & -18 & -4 & -8 & -1 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccccc}
14 & 14 & 12 & 20 & 16 & 16 & 15 \\
-7 & -14 & -6 & -10 & -8 & -16 & -15 \\
\hline
\end{array}
\]
Scout Them Out 5, Addition

1. Circle all the +10's in blue. Then take a pencil and go back and do them.
2. Circle all the +9's in red. Then take a pencil and go back and do them.

\[
\begin{array}{cccccccc}
10 & 9 & 9 & 10 & 9 & 10 & 9 \\
+6 & +6 & +10 & +1 & +4 & +7 & +7 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
4 & 9 & 10 & 10 & 9 & 3 & 3 \\
+10 & +4 & +7 & +10 & +9 & +10 & +9 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
10 & 9 & 10 & 9 & 10 & 9 & 4 \\
+6 & +5 & +8 & +8 & +2 & +2 & +9 \\
\end{array}
\]

Scout Them Out 5, Subtraction

1. Circle all the Take Away 10's in blue. Then take a pencil and go back and do them. (like 18–10)
2. Circle all the Run Away 1's in red. Then take a pencil and go back and do them. (like 16–6)

\[
\begin{array}{cccccccc}
16 & 16 & 15 & 15 & 13 & 13 & 9 \\
-10 & -6 & -10 & -5 & -10 & -3 & -9 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
11 & 11 & 17 & 17 & 10 & 14 & 16 \\
-10 & -1 & -10 & -7 & -10 & -10 & -10 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
15 & 16 & 12 & 20 & 19 & 12 & 19 \\
-5 & -6 & -2 & -10 & -9 & -10 & -10 \\
\end{array}
\]
Scout Them Out 6, Addition

1. Circle all the +0’s in blue. Then take a pencil and go back and do them.
2. Circle all the +1’s in red. Then take a pencil and go back and do them.
3. Circle all the +2’s in green. Then take a pencil and go back and do them.

\[
\begin{array}{ccccccccc}
0 & 9 & 9 & 1 & 2 & 10 & 4 \\
+6 & +2 & +1 & +3 & +7 & +2 & +2 \\
\end{array}
\]

\[
\begin{array}{ccccccccc}
2 & 1 & 0 & 15 & 8 & 2 & 4 \\
+6 & +7 & +5 & +1 & +0 & +12 & +0 \\
\end{array}
\]

\[
\begin{array}{ccccccccc}
17 & 8 & 1 & 2 & 16 & 18 & 0 \\
+1 & +2 & +5 & +5 & +0 & +2 & +9 \\
\end{array}
\]

Scout Them Out 6, Subtraction

1. Circle all the –0’s in blue. Then take a pencil and go back and do them.
2. Circle all the –1’s in red. Then take a pencil and go back and do them.
3. Circle all the –2’s in green. Then take a pencil and go back and do them.

\[
\begin{array}{ccccccccc}
16 & 7 & 4 & 9 & 10 & 8 & 9 \\
-0 & -2 & -0 & -2 & -2 & -2 & -1 \\
\end{array}
\]

\[
\begin{array}{ccccccccc}
5 & 11 & 6 & 7 & 5 & 15 & 17 \\
-1 & -1 & -2 & -1 & -2 & -1 & -0 \\
\end{array}
\]

\[
\begin{array}{ccccccccc}
8 & 6 & 12 & 19 & 16 & 14 & 15 \\
-1 & -0 & -2 & -1 & -2 & -1 & -0 \\
\end{array}
\]
Scout Them Out 7, Addition

1. Circle all the doubles in blue. Then take a pencil and go back and do them.
2. Circle all the neighbor number facts in red. Then take a pencil and go back and do them.

\[
\begin{array}{cccccccc}
6 & 9 & 10 & 3 & 7 & 4 & 5 \\
+ 6 & + 9 & + 10 & + 3 & + 7 & + 4 & + 5 \\
\hline
7 & 9 & 10 & 4 & 8 & 4 & 6 \\
+ 6 & + 8 & + 9 & + 3 & + 7 & + 5 & + 5 \\
\hline
8 & 7 & 1 & 1 & 2 & 2 & 5 \\
+ 8 & + 8 & + 1 & + 2 & + 3 & + 2 & + 6 \\
\hline
\end{array}
\]

