Building Computational Fluency, Grade 1
A Math Learning Center Publication

by Donna Burk and Allyn Fisher
illustrated by Tyson Smith

Other Bridges Breakout Units
Building Computational Fluency, Grades 5 & 6
Building Computational Fluency, Grade 4
Building Computational Fluency, Grade 3
Building Computational Fluency, Grade 2
Bridge Design & Construction: Data Collection & Analysis
Bugs Across the Curriculum
Crossing the Pond: A Probability Game
Exploring Money: Adding, Counting, Sorting and Patterning
Exploring Time: Hours, Minutes and Paper Clocks
Frogs Across the Curriculum
Geometry: Pattern Blocks, Polydrons and Paper Quilts (Grade 1)
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Math Buckets: Sorting and Patterning
Math with a Sock: Probability and Fractions
My Little Farm: Money, Place Value and Mapping
Penguins: Measuring, Sorting, Computation and More
Sea Creatures Across the Curriculum

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# Building Computational Fluency, Grade 1

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Building Computational Fluency,
Grade 1 Overview

Building Computational Fluency, Grade 1 is a supplement designed to provide you with powerful and flexible tools to assess and support first grade students in developing key computational skills and concepts. Organized into twelve 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:

• counting to 100
• reading and writing numerals
• understanding the operations of addition and subtraction
• developing strategies for adding and subtracting numbers to 20
• developing fluency with addition facts to 20 and subtraction facts to 10
• counting by 2’s, 5’s, and 10’s
• counting by 10’s and 1’s
• developing strategies for adding 2-digit numbers
• telling time and counting money

The materials in the Building Computational Fluency packet are intended to complement and strengthen any first grade math program. These materials may also be useful to resource room teachers and others working with students on a pull-out basis, as well as teachers working with second graders who are below grade level.

Assessments
Each of the twelve sections in this packet includes an assessment and a set of activities designed to help students who indicate needs in the specific areas assessed. The assessments are designed to be administered at the rate of one or two per month, starting at the end of September, but may also be used at any other time of the year, depending on the needs of your students and your instructional schedule. The first three assessments are individual interviews, which are more developmentally appropriate for incoming first graders and more likely to yield useful information about their skills. There are two other individual interviews for use later in the year, but the rest are written check-ups that can be administered to your whole class at the same time. You may elect to conduct the interviews with selected individuals rather than every child in your classroom, especially later in the year when many students’ skills are already well-known to you.

All 12 assessments include instructions to the teacher, assessment blacklines, and class checklists. Although use of the class checklists is optional, they allow teachers to easily spot strengths and weaknesses in individual students.
and in the class as a whole. They may also make it easier to identify children who are in need of extra support or special services.

Support Activities
Following each assessment, you’ll find a collection of Support Activities designed to help students who indicate needs in the specific areas assessed. These activities include games, short activities, and worksheets. They consistently involve the use of concrete and visual models, as well as fact strategies, and will help students develop solid conceptual understandings as well as proficiency. Although these activities have been designed to provide remedial help to students targeted by the assessments, you may find that some of the games and worksheets provide valuable instructional resources for your entire class. The Support Activities can also be conducted with small groups of targeted students by educational assistants, parent volunteers, and resource or title teachers. Some of them are specifically designed to be taken home by students for extra practice with their families.

Materials
Each section in the Building Computational Fluency packet includes instructions for conducting an assessment of basic computational skills and teaching the related Support Activities. You’ll find blacklines for all written assessments and activity worksheets, as well as blacklines for making any needed game components and instructional materials, in a section of their own at the back of the packet. The manipulatives and tools required to conduct the assessments and teach the games and activities are fairly minimal and found in many first grade classrooms: Unifix cubes or other linking cubes, clear round plastic game markers or other counters, plastic or real coins, a pocket chart, and individual chalkboards or whiteboards.
Using a Fact Strategy Approach

If asked to solve an addition combination they don’t already know “by heart,” first graders will generally respond in one of the following ways:

- by representing each quantity with counters or their fingers and then counting each object one by one, starting with 1.
- by counting on to find the total (e.g., to solve 4 + 5, counting “four, 5, 6, 7, 8, 9”).
- by working from a previously learned fact (e.g., to solve 4 + 5, recalling that 4 + 4 = 8 so 4 + 5 must be 9).

The first method, often referred to as “direct modeling,” is the most common among young first graders. The second, counting on, is less common, but something first grade teachers work hard to teach their students. The third is the most efficient, short of just knowing the answer, and is often referred to as a “derived fact method” because the answer is derived from another fact the student already knows.

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, pp.508–515) researchers Andrew C. Isaacs and William M. Carroll suggest that teachers propose and model basic fact strategies, and ask 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 packet are designed to help you do just that. The assessments and Support Activities are built around the following strategies for addition and subtraction facts:

- adding and subtracting 0's
- adding and subtracting 1's and 2's using a counting on or counting back strategy
- adding doubles (4 + 4, 5 + 5, etc.) and subtracting halves (8 - 4, 10 - 5, etc.)
- using doubles to solve “neighbors” (3 + 3 = 6 so 3 + 4 must be 7)
- adding and subtracting complements of 10 (6 + 4, 7 + 3, 10 - 2, 10 - 4, etc.)
- adding numbers to 10 ("fast 10's" such as 10 + 2, 10 + 3, etc.)
- subtracting 10's or 1's from teen numbers (15 - 10 = 5, 15 - 5 = 10, etc.)

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 12, for instance, you’ll find that there are only 14 combinations that aren't covered by one of these strategies, and 7 of them are reverse of the others (3 + 5, 3 + 6, 3 + 8, 3 + 9, 4 + 7, 4 + 8, 5 + 7, and their reverses). The picture is slightly more complex for subtraction, but the strategies above cover many of facts and also help students understand the relationship between addition and subtraction.
## Assessments & Support Activities in Building Computational Fluency, Grade 1

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Assessment & Support I

Individual Interview

Overview
This assessment gives you a window into each child’s current ability to count by 5’s and 10’s, recognize numerals to 10, and identify coins. Ten-frames help children see quantities in relation to 5’s and 10’s and move children beyond using one by one counting as their only way to solve number problems.

Skills & Concepts
- counting quantities to 10
- recognizing numerals to 10
- recognizing coin names and values

Timing
At the beginning of the school year or anytime that’s appropriate for your students

Assessment I
To conduct this assessment, you’ll need to sit with each student individually, and point to the items on the sheets (shown on the next page). Ask the child to identify the quantity in each ten-frame, the name and value of each coin, and the name of each numeral. Mark the student's responses in the way that is most helpful to you. The notes you make under “how did you know” may help you remember children's early counting strategies.

When you are conducting individual interviews, avoid the temptation to teach. Your main purpose is to learn more about your students’ strengths and needs as quickly as possible. You can use the Assessment I Class Checklist to compile assessment results and get an overview of students’ strengths, as well as the areas in which they’ll need more work. If some of your students are struggling with 1-to-1 correspondence and are unable to count quantities less than 6 accurately, they may need more support than you can offer in a classroom setting.

You’ll need
- Assessment I: Individual Interview (Blacklines I.1 and I.2, run a copy for each student you plan to interview)
- Assessment I Class Checklist (Blackline I.7, 3 or 4 copies as needed, optional)
If, after you conduct this interview, you find that some of your students need more help with particular skills, games have been included for small group work which can later be sent home.

**Strategies to Watch For**

Is the student able to tell at a glance how many dots are in each ten-frame or does she count one by one for every challenge? Does she notice relationships—“That’s 4: if it had one more, it would be 5,” and “I know that’s not 10; it needs 1 more,” etc.? Does she recognize numerals to 10? Does she know the names and values of coins?

**Support for Targeted Children**

In the blacklines, you’ll find two bingo games which can be played with children who need to work more with ten-frames, numbers, and coin identification. These games are pictured and described on the following pages. Have children cut out their calling cards and store them in an envelope. This step seems to help targeted students understand that they’ll get to take the game home and teach it to their families. Once the cards are prepared, borrow one set of cards and play the game together two or three times until the students understand the game well. Send the bingo game sheet and cards home with the students. With every activity sheet that goes home, include a note outlining the skill that is being addressed and request the family’s support.
Assessment & Support I (cont.)

SUPPORT ACTIVITY IA

Numbers & Ten-Frames Bingo

You’ll need for teaching the game
★ Unifix cubes for markers
★ a set of Numbers & Ten-Frames Bingo cards (borrowed from a student)
★ scissors

Each targeted student takes home
★ Numbers & Ten-Frames Bingo (Blackline 1.3)
★ Numbers & Ten-Frames Bingo cards (Blackline 1.4, run on cardstock, have students cut apart at school and store in an envelope)

Instructions for Numbers & Ten-Frames Bingo
1. Each player needs a Numbers & Ten-Frames Bingo sheet. Have him choose one side of the bingo sheet on which to play. (Explain that the other side is for a family member to use at home.)

2. Hold up a calling card. Ask students: How many dots do you see? Can you find that number on your Bingo card? All players cover the indicated number with a Unifix cube on their playing board.

3. The first player to get three in a row wins the game.
Assessment & Support I (cont.)

When the game goes home, children will teach their family how to play. Feeling empowered to teach others is an important step in learning. Families can use cereal, marshmallows, pennies, or other small items, as game markers.

SUPPORT ACTIVITY 1B

Coin Names & Coin Values Bingo

You’ll need for teaching the game
★ a container of 3 quarters, 4 dimes, 5 nickels, and 4 pennies for each player (In this game, it’s important to have children use real coins as their game markers.)
★ scissors

Each targeted student takes home
★ Coin Names & Coin Values Bingo (Blackline 1.5)
★ Coin Names & Coin Values Bingo cards (Blackline 1.6, run on cardstock, cut apart, and store in an envelope)

The playing instructions for bingo games in this supplement remain constant (i.e., as cards are called, students cover designated items on their boards with markers). In this case, children use real coins to cover their boards and must have four coins in a row to win. Learning about coins happens best when children get to see and touch real coins. Send the game home after the children have played it several times in class. Make sure parents understand the importance of playing with real coins.
Assessment & Support 2

Individual Interview

Overview
Using pairs of ten-frames, each of which adds a second number to 10, you will be gaining insight into the ability of students to recognize 10’s, and to see what strategies they use to add quantities to 10. Another Bingo game is included that will support children in developing this skill.

You’ll need
★ Assessment 2: Individual Interview (Blackline 2.1, run a copy for each student you plan to interview)
★ Assessment 2 Class Checklist (Blackline 2.10, 3 or 4 copies as needed, optional)

Skills & Concepts
★ adding different quantities to 10

Timing
Near the end of September or any time that’s appropriate for you students.

To conduct this interview, point to each pair of ten-frames and ask the child to tell you how many dots they see in all.

Strategies to Watch For
As you conduct this quick interview, be sure to note the strategies children are using. At this point in the year, many students will count the dots one by one. If this is the case, you might stop after the first 3 pairs. If a child is able to count on from 10, you might go through the entire sheet, noting any other counting strategies. Can they see that 10 and 5 make 15 and count on to the
total? Are they able to quickly see the total without counting? You may want to jot a few quick notes on the sheet for future reference. You can also use the class checklist provided to compile the assessment results in order to more easily identify those students for whom you want to provide extra support, either in class or in a pull-out setting.

**Support for Targeted Children**

In the pages that follow, you’ll find a set of 5 activities that deal with adding numbers to 10 (e.g., 10+2, 10+5, and so on). While these may seem somewhat advanced for early first graders, they’re designed to help students increase their skills at counting on from 10, reading numbers between 11 and 20, and reading and writing addition sentences. You may also find that some of your students already know or are ready to learn the “fast 10’s” addition strategy.

**Support Activity 2A**

**Ten & More Bingo**

**You’ll need for teaching the game**

- Unifix cubes for markers
- scissors
- Ten & More Bingo cards (Blackline 2.3, run on cardstock)

**Each targeted student takes home**

- Ten & More Bingo (Blackline 2.2)

Have children cut their cards apart and store them in an envelope. This step seems to help targeted students understand that they’ll get to take the game home and teach it to their families.
Overview
In this activity, children examine 5 or 6 different cards in which bugs have been organized into double ten-frames. As each card is displayed, children determine how many bugs there are and share their counting strategies with classmates. After all the bug cards have been set out in the pocket chart, the teacher shows a number sentence that matches one of the bug cards and challenges children to figure out which one it is. This continues until each bug card has been labeled with a number sentence.

You'll need
★ Ten & More number sentences
   (Blacklines 2.4 and 2.5, Run 1 copy on cardstock, cut apart, and store in an envelope. Select the 5 or 6 cards that match the bug cards you chose.)
★ Ten & More cards (Blacklines 2.6–2.8, Run 1 copy on a second color of cardstock, cut apart, and store in an envelope. Choose 5 or 6 cards for today’s lesson.)
★ pocket chart

Note  If children haven’t worked with ten-frames before, you might display the bottom portion of each card only, and focus on asking children to find ways to determine how many bugs they can see in these single frames.
Display one of the Ten & More cards in a pocket chart.