Scout Them Out 7, Subtraction

1. Circle all the doubles in blue. Then take a pencil and go back and do them. (like 4–4)
2. Circle all the neighbor number facts in red. Then take a pencil and go back and do them. (like 5–4 or 11–10)

\[
\begin{array}{cccccccc}
10 & 7 & 11 & 9 & 8 & 3 & 6 \\
- 10 & - 7 & - 10 & - 9 & - 8 & - 2 & - 6 \\
\hline
12 & 20 & 5 & 5 & 6 & 7 & 1 \\
- 11 & - 20 & - 5 & - 4 & - 5 & - 6 & - 0 \\
\hline
14 & 8 & 9 & 15 & 12 & 4 & 4 \\
- 14 & - 7 & - 8 & - 14 & - 12 & - 4 & - 3 \\
\end{array}
\]
Scout Them Out 8, Addition

1. Circle all the +2’s in blue. Then take a pencil and go back and do them.
2. Circle all the doubles in red. Then take a pencil and go back and do them.
3. Circle all the neighbor number facts in green. Then take a pencil and go back and do them.

```
10  9  9  3  6  10  4
+ 2  + 2  + 10  + 3  + 7  + 10  + 3
___  ___  ____  ____  ____  ____  ____

7  9  8  10  9  4  4
+ 2  + 8  + 8  + 10  + 9  + 4  + 5
___  ___  ___  ___  ___  ___  ___

7  8  2  3  3  5  5
+ 7  + 7  + 9  + 2  + 3  + 5  + 6
___  ___  ___  ___  ___  ___  ___
```

Scout Them Out 8, Subtraction

1. Circle all the –2’s in blue. Then take a pencil and go back and do them.
2. Circle all the doubles in red. Then take a pencil and go back and do them. (like 6–6)
3. Circle all the halves in purple. Then take a pencil and go back and do them. (like 10–5)

```
16  10  10  12  12  12  8
– 8  – 5  – 10  – 6  – 12  – 2  – 4
___  ___  ___  ___  ___  ___  ___

8  6  18  18  6  6  4
– 8  – 2  – 9  – 18  – 3  – 6  – 2
___  ___  ___  ___  ___  ___  ___

4  16  16  20  9  10  15
– 4  – 8  – 16  – 10  – 2  – 2  – 2
___  ___  ___  ___  ___  ___  ___
```
Scout Them Out 9, Addition

1. Circle all the +10's in blue. Then take a pencil and go back and do them.
2. Circle all the +9's in red. Then take a pencil and go back and do them.

\[
\begin{array}{cccccccc}
10 & 9 & 9 & 10 & 10 & 10 & 9 \\
+6 & +2 & +10 & +3 & +7 & +3 & +3 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccccc}
7 & 9 & 9 & 10 & 9 & 4 & 4 \\
+10 & +7 & +6 & +10 & +9 & +10 & +9 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccccc}
10 & 9 & 1 & 3 & 10 & 10 & 5 \\
+1 & +4 & +9 & +9 & +3 & +5 & +9 \\
\hline
\end{array}
\]

Scout Them Out 9, Subtraction

1. Circle all the Take Away 10's in blue. Then take a pencil and go back and do them. (like 18–10)
2. Circle all the Run Away 1's in red. Then take a pencil and go back and do them. (like 16 –6)

\[
\begin{array}{cccccccc}
16 & 17 & 10 & 12 & 12 & 13 & 13 \\
-10 & -7 & -10 & -2 & -10 & -3 & -10 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccccc}
11 & 11 & 18 & 18 & 15 & 15 & 17 \\
-10 & -1 & -10 & -8 & -5 & -10 & -10 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccccc}
14 & 16 & 12 & 20 & 19 & 11 & 16 \\
-4 & -6 & -2 & -10 & -9 & -1 & -6 \\
\hline
\end{array}
\]
**Scout Them Out 10, Addition**

1. Circle all the +10's in blue. Then take a pencil and go back and do them.

2. Circle all the +9's in red. Then take a pencil and go back and do them.

\[
\begin{array}{cccccccc}
10 & 9 & 9 & 10 & 9 & 10 & 9 & 9 \\
+ 7 & + 7 & +10 & + 1 & + 4 & + 8 & + 8 & + 8 \\
\end{array}
\]

\[
\begin{array}{ccccccccc}
3 & 9 & 9 & 10 & 9 & 5 & 5 & 5 \\
+10 & + 3 & + 7 & +10 & + 9 & +10 & + 9 & + 9 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
10 & 9 & 6 & 2 & 10 & 10 & 4 & 9 \\
+ 6 & + 5 & + 9 & + 9 & + 2 & + 4 & + 9 & + 9 \\
\end{array}
\]