**Teacher**  Today we’re going to look at some cards that show more than 10 bugs and figure out some quick ways to find out how many bugs are pictured altogether. When I show you the first card, I’d like you to study it quietly and carefully. When everyone has had a chance to figure out how many bugs are pictured, you can share some of your counting strategies.

**Children**  It’s 15.
It’s 10 and 5, that’s easy.

**Teacher**  But how did you know it so fast?

**Sammy**  I just know that 10 + 5 is 15 and it’s easy to see it.

**Savannah**  I can see 5’s so I went 5, 10, 15.

**Leslie**  I saw the 10 and then I said 11, 12, 13, 14, 15.

**Max**  I counted the whole thing ’cause I get too mixed up the other ways.

**Kenny**  I thought it was 30 ’cause I went 10, 20, 30, but then when I heard Sammy, I knew it was just 5’s, so I counted the whole thing like Max.

Share the rest of the cards at the pocket chart, asking children to figure out how many bugs are on each card. Encourage students to share their counting methods in depth the first few times, but move through the remaining cards a little more quickly.

Next, display one of the Number Sentence cards and read it together. Can students find the matching bug card?
Overview
This activity features a game in which the teacher distributes all the bug and number sentence cards to students. At her signal, the children who are holding cards get up and search among their classmates for the card that matches theirs. When all the students have paired up, display their matching cards in the pocket chart.

You’ll need
- Ten & More number sentences (Blackline 2.4 and 2.5, 1 copy run on cardstock, cut apart, and stored in an envelope)
- Ten & More cards (Blacklines 2.6–2.8, 1 copy run on a second color of cardstock, cut apart, and stored in an envelope)
- pocket chart
- sustained auditory signal of some sort (e.g., jingling keys, ringing bell, melody on a piano)

Children  That’s easy.
It’s this one.
It has 10 bugs on the top and 4 on the bottom.
It’s 10 + 4.
The one with 14 bugs.

Continue until all the picture and number sentence cards have been matched.
Begin this activity by displaying one of the bug cards in your pocket chart. How many bugs do the children see? Explore several ways of determining the total but then draw their attention again to the idea of 10 and some more. Show them two of the number sentence cards. Which number sentence matches the bug card?

Children It’s the 10 + 9 card, 10 on the top and 9 on the bottom.

Explain that you're going to pass out all of the bug and number sentence cards. Students will need to keep their cards hidden from one another until they hear you jingle your keys (or give some other signal). When the keys begin to jingle, everyone holding a card will get up and look for his or her partner. You'll be watching carefully and you'll stop jingling the keys as soon as you see that every card has a proper match.

Hand out the cards and then jingle your keys. Guide students’ efforts as needed. (If you have a group that needs lots of direction, you might have to stop the activity once or twice and set your standards for behavior.) Stop jingling your keys as soon as all of the cards are matched.

Ask children to return to the group meeting area and be seated with their partners. Call on children, two at a time, to place their matching cards into the pocket chart. Do all the pairs match?
Writing Numerals & Number Sentences

Overview
This activity focuses on writing number sentences to match the Ten & More cards.

You’ll need
★ Ten & More cards (Blacklines 2.6–2.8, 1 copy run on cardstock, cut apart, and stored in an envelope. Select 4 or 5 cards for this activity.)
★ pocket chart
★ individual chalkboards, chalk, and erasers or whiteboards and pens for each child

Begin the lesson by asking children to practice writing their numerals from 1 to 10. Model the correct way to form each numeral and ask students to practice a few times on their boards.

Explain that the class is going to practice writing number sentences for a few of the bug cards today. Ask children to share some of the ways they’ve counted the bugs on these cards before, and then guide them in writing number sentences. Although the bugs are grouped in 10’s, some of your students will notice the rows of 5, the groups of 2, and other configurations. We encourage you to help them record what they see rather than focusing exclusively on combinations of 10. It’s possible that some of your students will want to write more than one number sentence about a particular card.

![Ten & More Cards](image-url)

10 + 2 = 12
5 + 5 + 2 = 12
2 + 2 + 2 + 2 + 2 = 12
Ten & More How Many Bugs?

Overview
After a bit of whole-group review, children work independently to write number sentences for 6 different bug cards.

You’ll need
- Ten & More cards (Blacklines 2.6–2.8, 1 copy run on cardstock, cut apart, and stored in an envelope)
- pocket chart
- Ten & More: How Many Bugs? (Blackline 2.9, 1 copy for each student)
- pencils

Display a couple of the Ten & More cards at the pocket chart. Ask children to determine how many bugs there are on each card and then ask student volunteers to demonstrate how to write horizontal number sentences for a card or two. Show children the worksheet and challenge them to study each set of bugs to figure out how to write a number sentence that matches the arrangement.
Assessment & Support 3

Interview 1 Addition Interview

Overview
This assessment allows you to look closely at children’s current computational strategies. Do they understand what happens when 0 is added? What about 1? Do they know any of the doubles facts to 10 yet? How do they handle the facts they don’t already know?

Timing
★ Throughout October or anytime of the year appropriate for your students

You’ll need
★ Assessment 3A: Addition Interview (Blackline 3.1, 1 copy for each student you plan to interview run back-to-back with Blackline 3.2)
★ Assessment 3A Class Checklist (Blackline 3.14, 3 or 4 copies as needed, optional)
★ Unifix cubes

Skills & Concepts
★ using such addition strategies as counting all, counting on, using known facts
★ addition combinations to 10

In order to conduct this interview and the subtraction interview on pages 21–23, try to find time in your day when routines are going smoothly and meet with students individually. We keep our clipboard handy with the assessment sheets attached so that when spare moments arise throughout the day, we can interview a student or two. When you’ve finished all the interviews, consider transferring the information from your interview sheets to the class checklists provided for Assessments 3A and 3B. This makes it easier to spot students who may need extra support in understanding the addition and subtraction or developing more effective strategies for solving basic facts.

Each of the addition problems on the first interview sheet is to be presented in random order. Point to various problems on the sheet and read each aloud. How do children solve the problem? Are they able to answer quickly? If so, loop the problem.
The problems my teacher looped were easy for me to solve quickly. Here are some things my teacher noticed:

Amanda is very confident when adding zero. She is quite sure of herself on doubles and adding one. She solves problems she doesn't readily know by counting on her fingers, starting from 1 each time.

If they take some time to figure each one out, how do they go about it? Can they read the problem aloud themselves? You'll want to make some notes at the bottom of the page about how students handle the addition facts they don't already know in the comments section. Here are three types of strategies you're likely to see as children work with these addition combinations:

- **Direct Modeling.** The child will use her fingers or cubes to set out both quantities and then count all of the objects one by one to determine the total. If, after checking a student on ten to twelve of the facts on the sheet, including some that involve adding 0 or 1, it becomes clear that this is her main or only strategy, it's not necessary to go through all the rest of the combinations.

  \[
  5 + 4
  \]

  

  \[
  \begin{array}{cccc}
  1 & 2 & 3 & 4 \\
  \hline
  \hline
  1 & 2 & 3 & 4 & 5 \\
  \hline
  \end{array}
  \]

  

  "1, 2, 3, 4, 5, 6, 7, 8, 9—the answer is 9"

- **Using a Counting Strategy.** The child may use fingers or cubes or work mentally to count on from one number to the other. This is a more abstract method, in that the child can hold one quantity in her head and work from there as opposed to counting out each set and determining the total by counting one at a time from 1.
Using Derived Number Facts. The child will use a number fact that she already knows to solve one that is less familiar. This is the most abstract strategy of the three, and certainly the most efficient. While you’re more likely to see first graders using direct modeling or counting strategies at this point in the year, you may be surprised to discover that a fair number of your students make use of facts they already know to solve some addition combinations.

“I know that 4 + 4 = 8, so 5 + 4 must be 9—it’s just 1 more.”

ASSESSMENT 3B

Interview 2 Subtraction Interview

Overview
The Subtraction Interview also allows you to look closely at children’s current computational strategies. Do they understand what happens when 0 is subtracted? What about 1? Do they know any of the doubles facts to 10 yet? How do they handle subtraction facts they don’t already know?

Timing
★ Throughout October or anytime of the year appropriate for your students

You’ll need
★ Assessment 3B: Subtraction Interview (Blackline 3.2, 1 copy for each student you plan to interview back-to-back with Blackline 3.1)
★ Assessment 3B Class Checklist (Blackline 3.15, 3 or 4 copies as needed, optional)
★ Unifix cubes

Skills & Concepts
★ using such subtraction strategies as counting what’s left after one quantity is removed, counting backwards, using known facts
★ subtraction combinations to 5
Repeat the assessment process with the subtraction sheet. How are students dealing with subtraction? Do they understand subtracting zero? How about subtracting one? Are they able to subtract the doubles (1–1, 2–2, 3–3, etc.)? What strategies do they use? How do they feel about subtraction? Does it help them to think about a hungry shark eating fish or some other scenario? (You may find that children who don’t appear to understand subtraction when they look at it in written form, e.g., 5–4, understand the process itself when you or they tell a story about it.)

Many children may not be able to respond quickly to the examples shown on the sheet, but will have some strategies for solving subtraction problems. Here are the three types of strategies you’re likely to see as children work with these subtraction combinations:

• **Direct Modeling.** The child will use his fingers or cubes to set out the first quantity. Then he’ll remove the quantity being subtracted and count how many are left, working one by one throughout the process. If, after checking a student on ten to twelve of the facts on the sheet, including some that involve subtracting 0 or 1, it becomes clear that this is his main or only strategy, it’s not necessary to go through all the rest of the combinations.
• Using a Counting Strategy. The child may use fingers or cubes or work mentally to count backwards from the initial quantity. This method is quite abstract, in that the child has to make a double count, keeping track of counting backwards while remembering how many times he’s “hopped” back.

• Using Derived Number Facts. The child will use a number fact that he already knows to solve one that is less familiar. This is the most abstract strategy of the three and the most efficient, but the least likely you are to see at this point in the year.

“I know that 4 – 3 is 1, so 5 minus 3 must be 1 more. The answer is 2.”
Seeing Doubles & Neighbors

Overview
In this activity, the teacher introduces a new set of cards in which bugs are organized into ten-frames to illustrate the addition combinations we often call “doubles” (1 + 1, 2 + 2, 3 + 3, and so on), along with a set in which the bugs have been placed to show neighbors, or doubles plus or minus one (2 + 1, 3 + 2, 4 + 3, and so on). Once all the cards have been set out in the pocket chart, children scan them to locate the doubles. After making some observations about these cards, they locate the neighbor for each double. The teacher then guides them in verbalizing and writing a number sentence for each card.

You’ll need
- Doubles & Neighbors cards (Blacklines 3.3–3.7, 1 copy run once on cardstock, cut apart, and stored in an envelope)
- pocket chart
- student chalkboards, chalk, and erasers or whiteboards and pens

Begin the activity by posting all of the doubles and neighbors bug cards in your pocket chart. Ask the children to search out the cards that picture doubles, 1 + 1, 2 + 2, 3 + 3, 4 + 4, and 5 + 5. Arrange these cards in a column and ask children to share observations about each.

**Teacher** What do you notice about the doubles card at the top of the column?

**Children** It’s 5 praying mantises and 5 beetles. It’s 5 + 5. That makes 10.
Once they've examined all the doubles, ask children to find the neighbor card for each one, that is, the card that pictures one less bug. There is no matching neighbor card for $1 + 1$. (We define neighbors as one more or one less than the double.)
Help children generate a number sentence for each of the neighbor cards, working from the top row to the bottom each time, as you point.

Finally, show one bug card at a time and ask children to write a number sentence to match the card on their chalkboards.
SUPPORT ACTIVITY 3B

Doubles & Neighbors A Match Game

Overview
In this lesson, the teacher distributes a collection of number sentences and asks children to find the doubles or neighbors bug card to match each sentence. Children then practice reading and answering each number sentence.

You’ll need
★ Doubles & Neighbors cards (Blacklines 3.3–3.7, 1 copy run on cardstock cut apart, and stored in an envelope)
★ Doubles & Neighbors number sentences (Blacklines 3.8–3.11, 1 copy run on cardstock, cut apart, and stored in an envelope)
★ pocket chart

Hand out the bug cards, one per student, and ask these children to stand in a line facing the class. Then hand out the number sentence cards to some of the children who are still seated. Call on one youngster at a time to find his or her match. Ask the class to help as needed. Display that pair of cards in the pocket chart, and call on another child to find his or her match. Continue until all the cards have been matched and posted.

Finally, take all the number sentence cards out of the pocket chart and show them to the children one by one. Ask everyone to read the number sentences together as you show them. Shuffle these cards and hand them out. Ask students to take turns reading them to the group in question form, that is, “2 plus 3 equals?” Have children respond with the answer and then ask the student reader to turn the card to the group to confirm.
Overview
Students match doubles and neighbors pictures and number sentences and then cut out sets of doubles and neighbors flashcards so they can practice these facts with their classmates.

You’ll need
★ Bugs Doubles & Neighbors Student Worksheet (Blackline 3.12, 1 per student)
★ Bugs Doubles & Neighbors Flashcards (Blackline 3.13, 1 copy per student run on cardstock)
★ scissors and glue
★ envelopes

Hand out the Doubles & Neighbors worksheet first. Explain that they’ll need to cut around the number sentence boxes at the bottom of the sheet and glue them below the appropriate bug cards at the top of the sheet. Remind students to cut all the way around the entire collection of number sentences first and then cut the individual boxes apart.
As children finish the worksheet, have them cut apart the flash cards on their second sheets. They should use these cards to practice the doubles and neighbors facts with someone else who is finished. (You might want to model how to practice number facts with another person if your students haven’t done this sort of thing before.) Send the flash cards home in an envelope, along with the completed worksheets, for children to share with their families.

**SUPPORT ACTIVITY 3D**

**People Problems**

**Overview**

**You’ll need**

- An individual chalkboard or whiteboard for each student
- chalk or marker for each student
- eraser

**Note** Paper and pencil can be used in place of the materials listed if necessary.
Instructions for People Problems
1. Ask a group of 4–5 children to stand in front of the group. Divide them into two smaller groups by some easily seen attribute, such as long sleeves and short sleeves.

2. Engage students in a conversation about the 2 small groups standing in front of them. Use sketches, words, and numbers to record an addition statement about the 2 groups.

   **Teacher** Everyone in this group has tops but some have short sleeves and some have long. Let's count how many have short sleeves.

   **Students** 1, 2, 3.

   **Teacher** And let's count how many have long sleeves.

   **Students** 1, 2.

   **Teacher** How many tops is that in all?

   **Students** It's 3 and 2.

   There are five – 3 with short and 2 with long.

   **Teacher** We can say (points to each group) \(3 + 2 = 5\). I can draw a picture about these children's tops on the board and write words about them too.

   Three kids have short sleeves and two kids have long sleeves. Five kids have tops.

   **Teacher** There is also a short-cut way to tell that story with numbers and symbols instead of words, like this (writes \(3 + 2\) on the board).
Three kids have short sleeves and two kids have long sleeves. Five kids have tops.
\[3 + 2 = 5\]

3. Have the 2 groups join hands so they’re all standing together. Ask students to reconfirm the number standing in line (5). Then ask the students to drop hands and have the group with short sleeves sit down right where they are. Ask students the following:

- How many children just sat down?
- How many are left standing?
- How many children used to be standing?

Then have all 5 students stand again. On another section of your whiteboard, redraw the 5 tops and use sketches, words, and numbers to represent the subtraction process.

**Teacher** I’ll draw another picture about these children on the whiteboard. There were 5 children standing (redraws the 5 tops). The three with short sleeves sat down so I’ll need to cross them out. How many tops are left?

4. Have the group return to their seats. Write a quick story under the shirts as the students tell you the events. Then show them how the story can be recorded with a number sentence as well.
Assessment & Support 3 (cont.)

Five kids have tops. The three with short sleeves sat down. Two were left standing.

5 - 3 = 2

5. Repeat the entire process again, with a different group of 4 or 5 students or a different attribute if you’re doing this activity with a very small group. Work with more input from the students to write short “stories” and number sentences this time.

6. Distribute individual boards and markers (or paper and pencil). Repeat the process once or twice more and ask students to practice writing the number sentences along with you as you go.
Assessment & Support 4

Checkup

Overview

A checkup given to all your students helps assess their facility with the skills listed below. The 3 match games included help students who need to strengthen these skills.

Timing

During the month of October or anytime of year appropriate for your students.

You’ll need

★ Assessment 4 Checkup (Blacklines 4.1 and 4.2, class set)
★ Assessment 4 Class Checklist (Blackline 4.9, 3 or 4 copies as needed, optional)
★ a hard writing surface and a pencil for each child

Skills & Concepts

★ telling time to the hour
★ recognizing groups of 5
★ counting in chunks
★ recognizing and adding doubles and neighbors
★ writing number sentences

A written test may feel threatening to some children, so we explain to our students that we want them to complete this checkup by themselves because this lets us know if they need more help with a particular skill. After explaining the two sheets, spread the children out in the room. Make sure each student has a hard writing surface.
Assessment & Support 4 (cont.)

Strategies to Watch For
If your students worked on time telling in kindergarten, recognizing time to the hour should be comfortable for many of them.

How are they doing with tally groups? Can they see groups of 5? Do they know that two groups of 5 make 10 or are they counting each group one by one? Keep an eye on the students whose skills you question.

How about the doubles and neighbors? Can they see the quantities in each row of the ten-frames? Can they add those quantities? Can they write an accurate number sentence for each of the pictured addition combinations?

You can use the class checklist provided to compile the assessment results to get an overview of your students’ strengths and the areas in which they’ll need more work.

Support for Targeted Children

You’ll find three match games described in the following pages to play at school with children who need more instruction in telling time to the hour, teen number tallying, and matching doubles and neighbors pictures to number sentences. In all of the games, we have our targeted students cut up the playing cards and put them in an envelope. Send the games home once students know how to play the games well enough to teach their families. Once they’ve prepared a set of cards for a needed skill, we work with the children to be certain they understand the game. We often start with the easier version and have children work in pairs or alone matching the cards. That way, they become familiar with the sets of cards before playing the challenging version.

Support Activity 4A

Clocks & Time Cards  A Match Game

You’ll need for teaching the game
★ a set of Clocks Match Game clock cards and time cards borrowed from a student
★ scissors

Each targeted student takes home
★ Clocks Match Game clock cards (Blackline 4.3, run on cardstock and cut apart)
★ Clocks Match Game time cards (Blackline 4.4, run on cardstock, cut apart, and stored in an envelope with Clock cards)
Easier Version
Leave both sets of cards faceup and find the matching pairs.

Challenging Version
Place all of the clock cards facedown. Place all of the time cards facedown beside the clock cards. Players alternate turning a card from each group faceup. When the cards match, keep the pair and take another turn.

Be sure to play the game a few times at school so children know how to play and can teach their families.

SUPPORT ACTIVITY 4B

Tally Match Game

You’ll need for teaching the game
★ a set of Tally Match Game tally cards and number cards borrowed from a student
★ scissors

Each targeted student takes home
★ Tally Match Game tally cards (Blackline 4.5, run on cardstock and cut apart)
★ Tally Match Game number cards (Blackline 4.6, run on cardstock, cut apart, and stored in an envelope with the tally cards)

Easier Version
Leave all of the cards faceup and find each matching pair.

Challenging Version
Turn all the tally cards facedown. Place all the number cards facedown beside the tally cards. Players take turns turning a card from each group faceup. When the
Assessment & Support 4 (cont.)

cards match, keep the pair and take another turn. Be sure to play the game a few times at school so children know how to play and can teach their families. When your students are confident with the game, send it home.

Easier Version
Leave all of the cards faceup and see if you can find each matching pair.

Challenging Version
Place all of the ten-frame cards facedown. Place all of the number sentence cards facedown beside the ten-frame cards. Players alternate turning a card from each group faceup. When the cards match, you get to keep the pair and take another turn. Be sure to play the game a few times at school so children know how to play and can teach their families. When your students are confident with the game, send it home.
Assessment & Support 5

Checkup

Overview
This assessment worksheet is another tool to help you know where you’ll need to provide extra work for some children.

Timing
Near the end of the November or any time of year appropriate for your students.

You’ll Need
★ Assessment 5: Checkup (Blacklines 5.1–5.3, run a class set)
★ Assessment 5 Class Checklist (Blacklines 5.9 and 5.10, 3 or 4 copies as needed, optional)
★ a hard writing surface and a pencil for each student

Skills & Concepts
★ understanding place value
★ writing numerals
★ recognizing number patterns
★ adding coin values

Checkup
You may want to make an overhead transparency of Assessment 5 in order to explain the tasks to your students. Once they understand what to do, space the youngsters out around your classroom and have them begin working. This checkup, completed by each child, helps you determine individual strengths and needs. In a classroom where children are constantly encouraged to help one another, a test may feel quite challenging to some of your students. Assure them that you’re gathering information about what they know and what they need to learn. Encourage them to give it their best effort. Circulate as children are working in case some of them don’t understand the directions.

You can use the class checklist provided to compile the assessment results to get an overview of your students’ strengths and the areas in which they’ll need more work. Once you determine which students need extra work with one of these skills, you can offer games that provide additional instruction and family support.
Assessment & Support 5 (cont.)

How many cubes?

Fill in the missing numbers.

<table>
<thead>
<tr>
<th></th>
<th>4</th>
<th>7</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>15</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>26</td>
<td>29</td>
<td></td>
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<td>31</td>
<td>34</td>
<td>37</td>
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<td>42</td>
<td>45</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>57</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cut around each box and match it to the correct group of coins.

[Diagram of coins]
What Strategies to Look For
Though it will be impossible to watch everyone at once, peek over the shoulders of children about whom you have questions as they work. Are they counting each cube and coloring each square one by one, or are they counting the stacks and single cards by 10's and 1's and coloring quick strips to 10's on the grid? How are they figuring out which numbers are missing on the chart? If you can't make determinations by watching children as they work, but have particular questions about a few, talk with them about their work after everyone has finished and gone on to other tasks.

Support for Targeted Children
Below you’ll find several games which can be used at school or home with students who need help to begin to understand place value counting. The support games can be run on cardstock. Students can easily make spinners with a short length of drinking straw, a brass fastener, and a paperclip.

Putting Paperclip Spinners on Gameboards

Each targeted student will need

- a copy of the gameboard to be used, run on cardstock
- a brass paper fastener (brad)
- a regular-size paperclip
- a ¼” section of drinking straw.
- a sharp pencil

1. Using a very sharp pencil, gently poke a tiny hole through the marked midpoint of each spinner on the gameboard.

2. Poke a brass fastener through a ¼” length of drinking straw and a paperclip. Be sure to insert the brad and straw into the larger end of the paperclip, as shown:

3. Keeping the straw and the paperclip on the brass fastener, insert the fastener into the midpoint hole of the spinner. Once it has been pushed through to the back side, bend each side of the fastener flat against the underside of the gameboard. The section of straw should serve as a spacer so the brad doesn't push the paperclip flat against the gameboard and prevent it from spinning.

4. Give the paperclip a test spin. Once children have been through this procedure once or twice, it will only take them a few minutes to prepare gameboards.
Assessment & Support 5 (cont.)

SUPPORT ACTIVITY 5A

One Turn to Win

You’ll need for teaching the game
★ a One Turn to Win gameboard borrowed from a student
★ paper coins borrowed from a student (see note below)

Each student will need
★ 3 ¼” pieces of small drinking straws
★ 3 brass fasteners and 3 paperclips
★ sharp pencil

Instructions for One Turn to Win
1. You and your partner each take a turn spinning the number and coin spinners. Collect the quantity of coins designated by the number on the spinner. The type of coin is indicated by the coin spinner.

2. Determine the value of the coins each of you won. Compare the two quantities. Establish who has has more and who has less.

3. Spin the more/less spinner to see who won the game.

4. Save the coins for Two Turns to Win.

Each targeted student takes home
★ One Turn to Win gameboard (Black-line 5.4, run on cardstock, attach spinners at school)
★ paper coins (Blackline 5.5, run 1 copy on cardstock, cut, and store in an envelope)

Note: If you don’t plan to send this game home with students, you can also use real or plastic coins.

If you don’t plan to send this game home with students, you can also use real or plastic coins.
Two Turns to Win

Each student will need
★ 3 cut pieces of small drinking straws (about ¼" each)
★ 3 brass fasteners and 3 paperclips
★ sharp pencil

Each targeted student takes home
★ Two Turns to Win gameboard (Blackline 5.6, run on cardstock, attach spinner at school)
★ paper coins (Blackline 5.5, have students use coins they took home to play One Turn to Win)

Instructions for Two Turns to Win
1. Each partner takes a turn spinning the spinners on the left. Collect the number of coins designated by the number spinner. The type of coin is indicated on the coin spinner.
2. Spin the two spinners again and collect the correct amount of money.
3. Count the coins each of you won, compare the two quantities, and determine who has more and who has less.
4. Spin the more/less spinner to see who won the game.
SUPPORT ACTIVITY 5C

Place Value Match Game

Each targeted student will need
★ Place Value Match Game cube cards
   (Blackline 5.7, run on cardstock and cut apart)
★ Place Value Match Game number cards
   (Blackline 5.8, run on cardstock, cut apart, and stored in an envelope with the cube cards)
★ scissors for students to share

This game is designed to give children additional opportunities to count 10's and 1's and match those quantities to the appropriate number cards.

Easier Version
Leave each of the cards faceup and see if you can find all the matching pairs.

Challenging Version
Turn each of the cube cards facedown on one side of your playing area. Turn each of the number cards facedown on the other side. Partners alternate turning up a card from each group to find the matching pairs. Each time a match is found, you get to keep the pair and take another turn.
Assessment & Support 6

Overview
The assessment gives you a chance to check on individual strengths and needs involving the skills listed below.