**Scout Them Out 10, Subtraction**

1. Circle all the Take Away 10's in blue. Then take a pencil and go back and do them. (like 18–10)

2. Circle all the Run Away 1's in red. Then take a pencil and go back and do them. (like 16–6)

\[
\begin{array}{cccccccc}
17 & 17 & 10 & 14 & 12 & 12 & 19 & 19 \\
-10 & - 7 & -10 & - 4 & -10 & - 2 & - 9 & - 9 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
11 & 11 & 18 & 18 & 13 & 14 & 16 & 16 \\
-10 & - 1 & -10 & - 8 & -3 & -10 & -10 & -10 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
15 & 16 & 12 & 13 & 19 & 11 & 15 & 15 \\
-5 & -6 & -8 & -10 & -9 & -10 & -10 & -10 \\
\end{array}
\]
2's to the Rescue!

Write the numbers from 1 to 30 in the grid below. Then color in the count-by-2 numbers, starting with 2 (2, 4, 6, 8, and so on).

Now try these number combinations and problems. Use the grid to help if you want.

4 + 2 = ____  
14 + 2 = ____  
24 + 2 = ____  
8 + 2 = ____

18 + 2 = ____  
28 + 2 = ____  
16 – 2 = ____  
26 – 2 = ____

10 – 2 = ____  
20 – 2 = ____  
30 – 2 = ____

How many spots in all? _____  
How many wings in all? _____  
How many spots in all? _____  
How many wings in all? _____

The challenge! 16 wings—how many honey bees? _____ (Hint: Draw a picture on the back to help.)
### Double It!

Sarah has 4 cookies. Matt has twice that many. How many cookies does Matt have?

How many cookies do Matt and Sarah have in all?

Add these doubles.

\[
\begin{array}{ccccccc}
2 & 20 & 200 & 3 & 30 & 300 & 4 \\
+ 2 & + 20 & + 200 & + 3 & + 30 & + 300 & + 4 \\
\end{array}
\]

\[
\begin{array}{ccccccc}
40 & 400 & 5 & 50 & 500 & 6 & 60 \\
+ 40 & + 400 & + 5 & + 50 & + 500 & + 6 & + 60 \\
\end{array}
\]

\[
\begin{array}{ccccccc}
7 & 70 & 8 & 80 & 9 & 90 & 100 \\
+ 7 & + 70 & + 8 & + 80 & + 9 & + 90 & + 100 \\
\end{array}
\]

Now try doubles plus 1 more (we call them “neighbors”).

\[
\begin{array}{ccccccc}
2 & 3 & 4 & 3 & 7 & 6 & 1 \\
+ 3 & + 2 & + 3 & + 4 & + 6 & + 7 & + 2 \\
\end{array}
\]
Double It! (cont.)

$$\begin{array}{ccccccc}
2 & 3 & 4 & 3 & 7 & 6 & 1 \\
+ 3 & + 2 & + 3 & + 4 & + 6 & + 7 & + 2 \\
\end{array}$$

Here's a little bit of multiplication.

$$\begin{array}{cccc}
2 \times 3 & = & \underline{\hspace{1cm}} & 2 \times 5 & = & \underline{\hspace{1cm}} & 2 \times 7 & = & \underline{\hspace{1cm}} & 2 \times 9 & = & \underline{\hspace{1cm}} \\
2 \times 0 & = & \underline{\hspace{1cm}} & 2 \times 2 & = & \underline{\hspace{1cm}} & 2 \times 4 & = & \underline{\hspace{1cm}} & 2 \times 6 & = & \underline{\hspace{1cm}} \\
2 \times 8 & = & \underline{\hspace{1cm}} & 2 \times 10 & = & \underline{\hspace{1cm}} \\
\end{array}$$
### Adding and Subtracting 10's

#### Subtract

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<td>-10</td>
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What happens every time you subtract 10 from a number?

__________________________________________________________________________

__________________________________________________________________________

Practice adding tens.