Timing
Near the end of January or anytime of the year appropriate for your students

You’ll need
★ Assessment 6 Checkup (Blacklines 6.1 and 6.2, class set)
★ Assessment 6 Class Checklist (Blackline 6.5, 3 or 4 copies as needed, optional)
★ a hard writing surface and a pencil for each student

Skills & Concepts
★ counting mixed coins
★ place value

Checkup
To conduct this assessment, make overheads of the Assessment 6 Checkup blacklines and use them to review the tasks with your class. Once they understand what to do, spread the children out around the classroom to complete the sheets. Assure them you’re gathering information to see how they’re doing. If a child hands in work that seems too good to be true, take time to have her explain how she figured out each challenge.

You can use the class checklist provided to compile the assessment results to get an overview of your students’ strengths and the areas in which they’ll need more work.

NAME DATE
Assessment 6 Checkup

Use a different color for each coin and color in its value.

[Diagram showing coins and bars for addition and subtraction problems]
Assessment & Support 6 (cont.)

Strategies to Watch For
Are your students gaining confidence when counting mixed coins? Can they
determine the number of cubes pictured in a particular group? Can they
combine groups?

SUPPORT ACTIVITY 6

Coins on Board

You’ll need for teaching the game
★ Coins on Board coordinate cards
  (Blackline 6.3) borrowed from a stu-
  dent
★ Coins on Board (Blackline 6.4,
  1 copy borrowed from a student)
★ 5 dimes, 5 nickels, and 5 pennies
★ crayons in several colors
★ scissors

Each targeted student takes home
★ Coins on Board coordinate cards
  (Blackline 6.3, run on cardstock, cut
  apart, and stored in an envelope)
★ Coins on Board (Blackline 6.4, 2 or 3
copies)

To Play
1. Place all the coordinate cards face down in a pile.
2. Cover each of the coin pictures on the gameboard with a real coin.
3. Take turns drawing a coordinate card and collecting the designated coin.
4. Using a different color crayon for each coin you collect, record your score
   at the bottom of the gameboard.
5. Take turns drawing cards until there are no more left. Count up the coins
   in your collection. The player with the most money wins the game.

This version of the Coins on Board game, which includes ten-strips, serves as
a helpful tool to students who are developing more skill with counting money.
(If you’ve traveled in a foreign country and had to quickly produce the correct
change at a checkout counter, you’ll have plenty of empathy.) It’s important to
play this game with targeted students before it goes home to be certain they
understand the task. If you want to make sure the games are being played at
home, ask children to bring their finished worksheets back to class.
Coins on Board

A B C D

4
3
2
1

C,2

B,3

Record of Coins Collected   Player A
Record of Coins Collected   Player B

† Denotes coins in board tank.
Assessment & Support 7

Overview
This is a written assessment to help you gauge students’ fluency with adding and subtracting 0’s, 1’s, 2’s, doubles, and neighbors.

Timing
In January or anytime of the year appropriate for your students

Assessment 7 Checkup

You’ll need
★ Assessment 7 Checkup (Blacklines 7.1 and 7.2, run a class set)
★ Assessment 7 Class Checklist (Blackline 7.10, 3 or 4 copies as needed, optional)
★ Unifix cubes or other counters

Skills & Concepts
★ adding and subtracting 0’s, 1’s, and 2’s
★ adding doubles and neighbors to 10
★ subtracting doubles to 10
★ writing number sentences

Checkup
Let students know that you’re going to have them complete 2 worksheets on their own so you can see how they’re doing with addition and subtraction facts. Before you distribute the papers, make a copy of this sketch on the board.

Give students a minute to pair-share any observations they can make about the display. What do they notice? What do they see? Then invite volunteers to share their thinking with the class.

Students There are 6 dots.
There are 4 on top and 2 on the bottom.
I see 4 in a square and then 2 more.
I see 2 up and down, and 2 more up and down, and 2 going sideways.
There are 10 boxes and only 6 of them have dots.

Then work with student input to write some number sentences representing the display.
Assessment & Support 7 (cont.)

After you've recorded a variety of number sentences, explain that they're going to do the same thing on one of their sheets with a slightly different picture. They'll also be doing some adding and subtracting problems. Then spread the students out around the classroom to complete the two sheets. Be sure they have access to Unifix cubes or other counters if they want to use them to help with any of the problems.

Note: You might consider conducting this assessment as an individual interview rather than a written checkup with a few of your students. If you have children who are still struggling to read or write numerals, for instance, you might act as a scribe instead of asking them to complete the sheets independently.

Strategies to Watch For
Circulate around the room to watch as students work. Are there some students who are able to complete all the facts on both sheets quickly and eas-
Assessment & Support 7 (cont.)

ily? Are there students who complete the first 2 or 3 rows easily and then spend more time with the remaining facts? Hopefully, many of your students have gained some fluency with adding and subtracting 0's and 1's, as well as adding and possibly subtracting doubles such as 5 – 5. Some may also be able to use what they know about adding doubles to do the last row of subtraction problems. You might reasonably expect many of your first graders to be counting on to solve the addition facts they don't already know and easily modeling the less familiar subtraction facts with their fingers or the counters.

Watch for students who don’t appear to understand what to do, are writing their answers seemingly at random, or using a direct modeling strategy to solve all of the problems, including the first few rows of addition (e.g., solving 5 + 1 by holding up 5 fingers on one hand, 1 finger on the other, and counting the entire collection starting from 1). Watch also for students who don’t appear to understand the process of subtraction. You’ll almost certainly want to target these students for extra support, although the activities that follow may be appropriate for most or all of your students.

You can use the class checklist provided to compile the assessment results to get an overview of your students' strengths and the areas in which they’ll need more work.

Here are some things to look for when you review students' responses to the last task on the second sheet:

- Can they write complete number sentences, or do they write “fragments” such as 5 + 2?
- Do they use the add, subtract, and equals symbols appropriately, or do they misplace them?
- Do they write counting, adding, and/or subtraction sentences to represent the picture? (You might reasonably expect many to write addition sentences, even if they're just fragments; it's more unusual to see students who write subtraction sentences at this point in the year.)
- How fluent are they? (One or two number sentences are certainly adequate, but you may have students who are able to write more than that.)

Support for Targeted Children

In the pages that follow, you'll find activities to help students gain more proficiency with adding and subtracting doubles, 1's, and 2's.
Seeing Addition & Subtraction with Doubles

Overview
In this activity, children review doubles addition facts and discuss related subtraction facts.

You’ll need
- Doubles cards (Blacklines 7.3–7.5, 1 copy run on cardstock, cut apart, and stored in an envelope)
- Seeing Doubles cards (Blackline 7.6, 1 copy run on cardstock, cut apart and stored in an envelope)

Display the Doubles cards in your pocket chart as you take some time to review adding doubles.

Teacher Here are some of our Doubles cards. Let’s practice these doubles. Ready?

Teacher Now that you’re so good at adding doubles, let’s try some subtraction. If 2 + 2 = 4, then what is 4 – 2? Can you see the answer on this card?

Children It’s 2!
You just have to pretend the top guys fly away.
I just imagined that the bottom guys were gone.
Not me, I just did the opposite.

Teacher What do you mean, you just did the opposite?

Lupe Well if 2 + 2 = 4 and you take out 2, you’re back to 2.
Assessment & Support 7 (cont.)

Show children the Seeing Doubles cards and continue to discuss related addition and subtraction facts.

“If $5 + 5 = 10$ then $10 - 5 = 5$. That’s like when you have 2 nickels and lose one.”

“If $8 + 8$—that’s 16, so 16 cover up 8 is 8. It’s like 10 and 6 too. If you look at the 5’s and 3’s.”

“If $7 + 7$—that’s like 10 and 4—you can see the 5’s and 2’s. If you hide 7, it’s 7 still showing $14 - 7 = 7$.”

While some children won’t begin to understand these inverse relationships, they may be helped along by the visual cues pictured on both the Doubles and the Seeing Doubles cards.
SUPPORT ACTIVITY 7B

Adding & Subtracting Doubles  A Worksheet

Overview
Children each complete a worksheet that has all the doubles addition facts to 20, along with the related subtraction facts. The teacher watches students as they work to find out the kinds of strategies they’re using.

You’ll need
★ Adding Doubles, Subtracting Doubles (Blackline 7.7, class set)
★ pencils
★ Unifix cubes

In this activity children will practice adding and subtracting doubles on their own worksheets. After you’ve explained the task and sent students off to work, be sure to observe and question them about how they’re figuring things out. Have they memorized some or all of the facts? Do they work from facts they know, such as 6 + 6, to help them solve combinations with which they’re not so familiar, like 12 − 6? Do they count on from one number to the next? Do they count the entire sequence by 1’s to find the sum or difference? Do they need to use Unifix cubes?
Assessment & Support 7 (cont.)

SUPPORT ACTIVITY 7C

One More, One Less

Overview
The teacher shows children a set of Unifix stacks arranged in order from 1 to 10 and asks for observations. This conversation leads to a worksheet in which children practice adding 1 to, and subtracting 1 from, a variety of numbers.

You'll need
★ Adding 1’s, Subtracting 1’s (Blackline 7.8)
★ Unifix cubes stacked from 1 to 10 as shown below

We move along with the momentum of our more eager mathematicians throughout the year, trusting that every child can access the challenges at some level. It’s important to slow down once in awhile and give every child a chance to blossom anew. Begin this lesson by showing children the Unifix cube stacks. What do they notice?

Children  They keep getting taller.
It's 1 more each time.
It goes 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

Teacher  So if I held up the 4, which stack would be 1 less?

Children  The 3.
It's shorter.
It's like 4 take away 1.
Assessment & Support 7 (cont.)

Continue for a few minutes exploring one more and one less with the stacks of Unifix cubes. Then distribute a copy of the worksheet to each student. Ask them to be very careful as they figure out the sums and differences.

### Adding 1’s

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### Subtracting 1’s

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### Support Activity 7D

**Two More, Two Less**

**Overview**
The teacher shows children 2 sets of Unifix stacks that grow by 2’s—the odd numbers and the even numbers—and asks children to make observations. This discussion leads to a worksheet in which students practice adding and subtracting 2’s.

**You’ll need**
- Adding 2’s, Subtracting 2’s (Blackline 7.9, class set)
- Unifix stacks that grow by 2’s as shown on the next page

**Skills**
- adding 2 and subtracting 2
Explain to the children that they’re going to do a worksheet on adding and subtracting 2’s today. Use the stacks of Unifix cubes you’ve prepared to engage students in thinking about what happens when you add or subtract 2 to or from a quantity. Start by holding up a stack of 4 and a stack of 6.

**Teacher** You are going to do a worksheet today about adding and subtracting 2’s. Let’s take a look at these cubes. I’ll hold up the first pair. What do you notice?

**Children** 2 + 2 makes 4 and 4 + 2 makes 6.
6 is 2 more than 4.
If you have 6 and you take 2 off, you’ll have 4 left.

**Teacher** You’re seeing a lot of things. Let’s try some more.

Explore several other pairs of Unifix stacks (e.g., 6 and 8, 5 and 7, 8 and 10) with children and then ask questions that help them relate what they know about adding and subtracting 1’s to the challenge of working with 2’s.

**Teacher** Let’s think back to when we last worked with cubes. How much was 7 − 1?

**Children** 6!

**Teacher** If 7 − 1 is 6, then what is 7 − 2?

**Children** 5. You just have to think about taking 1 more off. It’s like hopping backwards 2 times instead of 1.
In whole group lessons, it's easy to feel that nearly everyone is comfortable with the concepts. When children perform individually, it can look very different. Ask children to begin working, and make it a point to nestle in beside students whom you think still find this difficult. Does it help them to think about one more or one less and adjust? Would it help to use Unifix cubes in 2's?

### Adding 2's

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### Subtracting 2's

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Assessment & Support 8

Individual Interview

Overview
This interview gives you another opportunity to see how your students are doing with place value counting, as well as combining quantities over 10. You’ll also be able to get a sense of their current strategies for solving addition and subtraction problems.

Timing
In February or any time of the year appropriate for your students.

You’ll Need
★ Assessment 8: Individual Interview (Blackline 8.1, run 1 copy for each student you plan to interview and write students’ names on the sheets so you can easily see who needs to be interviewed)
★ Assessment 8 Class Checklist (Blacklines 8.8 and 8.9, 3 or 4 copies as needed, optional)
★ crayons in 3 colors

Skills & Concepts
★ counting by 5's
★ adding two 2-digit numbers
★ adding and subtracting doubles and neighbors
★ writing number sentences

Assessment 8
At this point in the school year, you might use this assessment selectively, interviewing only those students who appear to be struggling with place value and/or adding and subtracting. You can either act as scribe when conducting this interview or ask the child to do the writing on the assessment sheet, depending on his or her needs.

Strategies to Watch For
When considering the performance of any student, you might want to think about the following: Does he solve all problems by counting fingers, objects, or pictures one by one? Can he work in 5's and 10's? What does he notice about addition and subtraction with doubles and neighbors? Once he’s determined that 7 + 7 makes 14, can he use that information to add 6 and 7 (e.g., 6 + 7 is 13 because 6 is one less than 7, and 7 + 7 is 14), or does he need to start all over again counting from 6, or counting the cubes one by one? Does he understand the relationship between addition and subtraction well enough to see that 14 – 7 is 7 because 7 + 7 = 14, or do the two problems appear to be unrelated in his mind?
Assessment & Support 8 (cont.)