<table>
<thead>
<tr>
<th>24</th>
<th>35</th>
<th>17</th>
<th>65</th>
<th>28</th>
<th>30</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>+10</td>
<td>+10</td>
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</tbody>
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Cutting Numbers in Half

Let's see what happens when we “cut” some numbers in half.

What's half of 2? ____  What's half of 6? ____  What's half of 10? ____
What's half of 20? ____  What's half of 60? ____  What's half of 100? ____
What's half of 200? ____________ What's half of 600? ____________ What's half of 1,000? ____________

What makes it pretty easy to divide these numbers in half?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Try these subtract halves.

10 100 8 80 12 120 40
  - 5  - 50  - 4  - 40  - 6  - 60  - 20
   ___  ___  ___  ___  ___  ___  ___

10 100 8 80 12 120 40
  - 5  - 50  - 4  - 40  - 6  - 60  - 20
   ___  ___  ___  ___  ___  ___  ___

Now try these.

12 13 12 16 15 16 16
  - 6  - 6  - 7  - 8  - 8  - 9  - 7
   ___  ___  ___  ___  ___  ___  ___
FACT FLUENCY

Double It or Cut It in Half

Add.

\[
\begin{array}{ccccccc}
10 & 20 & 30 & 40 & 50 & 60 & 70 \\
+ 10 & + 20 & + 30 & + 40 & + 50 & + 60 & + 70 \\
\end{array}
\]

\[
\begin{array}{ccccccc}
11 & 22 & 33 & 44 & 55 & 25 & 35 \\
+ 11 & + 22 & + 33 & + 44 & + 55 & + 25 & + 35 \\
\end{array}
\]

\[
\begin{array}{ccccccc}
12 & 13 & 14 & 15 & 16 & 21 & 23 \\
+ 12 & + 13 & + 14 & + 15 & + 16 & + 21 & + 23 \\
\end{array}
\]

\[
\begin{array}{ccccccc}
15 & 16 & 25 & 26 & 35 & 36 & 100 \\
+ 15 & + 16 & + 25 & + 26 & + 35 & + 36 & + 100 \\
\end{array}
\]

Subtract.

\[
\begin{array}{ccccccc}
20 & 40 & 60 & 80 & 100 & 120 & 140 \\
- 10 & - 20 & - 30 & - 40 & - 50 & - 60 & - 70 \\
\end{array}
\]

\[
\begin{array}{ccccccc}
20 & 40 & 60 & 80 & 100 & 120 & 140 \\
- 10 & - 20 & - 30 & - 40 & - 50 & - 60 & - 70 \\
\end{array}
\]

\[
\begin{array}{ccccccc}
24 & 26 & 28 & 30 & 32 & 42 & 46 \\
- 12 & - 13 & - 14 & - 15 & - 16 & - 21 & - 23 \\
\end{array}
\]
Leapfrog Subtraction

See how fast you can leapfrog around this sheet with your crayons and pencil to practice the different subtraction strategies we've learned.

Circle with blue all the Subtract 2's on the sheet. Then take your pencil and go back and do them. (Example 16 – 2)

Circle with red all the Subtract Halves on the sheet. Then take your pencil and go back and do them. (Example 12 – 6 or 14 – 7)

Circle with green all the Takeaway 10's on the sheet. Then take your pencil and go back and do them. (Example 14 – 10 or 19 – 10)

Circle in purple all the Runaway 1's on the sheet. Then take your pencil and go back and do them. (Example 13 – 3 or 17 – 7)

And now—see if you can use the ones you've circled and solved to help you figure out the rest!

\[
\begin{array}{cccccccc}
10 & 15 & 14 & 14 & 14 & 13 & 19 \\
-2 & -2 & -7 & -6 & -8 & -3 & -9 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
11 & 15 & 16 & 17 & 18 & 17 & 19 \\
-2 & -5 & -8 & -8 & -8 & -10 & -2 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
13 & 18 & 14 & 10 & 11 & 18 & 19 \\
-2 & -9 & -4 & -5 & -5 & -10 & -10 \\
\end{array}
\]
Leapfrog Subtraction (cont.)

\[
\begin{array}{cccccccc}
16 & 16 & 14 & 14 & 12 & 12 & 20 \\
- 8 & - 9 & - 10 & - 9 & - 10 & - 9 & - 10 \\
\hline
15 & 15 & 12 & 16 & 12 & 12 & 10 \\
- 10 & - 9 & - 3 & - 6 & - 6 & - 7 & - 5 \\
\end{array}
\]
Home Connection A ★ Activity

NOTE TO FAMILIES

This assignment includes a card game called Addition Facts Challenge and a worksheet called Addition & Subtraction Fact Families. As you work with your child, encourage him or her to use the ten-strips on the back of this page.