You can use the class checklist provided to compile the assessment results to get an overview of your students’ strengths and the areas in which they’ll need more work.

Support for Targeted Children

The following activities are for students who need additional work with counting by 5’s, 10’s, and 1’s, and using doubles and neighbors to help them solve addition combinations to 20. All these activities are designed to be conducted at school in small group sessions.

Support Activity 8A

Place Value  Building & Adding 2-Digit Numbers

You’ll need

- Unifix Cube place value cards (Blackline 8.2, 1 copy run on cardstock, cut apart, and stored in an envelope)
- Unifix cubes
Why do you teach these skills to first graders? Math benchmarks have been raised in many states. We’ve searched for ways to help all our students meet our state standards, which include understanding quantities to 100 and adding and subtracting numbers to 20. Strangely enough, the expectations seem to go together: when children can see relationships with doubles and neighbors—1 more, 1 less; 2 more, 2 less; 5 more, 5 less; and 10 more, 10 less—it enhances their number sense in many ways. For many children, the more pieces they explore, the better chance they have of putting the puzzle together. At the minimum, each student will gain comfort in dealing with 10’s and 1’s from these support activities. Try to help children develop their own strategies rather than telling them our methods.

Building 10’s and 1’s with Unifix Cubes

In preparation for this activity, ask each child to build 5 stacks of 10 cubes and collect 10 individual cubes as well (be sure to model what you mean). Then, show the children one Unifix Cube place value card at a time. How many cubes do they see? Ask them to build that amount with their own Unifix cubes and confirm their earlier ideas.

“I know. It’s 5, 10, 15, 20, 25, 30, 35!”

“No, it can’t be. Look! 10 and 10 make 20 and then it’s 3 more. It’s 23.”

“1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23!”

Adding Two Cards

If they’re comfortable with the activity above, set out two cards and ask students to build each of the quantities and see if they can figure out how much it will be altogether. Can they count by 10’s and 1’s or do they count all of the cubes by 1’s? Can they look at your collection of cards and tell how many cubes are pictured on one card? Two cards together?
Adding & Subtracting Doubles & Neighbors

You’ll need

★ Unifix Cube doubles & neighbors mats
  (Blackline 8.3, 1 copy run on cardstock
  or paper for each targeted student)

★ See the Facts cards (Blacklines 8.4–8.7,
  1 copy run on cardstock, cut apart, and
  stored in an envelope)

★ Unifix cubes

Give each child in your group a doubles & neighbors mat and 20–25 Unifix cubes. Show them one of your fact cards (5 + 6, for instance) and have them build the combination on their mats, as shown. Ask them to determine the total and share their strategies. If they don’t come up with anything but counting by 1’s, invite another student or two to join the group to share strategies.
“That’s easy. We know that 5 + 5 is 10 so this is 11.”
“And if you take off 5, you have 6 left.”
“If you take the 11 and cover up the 6, you see 5 left.”

After you’ve discussed the addition fact (5 + 6 is this case), show children the related subtraction fact cards (11 – 5 and 11 – 6). Ask children to determine the answers and share their thinking. Then have them clear their boards and work on another set of related facts (e.g., 4 + 5, 9 – 4, 9 – 5). Point out the relationships if students don’t begin to notice them, for example, “you discovered that 4 + 5 makes 9 and that 9 – 4 left 5. What if we put the 5 back? How many would we have? What if we took off 4? How many would be left?”

Ten-minute sessions (or less) seem to work best for small group and individual support.
Assessment & Support 9

Overview
This is a written assessment to help you gauge students' fluency with adding and subtracting doubles, neighbors, and facts for 10. Students are also asked to use numbers, words, and/or pictures to solve 15 - 7, providing you with windows into their current subtraction and problem-solving strategies.

Timing
In March or any other time of the year that's appropriate for your students.

You'll Need
- Assessment 9: Checkup (Blacklines 9.1 and 9.2, 1 copy for each student)
- Assessment 9 Class Checklist (Blackline 9.9, 3 or 4 copies as needed, optional)
- Unifix cubes or other counters

Skills & Concepts
- adding and subtracting doubles
- adding neighbors
- solving 10's facts (addition & subtraction)
- solving problems

Assessment 9
Let students know that you're going to have them complete 2 worksheets on their own so you can see how they're doing with addition and subtraction. Before you distribute the papers, read the story problem on the second sheet aloud. Caution students to keep the answer “under their hat” if they already know it, and let them know that what you're really curious to know is how they solve they problem. Note with them that they can use numbers, words, and/or pictures to solve the problem. (If you don't insist that they draw pictures, you may discover that a few students have strategies other than drawing 15 cupcakes and crossing 7 out to solve the problem. On the other hand, you'll want to encourage students to show as much of their thinking as they can—the answer alone won't give you any information about how they solved the problem.)

Sam made 15 cupcakes. His dog ate 7 of them. How many did he have left? Use numbers, words, and/or pictures to solve this problem. Show all your work.
Assessment & Support 9 (cont.)

Once they understand what to do, spread the students out around the classroom to complete the two sheets. Be sure they have access to Unifix cubes or other counters if they want to use them to help with any of the problems.

**Note**: You might consider conducting this assessment as an individual interview rather than a written checkup with a few of your students. If you have students who are still struggling to read or write numerals, for instance, you might act as a scribe instead of asking them to complete the sheets independently.

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### Assessment 9 Checkup

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5 + 5 =
9 + 1 =
6 + 7 =

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10 - 6 =
10 - 3 =
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**Strategies to Watch For**

Circulate around the room to watch as students work. Are there students who are able to solve all the problems on the sheet quickly and easily? Are there students who appear to know their addition doubles and be able to use what they know about the doubles to solve the neighbors facts? Are most students using a counting on strategy to solve the addition facts that are less familiar to them? Do some students still need to solve most or even all of the addition problems by setting out both quantities (e.g., 4 and 5 to solve 4 + 5) and then re-counting the total starting from 1?

Are there some students who appear to be able to use what they know about adding doubles or combinations that add to 10 to solve the subtraction dou-
bles and 10’s facts on the lower part of the first sheet? Are most students able to model the less familiar facts fairly easily with their fingers or counters? If you notice that some students are struggling with the subtraction facts, you might want to encourage them to move on to the second sheet and interview them individually later to get a better sense of their difficulties.

In looking at students’ responses to the problem on the second sheet, you’ll find that many, if not most, of your students have drawn 15 cupcakes and crossed out 7 of them to find that 8 remain. Some will go on to represent their work with a number sentence, writing $15 - 7 = 8$ or perhaps $7 + 8 = 15$. You might take note of students who are able to use numbers or words to show a strategy other than direct modeling. You may have a few who write something like, “$14 - 7 = 7$, so $15 - 7 = 8$,” or “$7 + 7 = 14$ so $15 - 7 = 8$.”

You can use the class checklist provided to compile the assessment results to get an overview of your students’ strengths and the areas in which they’ll need more work.

Support for Targeted Children
In the pages that follow, you’ll find activities to help students gain more proficiency with the 10’s facts. Like doubles, facts involving 10 can be very useful in solving other basic-fact problems.

SUPPORT ACTIVITY 9A

Two to Make Ten

Overview
In this lesson, children use a set of pocket chart cards to find pairs of numbers that add to 10.

You’ll need
★ Make Ten cards (Blacklines 9.3–9.5, all cards numbered 1–9, run on cardstock cut apart, and stored in an envelope)
★ Two to Make Ten label (Blackline 9.7, 1 copy)
★ pocket chart
★ your key ring

Begin the lesson by displaying one set of Make Ten cards (1–9) on your pocket chart along with the Two to Make Ten label. Ask children what they notice about the cards. Then ask them to find pairs of cards that add to 10 (e.g., the 8 card and the 2 card, or the 4 card and the 6 card).
**Assessment & Support 9 (cont.)**

Children  I see all the numbers to 9.
There is 1 more gray square each time.
There are 5 cards on top and 4 on the bottom.

Teacher  Good observations. Can you find 2 cards that make 10 if you add them together?

Children  You can do 9 and 1.
Put 8 and 2 together.
You can put 4 and 6 together. I can just tell because I look at the gray squares and the white squares and then I know.
You need another 5. We could do 5 and 5 if you had another card.

Move the cards to display the combinations as the children suggest them. Continue until every match is made.

Pull out a second “5” card so they can make the last match (5 + 5). Read through the combinations together. Hand out all three sets of cards numbered 1 to 9. (It will take a bit of quick thinking to be sure you're distributing cards that will each have a match. You may need to participate in the game if you have an odd number of children in class.)
Assessment & Support 9 (cont.)

Ask children to stand up. Jingle your keys while everyone finds a partner who is holding a card that will combine with theirs to make 10. Once all the pairs have located one another, have them remain side by side and make a circle. Go around the circle looking at the cards a pair at a time. Does each pair add to 10?

Put the cards away where they can be accessed easily for Support Activity 9B.

SUPPORT ACTIVITY 9B

Subtract from Ten

Overview
In Activity 9A, children worked to find all the 2-addend combinations for 10 (e.g., 4 + 6, 3 + 7, and so on). In this activity, they generate the related subtraction facts.

You’ll need
- Subtract from Ten label (Blackline 9.7, 1 copy)
- Make Ten cards (Blacklines 9.3–5, 3 copies run on cardstock, cut apart, and stored in an envelope; 1 each of cards 1–9 and 5 of the 10 cards)
- Make Ten operation cards (Blackline 9.6, 3 copies. You’ll need 5 each subtraction signs and 5 equals signs)
- pocket chart
- pointer or yardstick

Begin the lesson by putting the Subtract from Ten label in your pocket chart and displaying all the cards (see the next page). Explain that you want the children to form subtraction number sentences beginning with ten. Can they use all the cards?
Teacher: I'd like you to use 3 of these number cards, along with a subtraction sign and an equals sign, to make a true subtraction sentence starting with 10. Does anyone have an idea?

Jose: You could do 10 take away 5 makes 5.

Teacher: Sure. What cards would you use to make that sentence here on the pocket chart?

Rachel: First a 10 and then a take away sign—one of those little lines. Then a 5, and then an equals and another 5.

Teacher: What do you think? Do you agree with Jose and Rachel? Let's read it together. Who has another idea?

Continue in this manner until all the cards have been used.
Ask one of the children to point to each number sentence as the rest of the class reads it aloud. It’s possible that one of your students will notice that the subtrahend and the difference can be switched in each sentence. If not, you may want to point it out or guide children to make this discovery.

**Tommy**  Hey! You could do it backwards too. It works for every one of them. Look! You can just change places with the 5’s. Then you change places for the 4 and the 6. You do that for all of them and it still works.

**Children**  It does work. It’s like a pattern!

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### Support Activity 9c

**Add & Subtract with Ten**

**Overview**  Children do a worksheet that reviews all the addition and subtraction combinations for 10.

**You’ll need**  
- Add with Ten, Subtract with Ten  
  (Blackline 9.8, class set)

Show children the worksheet and ask them to complete each problem. Model the first few at the pocket chart, using the Make Ten cards, so students understand they are looking for the number that when combined with 8, or 5, or 9, makes 10; they aren’t to add the two numbers shown in each problem. Circulate to guide and help as needed.
Add with Ten

8   5   9   3   4   2
+   +   +   +   +   +
10  10  10  10  10  10

6   0   7   1
+   +   +   +
10  10  10  10

Subtract with Ten

10   10   10   10   10   10
-   -   -   -   -   -
2    9    7    5    3    1

10   10   10   10
-   -   -   -
8    6    0    4
Assessment & Support 10

Checkup

Overview
This checkup assesses how well students can count and add coins of mixed values, and how easily they can count by 2’s. Take home and in-class support activities are included.

Timing
In April or any other time of year appropriate for your students

You’ll Need
★ Assessment 10: Checkup (Blacklines 10.1 and 10.2, class set)
★ Assessment 10 Class Checklist (Blackline 10.7, 3 or 4 copies as needed, optional)
★ a hard writing surface, a pencil, and 3 colors of crayons for each student

Skills & Concepts
★ counting and adding mixed coins
★ counting by 2’s

Checkup
Have your children take a pencil and three crayons (different colors) and find a place in the room where they can work alone on these assessment sheets.


Color the ten-strips to show the total. Use a different color for each type of coin.

Counting by 2’s: How many are in each group?
Assessment & Support 10 (cont.)

Strategies to Watch For
How are your students doing with relating coins to 1’s and 10’s? Do they appear to be counting the stacks of cubes by 2’s, or do they touch each cube one by one? You may want to talk with some of your students about their strategies after everyone has finished these sheets.

You can use the class checklist provided to compile the assessment results to get an overview of your students’ strengths and the areas in which they’ll need more work.

Support for Targeted Children
The support activities that accompany this assessment include a game, a worksheet, and a small group lesson to help youngsters who are having difficulty counting coins or counting by 2’s.

SUPPORT ACTIVITY 10A

Counting Mixed Coins 50¢ or Bust!