Note that each one contains two columns of 10 and that the horizontal black bar makes it easy to see the groups of 5 as well. We encourage students to use these strips to see relationships between numbers and to think about groups of 5 and 10 as they add numbers.

You’ll need the Ten-Strip Fact Cards, the ten-strips on the back of this page, and something to write with. Cut the game cards apart if your child has not already cut them apart in school.

Instructions for Addition Facts Challenge

1 Mix the cards up. Place them in a stack face down. Draw one card from the top of the pile and have your child do the same.

2 You and your child should each add the quantities shown in the ten-strips on your own cards.

   [Ten-Strip Fact Cards]

   Maggie  4 + 9 = 13   Dad  7 + 9 = 16

3 Ask your child to describe how she or he found the sum on each card. How do you see it? Share your ideas. Your child may want to fill in the ten-strips on the back of this page to show how he or she thinks about some of the addition facts.

4 Compare sums with your child. The high value wins. In the case of a tie, you'll each need to draw another card. The winner of that round wins all 4 cards.

5 Take turns drawing cards and playing until you are out of cards. Then count your cards. The person with the most cards wins the game.

6 When you have completed the game, ask your child to complete the worksheet and bring it back to school.
Ten-Strips
Ten-Strip Fact Cards page 1 of 4

Cut out cards along solid lines.
Home Connection A Activity (cont.)

Ten-Strip Fact Cards  page 2 of 4

Cut out cards along solid lines.
Cut out cards along solid lines.
Cut out cards along solid lines.

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</table>
NOTE TO FAMILIES

This worksheet is designed to give your child the chance to explore the relationship between addition and subtraction using a visual model and number sentences.

Addition & Subtraction Fact Families

Write all the number sentences for the fact family shown in each pair of ten-strips. Remember that there will be just 2 facts for fact families with doubles.

**example**

\[
\begin{align*}
4 + 9 &= 13 \\
9 + 4 &= 13 \\
13 - 9 &= 4 \\
13 - 4 &= 9
\end{align*}
\]

**example**

\[
\begin{align*}
4 + 4 &= 8 \\
8 - 4 &= 4
\end{align*}
\]

**a**

\[
\begin{align*}
\underline{} + \underline{} &= \underline{} \\
\underline{} + \underline{} &= \underline{} \\
\underline{} - \underline{} &= \underline{} \\
\underline{} - \underline{} &= \underline{}
\end{align*}
\]

**b**

\[
\begin{align*}
\underline{} + \underline{} &= \underline{} \\
\underline{} + \underline{} &= \underline{} \\
\underline{} - \underline{} &= \underline{} \\
\underline{} - \underline{} &= \underline{}
\end{align*}
\]

**c**

\[
\begin{align*}
\underline{} + \underline{} &= \underline{} \\
\underline{} + \underline{} &= \underline{} \\
\underline{} - \underline{} &= \underline{} \\
\underline{} - \underline{} &= \underline{}
\end{align*}
\]

**d**

\[
\begin{align*}
\underline{} + \underline{} &= \underline{} \\
\underline{} + \underline{} &= \underline{} \\
\underline{} - \underline{} &= \underline{} \\
\underline{} - \underline{} &= \underline{}
\end{align*}
\]

CHALLENGE

Write a story problem on the back of this page using one of these facts. Bring it to school to share.
NOTE TO FAMILIES

Knowing the basic subtraction facts can make it easier for students to solve similar problems with larger numbers. For example, run away ones (e.g., 18 – 8 = 10) can be applied to compute 78 – 8 = 70. Take away tens (e.g., 18 – 10 = 8) can be applied to compute 78 – 10 = 68. Encourage your child to use run away ones and take away ten to solve the problems below.

### Subtraction Facts

#### 1 Run Away Ones

<table>
<thead>
<tr>
<th>37</th>
<th>42</th>
<th>65</th>
<th>91</th>
<th>87</th>
<th>53</th>
<th>29</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 7</td>
<td>- 2</td>
<td>- 5</td>
<td>- 1</td>
<td>- 7</td>
<td>- 3</td>
<td>- 9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>109</th>
<th>132</th>
<th>154</th>
<th>186</th>
<th>193</th>
<th>118</th>
<th>165</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 9</td>
<td>- 2</td>
<td>- 4</td>
<td>- 6</td>
<td>- 3</td>
<td>- 8</td>
<td>- 5</td>
</tr>
</tbody>
</table>

#### 2 Take Away Tens

<table>
<thead>
<tr>
<th>28</th>
<th>49</th>
<th>61</th>
<th>77</th>
<th>85</th>
<th>33</th>
<th>52</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 10</td>
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<table>
<thead>
<tr>
<th>118</th>
<th>147</th>
<th>184</th>
<th>136</th>
<th>185</th>
<th>171</th>
<th>153</th>
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<tbody>
<tr>
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</tbody>
</table>

#### CHALLENGE

3 On another sheet of paper, write at least ten more examples of how you can use take away tens and run away ones with larger numbers.
Home Connection C ★ Activity

NOTE TO FAMILIES

This Home Connection is a game called Up to Ten that provides practice with a collection of subtraction facts we call the up to ten facts.

Before you begin, you'll need 20 each of two kinds of small items (e.g., beans, buttons, pieces of cereal). Throughout the game, ask your child to build the smaller number in one item on the ten-strips and then use the other item to build up to ten first and then up to the larger number to find the difference. We’ve shown some examples in the instructions on the next page.

Instructions for Up to Ten

1. To play, you'll need the Up to Ten Game Board, Up to Ten Cards, paperclip, pencil or pen, 2 different kinds of small objects, and ten-strips. Shuffle the cards and place them face down between you and your partner.

2. Draw 1 card from the top of the pile and have your partner do the same.

3. Find the difference for both cards using the up to ten strategy. You can confirm your answer using another strategy if you like. You can build the facts on your ten-strips with 2 different kinds of markers to show how you can find the difference.

4. Place your cards where they belong on the game board—one card in the more box and one card in the less box. Remember you are comparing the answers, the differences for each

Continued on back.
fact. If the differences on the two cards are equal, place them in the equal box. Then draw one more card each. Determine which is more and which is less, and place them in the correct boxes.

5 Spin the more or less spinner on the game board to decide who will get both cards. (If you have cards in the equal box, the winner will get all four cards.) If the spinner lands on more, the person who had the card with the greatest difference gets to take both cards. If it lands on less, the person who drew the card with the smaller difference gets both cards.

6 Take turns drawing cards, computing the differences, and then comparing the results.

7 When you are out of cards, count your cards. The player with the most cards will put her stack in the more box and the player with the fewest will put his stack in the less box. Spin the spinner once again to decide who wins the game.
Up to Ten Cards page 1 of 3

Cut out cards along solid lines.

<table>
<thead>
<tr>
<th>12</th>
<th>5</th>
<th>Up to Ten Card</th>
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<tbody>
<tr>
<td>12</td>
<td>4</td>
<td>Up to Ten Card</td>
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<td>11</td>
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<td>Up to Ten Card</td>
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Cut out cards along solid lines.

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Cut out cards along solid lines.

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Home Connection 6 Activity (cont.)

Up to Ten Game Board

more          equal          less

more          less
Ten-Strips
Home Connection C ★ Worksheet

Up to Ten

Solve the following subtraction facts using the *up to ten* strategy or another strategy that works for you.

\[
\begin{array}{ccccccc}
13 & 15 & 11 & 16 & 17 & 12 \\
- 8 & - 9 & - 5 & - 9 & - 8 & - 4 \\
\end{array}
\]

\[
\begin{array}{ccccccc}
16 & 11 & 15 & 14 & 14 & 17 \\
- 7 & - 8 & - 6 & - 9 & - 8 & - 9 \\
\end{array}
\]

\[
\begin{array}{ccccccc}
13 & 14 & 12 & 11 & 14 & 12 \\
- 4 & - 6 & - 7 & - 7 & - 5 & - 5 \\
\end{array}
\]

\[
\begin{array}{cc}
15 & 13 \\
- 8 & - 6 \\
\end{array}
\]