You’ll need for teaching the game
- brown crayons for coloring the pennies
- 50¢ or Bust! (Blackline 10.3, 2 copies)
- 50¢ or Bust! coin cards (use 1 of the take-home sets)
- scissors

Each targeted student takes home
- 50¢ or Bust! (Blackline 10.3, 3 copies)
- 50¢ or Bust! coin cards (Blackline 10.4, run on cardstock, cut apart, and stored in an envelope)

50¢ or Bust! is a partner game in which players take turns drawing a coin card and marking off the number of pennies the card is worth. The player who gets to 50¢ first wins the game. If a player draws a card that is more than she needs as she is reaching the end of the game, she loses that turn. The coin cards are recycled into the pile after each turn.
Assessment & Support 10 (cont.)

After the students have played the game a time or two with your guidance, send it home to play with their families. Include three record sheets so the family can play more than one time.

**SUPPORT ACTIVITY 10B**

**Counting by 2's  A Worksheet**

**You'll need for each targeted student**

- Counting by 2's worksheet (Blackline 10.5, 1 for each student)
- a crayon
- a pencil

Searching for 2's on a hundreds grid can be helpful to some children who aren't yet hearing and seeing this counting pattern. Help them count the rabbit ears and then color in the numbers on the hundreds grid to match.

**Strategies to Watch For**

Do your students notice that there are 2 more ears in each row? Can they color those numbers on the hundreds grid? What would come next? Encourage them to color all the 2's on their sheet. Once they've finished coloring, guide them to the strip on the right of the paper. Can they figure out the pattern? What would come next? Have them fill in the missing numbers. What do they notice about the 1's side of the strip? The 10's side?
Unifix Cube 2’s

You’ll need
★ Unifix cubes in 2 colors
★ Unifix Cube 2’s number cards (Black-line 10.6, run 1 copy on cardstock, cut apart, and store in an envelope)

Have students help you snap Unifix cubes together to make the display shown below.
Then ask students to work together to set out the Counting by 2's number cards beneath the appropriate stacks.

**Strategies to Watch For**
Checkup

Overview
This assessment offers a final opportunity to examine children’s counting skills.

Timing
In May or any other time of year appropriate to your students

Skills & Concepts
★ counting and adding mixed coins
★ identifying 10’s and 1’s
★ counting by 2’s and 5’s

These two checkup sheets provide another opportunity to look at children’s ability to read, write, and understand numbers to 100. We think you’ll find these sheets very helpful in year-end assessments.

You’ll Need
★ Assessment II: Checkup (Blacklines II.1 and II.2, 1 copy for each student, plus 1 copy on transparencies)
★ Assessment II Class Checklist (Blackline II.X, 3 or 4 copies as needed, optional)
★ a hard writing surface and a pencil for each student
★ crayons in 3 different colors
Assessment & Support II (cont.)

To conduct this assessment, show children copies of both sheets at the overhead. Explain each task carefully and then send the children out to work on their own. Circulate to provide help as needed.

Strategies to Watch For

Here are some questions to consider as you look over these check-ups from each student. Can you see growth in students' computation skills? How about their place value skills? Do they take mathematical risks? Are they noticing patterns and relationships? Can they count mixed coins? Is their number sense growing?

Support for Targeted Children

The following games and worksheets include work with counting mixed coins, looking at 10's and 1's, and counting by 5's and 2's. Each game is intended to be played in a small instructional group and also at home. The worksheets are also designed for use with small support groups.

SUPPORT ACTIVITY IIA

Counting Mixed Coins Bingo

You'll need for teaching the game

★ Unifix cubes

★ Counting Mixed Coins Bingo cards (borrow a student set)

★ Counting Mixed Coins Bingo for each targeted student—use copies of the take-home sheet

★ scissors

Each targeted student takes home

★ Counting Mixed Coins Bingo cards (Blackline II.3, run 1 copy for each student on cardstock, cut apart, and stored in an envelope)

★ Counting Mixed Coins Bingo (Blackline II.4, 1 copy for each student)

If you’ve been using other support games, most children should be confident with bingo. Our students like to play “three in a row” several times and then finish with “blackout,” in which they play until the whole boards are covered. It doesn’t seem to matter to them that no one wins in “blackout,” and we always point out that they’re playing to improve their skills rather than to win. When students are confident with the game, send it home.
Place Value Puzzles

You'll need for teaching the game
★ Place Value Puzzles (borrow a student set)
★ scissors

Each targeted student takes home
★ Place Value Puzzles (Blacklines II.5 and II.6, run 1 copy for each student on cardstock)
★ envelope for storing cards

Start this activity by distributing copies of the two sheets. Have the children cut the cards apart and then cut along the dotted lines to form a set of two-part puzzles. Encourage students who finish quickly to help their neighbors. When everyone has finished and the pieces safely stored away in envelopes, borrow one set from the children. Place the puzzle pieces are faceup on the table, and ask students to help you find the puzzle pairs that match and put the pieces together. After they’ve put a few of your puzzles together, send them out with their own sets and have them match the pieces.

As they complete the matches, ask them to count the 10's and 1's for you. Can they read the numbers? When students are confident with the task, send the pieces home in an envelope.
**SUPPORT ACTIVITY IIC**

**Ten-Frames  Counting by 5’s**

**You’ll need**

- Ten-Frames: counting by 5’s (Black-line II.7, run a copy for yourself and one for each targeted student)
- 20 single-color groups of 5 Unifix cubes for modeling

Begin the lesson by setting out various single color groups of 5 cubes. How many cubes do the children see? Can they count them by 5’s? What if you add another 5? What if you take away a 5? two 5’s?

Show children the Ten-Frames: counting by 5’s worksheet. What do they notice about the dots? How many dots are in the first row? When the second row of five dots is added in, how many altogether? Continue in this manner counting and recording as you model the activity. Then, hand out the worksheets and ask targeted children to help one another complete the task.
Penguin Pairs  Counting by 2’s

You’ll need
★ Penguin Pairs: counting by 2’s (Blackline II.8, run 1 copy for yourself and for each targeted student)

Show children the Penguin Pairs: counting by 2’s worksheet. What do they notice? How many penguins are in the first row? the second? Continue in this manner counting and recording as you model the activity. Take a look at the missing numbers grid. What do children notice? Can they see any patterns? Hand out the worksheets and help as needed.
Assessment & Support 12

Individual Interview

Overview
This is an individual interview designed to provide you with windows into students’ current strategies for adding and subtracting 0’s, 1’s, 2’s, doubles, neighbors, and “fast 10’s.”

Timing
In May or at any other time of the year that’s appropriate for your students.

Skills & Concepts
★ adding and subtracting 0’s, 1’s, and 2’s
★ adding and subtracting doubles and neighbors
★ adding and subtracting facts that involve 10’s (i.e., 10 + 4, 13 – 3, 15 – 10, etc.)

Assessment 12
To conduct this assessment, you’ll need to sit with each student individually and point to the problems on the sheet one by one.

You’ll Need
★ Assessment 12: Individual Interview (Blackline 12.1, 1 copy for each student you plan to interview with students’ names written on the sheet.)
★ Unifix cubes or other counters
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 few seconds 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. Be sure to make counters available for those students who want to use them to solve any of the problems.

If some of your students are still using direct modeling strategies for most or all of the addition facts (i.e., setting out a pile of 2 counters and another pile of 6 counters for 2 + 6 and then counting all 8 of them one by one, starting with 1), there's no need ask them to do all 10 combinations. You might skip around a bit to find out if they have alternative strategies for adding 0's, 1's, or doubles.

Likewise, there's no need to have students labor through all 10 subtraction combinations if it's clear after the first few that their only strategy is to set out the requisite number of counters, take some away, and count the ones that remain.

**Strategies to Watch For**

The primary purpose of this assessment is to see how your students are solving addition and subtraction problems at this point in the year. Chances are most will be using a combination of direct modeling, counting on, and/or working from facts they already know to get the answers (e.g., “I know that 6 + 5 is 11 because 5 + 5 is 10, and 1 more is 11,” or “I know that 10 – 6 is 4 because 10 – 5 is 5, and you're taking away 1 more.”) A few may simply know some or all of the combinations “by heart.”

**Support for Targeted Children**

In the pages that follow, you'll find activities to help students gain more proficiency at adding and subtracting doubles and neighbors. There are also 2 activities in which students deal with addition facts like 10 + 3 and 10 + 6, and subtraction facts such as 16 – 10 and 16 – 6.
Practice the Facts  Adding Doubles & Neighbors

Overview
This activity focuses on adding doubles and neighbors and the related subtraction facts with ten-frames and ten-strips. After a quick examination of these cards, children match pictures and number sentences.

You’ll need
- pocket chart
- your key ring
- Doubles & Neighbors cards (Blacklines 12.2–12.6, 1 copy run on cardstock, cut apart, and stored in an envelope)
- Seeing Doubles & Neighbors sentences (Blacklines 12.7–12.10, 1 copy run on cardstock, cut apart, and stored in an envelope)
- Seeing Doubles & Neighbors cards (Blacklines 12.11 and 12.12, 1 copy run on cardstock, cut apart, and stored in an envelope)
- Seeing Doubles & Neighbors addition sentences (Blacklines 12.13 and 12.14, 1 copy run on cardstock, cut apart, and stored in an envelope)

Display all the Doubles & Neighbors cards in the pocket chart. Hold up the Doubles & Neighbors number sentences one at a time, and ask children to find the matching picture card.

5 + 5 = 10  4 + 5 = 9

After all the cards have been matched on the pocket chart, distribute them to students and play the match game. Jingle your keys until all the children have found a partner. Then, have everyone sit down. Ask each pair to place their cards in the pocket chart so everyone can see whether they’ve found the correct match.
Assessment & Support 12 (cont.)

Repeat this sequence with the Seeing Doubles & Neighbors cards and addition sentences.

SUPPORT ACTIVITY 12B

Doubles & Neighbors  A Match Game of Facts to 20

Overview
Today’s lesson features a match game with all the bug and ten-strip doubles and neighbors cards, and their corresponding number sentence cards.

You’ll need
★ pocket chart
★ your key ring
★ Doubles & Neighbors cards (Blacklines 12.2–12.6, 1 copy run on cardstock, cut apart, and stored in an envelope)
★ Seeing Doubles & Neighbors sentences (Blacklines 12.7–12.10, 1 copy run on cardstock, cut apart, and stored in an envelope)
★ Seeing Doubles & Neighbors cards (Blacklines 12.11 and 12.12, 1 copy run on cardstock, cut apart, and stored in an envelope)
★ Seeing Doubles & Neighbors addition sentences (Blacklines 12.13 and 12.14, 1 copy run on cardstock, cut apart, and stored in an envelope)

Explain that you’re going to play a match game with lots of cards today. Show children the sets you’re using—the Doubles & Neighbors cards and number sentences along with the Seeing Doubles & Neighbors cards and addition sentences—some students may even get two cards today! Once you’ve handed out all the cards, challenge children to find their matches while you jingle your keys. After everyone has found his or her partner, have children place their cards in the pocket chart a pair at a time. Take time as the pairs of cards are being posted, or once they’re all up on display, to have children read them together.
Practice the Facts Adding Doubles & Neighbors

Overview
Children practice doubles and neighbors addition facts on a worksheet.

You’ll need
★ Practicing the Facts: adding doubles & neighbors (Blackline 12.15, 1 copy for each student)
★ Unifix cubes

Tell the children they’re going to do a worksheet that will help them practice doubles and neighbors facts, all the way through 9 + 9. Hand out the worksheets and ask children to figure out the answer to each combination. Make Unifix cubes available to those students who need them. Circulate to help as needed.


### Subtracting Doubles & Neighbors

#### Overview

The teacher displays several doubles and neighbors cards and guides children in thinking about the related subtraction facts.

#### You’ll need

- Doubles & Neighbors cards (Blacklines 12.2–12.6, 1 copy run on cardstock and cut apart, and stored in an envelope)
- Seeing Doubles & Neighbors cards (Blacklines 12.11 and 12.12, 1 copy run on cardstock, cut apart, and stored in an envelope)
- A 3” × 5” file card folded in half lengthwise

This lesson helps children continue to see and understand the relationship between addition and subtraction. Show one of the Doubles & Neighbors cards and ask children to tell you what the addition number sentence is for that card. Next, cover up half of the card with a folded file card. How many squares or bugs are hiding? How many are left? What subtraction number sentence could be used to describe what the children see?

"That’s 6 + 7. It’s like 6 + 6 and 1 more. It’s 13! When you hide 7, then there are 6 left. 13 − 7 = 6."

Repeat this activity with several different cards.
Ten & More with Unifix Cubes

Overview

You’ll need
★ A stack of 10 Unifix cubes (all one color) for each student
★ 10 single Unifix cubes for each student
★ A work mat (9” x 12” piece of construction paper) for each student

Instructions for Ten & More with Unifix Cubes

1. Begin by asking students to show you $10 + 4$ on their work mats.

2. Ask them to take away 10. How much is left? Ask them to return the 10 and then take away 4. How much is left?
3. Repeat Steps 1 and 2 with other combinations such as 10 + 3, 10 + 5, 10 + 7, and so on. As you work, ask students what they notice each time they build the addition fact and then use their cubes to perform the related subtraction facts. We hope they’ll note that they are composing and decomposing these numbers (i.e., putting some in and taking some out) and that subtraction is just the opposite of the addition operation. The goal is to help students “think addition” in order to subtract and to recognize these relationships.

4. You may want to write the problems on a whiteboard as you work so that they see this represented symbolically as well as hearing it.

### Support Activity 12F

**Ten & More Addition & Subtraction Double Bingo**

**Overview**

**You’ll need**

- Ten & More Unifix Bingo game board  
  (Blackline 12.16, half-class set cut in half)
- 20 game markers for each student  
  (Unifix cubes, counting chips, beans, or the like)
- Ten & More Unifix bingo cards  
  (Blacklines 12.17–12.19, 1 copy run on cardstock, cut apart, and stored in an envelope)
- Ten & More Problems bingo cards  
  (Blacklines 12.20–12.22, 1 copy run on cardstock, cut apart, and stored in an envelope)
Instructions for Ten & More Addition & Subtraction Double Bingo
1. Mix the cards thoroughly. (The game can be played with the Ten & More Unifix Bingo cards, the Ten & More Problems bingo cards, or a combination of the two sets.) Give each student a bingo board.

2. Hold up a card and ask players to determine the sum or the difference.

3. Each player should cover the appropriate number on his or her board.

4. Continue playing in this manner until a player fills 2 horizontal, vertical, or diagonal rows.

4. After playing a few times, show students the Ten & More Problem bingo cards in random order and ask them to report the difference or sum. This will help you see if they're beginning to understand these relationships and gain fluency with these fact families.
blackline masters
Assessment 1 Individual Interview

How many dots are in each ten-frame?

How did you know?
What are the coin names?

How much is each kind worth?

Name the numerals.
### Numbers & Ten-Frames Bingo

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Run 1 copy for each student.
# Numbers & Ten-Frames Bingo cards

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Run 1 copy on cardstock for each student.
Coin Names & Coin Values Bingo

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<tr>
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<tr>
<td>Quarter</td>
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<tr>
<td>Dime</td>
<td>10 cents</td>
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<tr>
<td>Nickel</td>
<td>5 cents</td>
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<tr>
<td>Penny</td>
<td>1 cent</td>
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Run 1 copy for each student.
Coin Names & Coin Values Bingo cards

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### Assessment 1 Class Checklist

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Counts sets to 10. (___ out of 9 counted accurately.)

Describe counting strategies used. Examples:
- counts dots 1-by-1
- instant recognition of sets up to 5
- counts on (e.g., 5, 6, 7, 8)
- counts backwards from 10
- adds groups (e.g., 5 + 2 = 7)
- subtracts groups (e.g., 10 − 1 = 9)

Names nickel correctly

Names dime correctly.

Names quarter correctly.

Identifies coin worth for a penny correctly

Identifies coin worth for a nickel correctly.

Identifies coin worth for a dime correctly.

Identifies coin worth for a quarter correctly.

Names numerals to 10 (___ out of 10 named correctly.)
Run 1 copy for each student you plan to interview.
Ten & More Bingo

19
11
16
12
13
18
14
17
15

11
18
12
19
13
15
16
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11
17

15
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Ten & More Bingo cards
Ten & More Number Sentences cards

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Ten & More Number Sentences cards

10 + 7 = 17
10 + 8 = 18
10 + 9 = 19
10 + 10 = 20
Run 1 copy on a second color of cardstock, cut apart, and store in an envelope.
Building Computational Fluency Blackline 2.7 Run 1 copy on a second color of cardstock, cut apart, and store in an envelope.
Run 1 copy on a second color of cardstock, cut apart, and store in an envelope.
Ten & More  How Many Bugs?

Write a number sentence for each bug card.
### Assessment 2 Class Checklist

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<td>Counts a set of 11 accurately.</td>
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<td>Counts a set of 16 accurately.</td>
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<tr>
<td></td>
<td>Counts a set of 18 accurately.</td>
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<tr>
<td></td>
<td>Counts a set of 19 accurately.</td>
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</tbody>
</table>

**What kinds of counting strategy does the student use?**

Examples:
- counts dots 1-by-1
- counts on from 10
- counts backwards from 20
- adds groups (e.g., 10 + 4 = 14)
- subtracts groups (e.g., 20 – 2 = 18)
### Assessment 3A Addition Interview

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<td>+0</td>
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<td>+3</td>
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<td>+1</td>
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<td>+3</td>
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<tr>
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<td>+5</td>
<td>+5</td>
<td>+5</td>
<td>+5</td>
</tr>
</tbody>
</table>

The problems my teacher looped were easy for me to solve quickly. Here are some things my teacher noticed:
The problems my teacher looped were easy for me to solve quickly. Here are some things my teacher noticed:
Doubles & Neighbors cards

[Diagram of beetle cards]

- BCF Doubles & Neighbors Cards
Doubles & Neighbors cards

[Grid of images of bugs]

BCF Doubles & Neighbors Cards

BCF Doubles & Neighbors Cards
Doubles & Neighbors cards

Run 1 copy on cardstock, cut apart, and store in an envelope.
Building Computational Fluency Blackline 3.6 Run 1 copy on cardstock, cut apart, and store in an envelope.

Doubles & Neighbors cards

[Diagram of six beetle cards arranged in a grid]
Doubles & Neighbors cards and number sentences

$5 + 5 = 10$
Doubles & Neighbors number sentences

1 + 1 = 2

1 + 2 = 3

BCF Doubles & Neighbors Number Sentences
Doubles & Neighbors number sentences

\[ 2 + 2 = 4 \]

\[ 2 + 3 = 5 \]
Doubles & Neighbors number sentences

\[ 3 + 3 = 6 \]

\[ 3 + 4 = 7 \]
Doubles & Neighbors number sentences

\[ 4 + 4 = 8 \]

\[ 4 + 5 = 9 \]
Bugs Doubles & Neighbors Student Worksheet

Cut around the number sentence boxes at the bottom of the page. Put each number sentence under the right bug card. Then glue them down.

1 + 1 = 2
4 + 5 = 9
5 + 5 = 10
1 + 1 = 2
4 + 4 = 8
3 + 4 = 7
2 + 2 = 4
2 + 3 = 5
1 + 2 = 3
Bugs Doubles & Neighbors Flashcards

Cut around the flashcard boxes. Practice with a friend.

1 + 1 = ?
1 + 2 = ?
2 + 2 = ?
2 + 3 = ?
3 + 3 = ?
3 + 4 = ?
4 + 4 = ?
4 + 5 = ?
5 + 5 = ?
## Assessment 3A Class Checklist

<table>
<thead>
<tr>
<th>Student Names</th>
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</thead>
<tbody>
<tr>
<td><strong>Understands the process of addition.</strong></td>
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<tr>
<td><strong>Uses direct modeling to find answers. (Sets out both quantities with objects or fingers, and counts by 1's to find the total, starting from 1.)</strong></td>
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<tr>
<td><strong>Counts on to find answers.</strong></td>
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<tr>
<td><strong>Uses derived facts to find answers (Example: (3 + 2 = 5) because (2 + 2 = 4), and it's just 1 more.).</strong></td>
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<tr>
<td><strong>If given a little time is able to figure out the correct answer to (a few, some, most, or all) addition facts to 10.</strong></td>
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<tr>
<td><strong>Solves (a few, some, most, or all) addition facts to 10 almost instantly.</strong></td>
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<td><strong>Comments</strong></td>
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</tbody>
</table>
## Assessment 3B Class Checklist

<table>
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<th>Student Names</th>
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</thead>
<tbody>
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</tr>
</tbody>
</table>

- **Understands the process of subtraction.**
- **Uses direct modeling to find answers.** (Models the entire process with fingers or objects, counting 1 by 1 throughout.)
- **Counts backwards to find answers.**
- **Uses derived facts to find answers.** (Example: 5 – 2 = 3 because 4 – 2 = 2, and 5 is 1 more than 4.)
- **If given a little time is able to figure out the correct answer to (a few, some, most, or all) subtraction facts to 10.**
- **Solves subtraction facts to (a few, some, most, or all) 10 almost instantly.**

**Comments**
Assessment 4 Checkup

Time: What time is it?

_____ o’clock  _____ o’clock  _____ o’clock

Tallying: How many in each grouping?
Doubles & Neighbors: How do you see it? How many altogether?

\[ \begin{array}{ccc}
\text{___ + ___ = ___} & \text{___ + ___ = ___} & \text{___ + ___ = ___} \\
\text{___ + ___ = ___} & \text{___ + ___ = ___} & \text{___ + ___ = ___} \\
\end{array} \]
Clocks Match Game  
clock cards

[Diagram of 9 clock faces, each showing a different time]
Clocks Match Game

<table>
<thead>
<tr>
<th>4 o’clock</th>
<th>9 o’clock</th>
<th>5 o’clock</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="BCF Clocks Match Game Time Cards" /></td>
<td><img src="image2" alt="BCF Clocks Match Game Time Cards" /></td>
<td><img src="image3" alt="BCF Clocks Match Game Time Cards" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10 o’clock</th>
<th>8 o’clock</th>
<th>1 o’clock</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4" alt="BCF Clocks Match Game Time Cards" /></td>
<td><img src="image5" alt="BCF Clocks Match Game Time Cards" /></td>
<td><img src="image6" alt="BCF Clocks Match Game Time Cards" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3 o’clock</th>
<th>11 o’clock</th>
<th>6 o’clock</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7" alt="BCF Clocks Match Game Time Cards" /></td>
<td><img src="image8" alt="BCF Clocks Match Game Time Cards" /></td>
<td><img src="image9" alt="BCF Clocks Match Game Time Cards" /></td>
</tr>
</tbody>
</table>
Bridges Breakouts

Building Computational Fluency Blackline 4.5 Run 1 copy for each student on cardstock, cut apart, and store in an envelope.

Tally Match Game tally cards

[Diagram of tally cards]
Tally Match Game number cards

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>17</td>
<td>18</td>
<td>19</td>
</tr>
</tbody>
</table>
Doubles & Neighbors Match Game ten-frame cards

Doubles & Neighbors Match Game ten-frame cards

Doubles & Neighbors Match Game ten-frame cards

Doubles & Neighbors Match Game ten-frame cards

Doubles & Neighbors Match Game ten-frame cards

Doubles & Neighbors Match Game ten-frame cards
## Doubles & Neighbors Match Game

<table>
<thead>
<tr>
<th>Number Sentence Cards</th>
<th>Number Sentence Cards</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 + 5 = 10</td>
<td>4 + 5 = 9</td>
</tr>
<tr>
<td>4 + 4 = 8</td>
<td>3 + 4 = 7</td>
</tr>
<tr>
<td>3 + 3 = 6</td>
<td>2 + 3 = 5</td>
</tr>
<tr>
<td>2 + 2 = 4</td>
<td>1 + 2 = 3</td>
</tr>
<tr>
<td>1 + 1 = 2</td>
<td>1 + 0 = 1</td>
</tr>
</tbody>
</table>
# Assessment 4 Class Checklist

| Student Names | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS | NS | ANS |
|---------------|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|
| Tells time to the hour (1:00) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Tells time to the hour (3:00) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Tells time to the hour (9:00) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Counts 7 tallies accurately. (Indicate whether student counts by 1’s, or by 5’s and 1’s) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Counts 10 tallies accurately. (Indicate whether student counts by 1’s, or by 5’s) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Counts 13 tallies accurately. (Indicate whether student counts by 1’s, or by 5’s and 1’s, or by 10’s and 1’s.) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Writes an accurate number sentence (NS) for each of the bug cards. Gets the correct answer (ANS). | 3 + 4 = 7 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                      | 4 + 4 = 8 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                      | 4 + 5 = 9 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                      | 2 + 3 = 5 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                      | 3 + 3 = 6 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                      | 5 + 5 = 10 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
Assessment 5 Checkup

How many cubes?

Fill in the missing numbers.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>7</td>
<td>10</td>
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<tr>
<td>12</td>
<td>15</td>
<td>18</td>
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<td>23</td>
<td>26</td>
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<td>31</td>
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<td>42</td>
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<td>48</td>
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<td>57</td>
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<tr>
<td>54</td>
<td></td>
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</tbody>
</table>
Assessment 5 Checkup (cont.)

Color 25

Color 42

Color 79
Cut around each box and match it to the correct group of coins.

12¢ 11¢ 20¢ 15¢ 30¢
Building Computational Fluency Blackline 5.4  Run 1 copy for each student on cardstock.

One Turn to Win gameboard

Player A

Player B

less

more

1 3 4

2 5

© The Math Learning Center
Paper Coins for One Turn to Win & Two Turns to Win
Two Turns to Win gameboard

Player A
First Turn
Second Turn

Player B
First Turn
Second Turn

Two Turns to Win gameboard

1 2 3 4 5

less
more
Place Value Match Game cube cards

Building Computational Fluency Blackline 5.7 Run 1 copy for each student on cardstock, cut apart, and store in an envelope.
Place Value Match Game number cards

50 32 23
31 40 18
44 17 10

Run 1 copy for each student on cardstock, cut apart, and store in an envelope with the cube cards.
<table>
<thead>
<tr>
<th>Student Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counts 2 tens and 3 ones accurately to get a total of 23.</td>
</tr>
<tr>
<td>Records the number 23 accurately.</td>
</tr>
<tr>
<td>Counts 1 ten and 7 ones accurately to get a total of 17.</td>
</tr>
<tr>
<td>Records the number 17 accurately.</td>
</tr>
<tr>
<td>Fills in missing numbers on a chart from 1–60 accurately (____ out of 39 blanks filled in correctly).</td>
</tr>
<tr>
<td>Counts 13 tallies accurately. (Indicate whether student counts by 1’s, or by 5’s and 1’s, or by 10’s and 1’s.)</td>
</tr>
<tr>
<td>Colors in squares on a Hundreds Grid. (For each of these, indicate how the coloring was done: at random, by 5’s &amp; 1’s, 10’s &amp; 1’s, 25’s &amp; 1’s.)</td>
</tr>
</tbody>
</table>

Counts 2 tens and 3 ones accurately to get a total of 23.
Records the number 23 accurately.
Counts 1 ten and 7 ones accurately to get a total of 17.
Records the number 17 accurately.
Fills in missing numbers on a chart from 1–60 accurately (____ out of 39 blanks filled in correctly).
Counts 13 tallies accurately. (Indicate whether student counts by 1’s, or by 5’s and 1’s, or by 10’s and 1’s.)
Colors in squares on a Hundreds Grid. (For each of these, indicate how the coloring was done: at random, by 5’s & 1’s, 10’s & 1’s, 25’s & 1’s.)
### Assessment 5 Class Checklist

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<thead>
<tr>
<th>Student Names</th>
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</thead>
<tbody>
<tr>
<td>Finds the correct label for 1 dime &amp; 1 nickel (15¢)</td>
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<tr>
<td>Finds the correct label for 1 dime &amp; 1 penny (11¢)</td>
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<tr>
<td>Finds the correct label for 2 dimes (20¢)</td>
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<tr>
<td>Finds the correct label for 2 nickels &amp; 2 pennies (12¢)</td>
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<tr>
<td>Finds the correct label for 2 dimes &amp; 2 nickels (30¢)</td>
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</tbody>
</table>
Assessment 6 Checkup

Use a different color for each coin and color in its value.

How much are these coins worth altogether?
How much is each group worth? How much do the groups make altogether?
Coins on Board coordinate cards

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A,1</strong></td>
<td><strong>A,2</strong></td>
<td><strong>A,3</strong></td>
<td><strong>A,4</strong></td>
</tr>
<tr>
<td>![BCF Coins on Board Cards]</td>
<td>![BCF Coins on Board Cards]</td>
<td>![BCF Coins on Board Cards]</td>
<td>![BCF Coins on Board Cards]</td>
</tr>
<tr>
<td><strong>B,1</strong></td>
<td><strong>B,2</strong></td>
<td><strong>B,3</strong></td>
<td><strong>B,4</strong></td>
</tr>
<tr>
<td>![BCF Coins on Board Cards]</td>
<td>![BCF Coins on Board Cards]</td>
<td>![BCF Coins on Board Cards]</td>
<td>![BCF Coins on Board Cards]</td>
</tr>
<tr>
<td><strong>C,1</strong></td>
<td><strong>C,2</strong></td>
<td><strong>C,3</strong></td>
<td><strong>C,4</strong></td>
</tr>
<tr>
<td>![BCF Coins on Board Cards]</td>
<td>![BCF Coins on Board Cards]</td>
<td>![BCF Coins on Board Cards]</td>
<td>![BCF Coins on Board Cards]</td>
</tr>
<tr>
<td><strong>D,1</strong></td>
<td><strong>D,2</strong></td>
<td><strong>D,3</strong></td>
<td><strong>D,4</strong></td>
</tr>
<tr>
<td>![BCF Coins on Board Cards]</td>
<td>![BCF Coins on Board Cards]</td>
<td>![BCF Coins on Board Cards]</td>
<td>![BCF Coins on Board Cards]</td>
</tr>
</tbody>
</table>
Coins on Board

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>![Coin Image]</td>
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</tr>
<tr>
<td>3</td>
<td>![Coin Image]</td>
<td>![Coin Image]</td>
<td>![Coin Image]</td>
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</tr>
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<td>2</td>
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</tr>
<tr>
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<td>![Coin Image]</td>
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</tr>
</tbody>
</table>

Record of Coins Collected

**Player A**

Record of Coins Collected

**Player B**

© The Math Learning Center
### Assessment 6 Class Checklist

<table>
<thead>
<tr>
<th>Student Names</th>
</tr>
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<tbody>
<tr>
<td>Colors in 10 squares for each dime.</td>
</tr>
<tr>
<td>Colors in 5 squares for the nickel.</td>
</tr>
<tr>
<td>Colors in 1 square for each penny.</td>
</tr>
<tr>
<td>Counts the coins accurately for a total of 37¢.</td>
</tr>
<tr>
<td>Counts 2 tens and 4 ones accurately to get a total of 24.</td>
</tr>
<tr>
<td>Counts 3 tens and 5 ones accurately to get a total of 35.</td>
</tr>
<tr>
<td>Adds 24 + 35 correctly to get a total of 59.</td>
</tr>
<tr>
<td>Comments</td>
</tr>
</tbody>
</table>

Run enough copies to record the results for all students in your class.
## Assessment 7 Checkup

Add:

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</tbody>
</table>
Subtract:

\[
\begin{array}{cccc}
6 & 5 & 2 & 4 - 0 = \\
-0 & -0 & -0 & \\
7 & 5 & 3 & 6 - 1 = \\
-0 & -1 & -1 & \\
5 & 7 & 3 & 4 - 4 = \\
-5 & -7 & -3 & \\
4 & 8 & 6 & 10 - 5 = \\
-2 & -4 & -3 & \\
\end{array}
\]

Write some number sentences about this picture.
Doubles cards

- BCF Doubles Cards

Building Computational Fluency Blackline 7.3 Run 1 copy on cardstock, cut apart, and store in an envelope.
Doubles cards

[Diagram of six ladybug icons arranged in a 3x2 grid]

BCF Doubles Cards

[Diagram of six ladybug icons arranged in a 3x2 grid]

BCF Doubles Cards
Doubles cards

- BCF Doubles Cards
Run 1 copy on cardstock, cut apart, and store in an envelope.

Seeing Doubles cards
Adding Doubles

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<thead>
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<tbody>
<tr>
<td>1</td>
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<td>2</td>
<td>+</td>
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Subtracting Doubles

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# Building Computational Fluency Blackline 7.8

Run a class set.

**Adding 1's**

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<td>10</td>
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</table>

**Subtracting 1's**

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### Adding 2’s

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<td>10</td>
<td>2</td>
<td>7</td>
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</tbody>
</table>

### Subtracting 2’s

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<th>− 2</th>
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<td>8</td>
<td>4</td>
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<td>6</td>
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<tr>
<td>9</td>
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<td>7</td>
<td>12</td>
<td>10</td>
<td>11</td>
<td>13</td>
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© The Math Learning Center
### Assessment 7 Class Checklist

<table>
<thead>
<tr>
<th>Student Names</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Solves ____ out of 20 addition facts correctly</td>
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<tr>
<td>Comments/Observations</td>
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</tr>
<tr>
<td>Solves ____ out of 16 subtraction facts correctly</td>
<td></td>
<td></td>
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<td>Comments/Observations</td>
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</tr>
<tr>
<td>Records ____ number sentences for the ten-frame card</td>
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</tr>
<tr>
<td>____ of the student’s number sentences match the dots (and blank spaces) on the card in some way</td>
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<tr>
<td>Student’s number sentences are complete</td>
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</tr>
<tr>
<td>Student is able to use symbols such as +, −, and = correctly</td>
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<tr>
<td>Indicate what kind of sentences the student writes (counting, addition, subtraction, other)</td>
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</tbody>
</table>
Assessment 8 Individual Interview

Place Value: adding two numbers

Adding and Subtracting doubles and neighbors

7 + 7 =

14 − 7 =

6 + 7 =

13 − 7 =
Unifix Cube place value cards

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</table>

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Build Computational Fluency Blackline 8.4

Run 1 copy on cardstock, cut apart, and store in an envelope.

2 + 2 = 4
2 + 3 = 5
5 – 3 = 2
4 – 2 = 2
5 – 2 = 3
3 + 3 = 6
6 – 3 = 3
3 + 4 = 7

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See the Facts cards (cont.)

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<tbody>
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<td>8 - 4 =</td>
<td>9 - 4 =</td>
<td>5 + 5 =</td>
</tr>
<tr>
<td>7 - 4 =</td>
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</tr>
<tr>
<td>4 + 4 =</td>
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</tr>
<tr>
<td>4 + 5 =</td>
<td></td>
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<tr>
<td>9 - 5 =</td>
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</tr>
<tr>
<td>5 + 6 =</td>
<td>11 − 5 =</td>
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<td>6 + 7 =</td>
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<td>13 − 6 =</td>
<td>6 + 7 =</td>
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<td>7 + 7 =</td>
<td>7 + 8 =</td>
<td>15 - 8 =</td>
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<tr>
<td>13 - 7 =</td>
<td>14 - 7 =</td>
<td>15 - 7 =</td>
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</table>

See the Facts cards, page 4
Counts 2 tens and 3 ones accurately to get a total of 23.

Counts 1 ten and 4 ones accurately to get a total of 14.

Adds 23 + 14 correctly to get a total of 37.

How does the student count the cubes (by 1’s, by 5’s & 1’s, by 10’s, 5’s & 1’s, other)

Records the numbers 23, 14, and 37 accurately.

Solves 7 + 7 correctly.

Solves 14 – 7 correctly.
<table>
<thead>
<tr>
<th>Student Names</th>
<th>Solves $6 + 7$ correctly</th>
<th>Solves $13 - 7$ correctly</th>
<th>How does the student solve the addition and subtraction problems? (counts 1 by 1's, counts on or backwards, counts by 5's &amp; 1's or 10's &amp; 1's, knows facts)</th>
<th>Does student use the addition fact in each pair to help solve the related subtraction fact, or treat them as if they're unrelated?</th>
</tr>
</thead>
<tbody>
<tr>
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</table>
Assessment 9 Checkup

Add:

<table>
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<tr>
<th>3 + 3</th>
<th>7 + 3</th>
<th>4 + 5</th>
<th>5 + 5 =</th>
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<tbody>
<tr>
<td>8 + 2</td>
<td>4 + 4</td>
<td>3 + 6</td>
<td>9 + 1 =</td>
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<td>5 + 6</td>
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Subtract:

<table>
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<tr>
<th>10 − 5</th>
<th>6 − 3</th>
<th>8 − 4</th>
<th>10 − 6 =</th>
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<tbody>
<tr>
<td>4 − 2</td>
<td>10 − 2</td>
<td>10 − 9</td>
<td>10 − 3 =</td>
</tr>
<tr>
<td>12 − 6</td>
<td>10 − 1</td>
<td>10 − 7</td>
<td>10 − 8 =</td>
</tr>
</tbody>
</table>
Sam made 15 cupcakes. His dog ate 7 of them. How many did he have left? Use numbers, words, and/or pictures to solve this problem. Show all your work.
Make Ten Cards

1

2

3

4

© The Math Learning Center
Make Ten Cards (cont.)

Run 3 copies on cardstock, cut apart, and store in an envelope.
Run 3 copies of this sheet on cardstock, cut apart, and store in an envelope.

Make Ten Cards (cont.)
Make Ten Operations Cards

Run 3 copies on cardstock, cut apart, and store in an envelope.
Two to Make Ten
Subtract from Ten Ten
Add with Ten

<p>| | | | | |</p>
<table>
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Subtract with Ten

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## Assessment 9 Class Checklist

<table>
<thead>
<tr>
<th>Student Names</th>
<th>Solves ___ out of 16 addition facts correctly.</th>
<th>Comments/Observations</th>
<th>Solves ___ out of 16 subtraction facts correctly.</th>
<th>Comments/Observations</th>
<th>Gets the correct answer to the story problem (8).</th>
<th>Comments/Observations</th>
<th>Solves the problem using numbers, pictures, words, or some combination. (Indicate which.)</th>
<th>Comments</th>
</tr>
</thead>
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</tbody>
</table>

Color the ten-strips to show the total. Use a different color for each type of coin.
Counting by 2’s: How many are in each group?
50¢ or Bust!

Player A

NAME

DATE

Player B

© The Math Learning Center
50¢ or Bust! coin cards
Counting by 2’s worksheet

Rabbit Ears

<table>
<thead>
<tr>
<th>2 ears</th>
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<tr>
<td>4 ears</td>
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</tr>
<tr>
<td>8 ears</td>
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</tbody>
</table>

Color the counting by 2’s numbers.

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</tbody>
</table>

Continue the pattern.
Unifix Cube 2’s number cards

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40

© The Math Learning Center
## Assessment 10 Class Checklist

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Counts a collection of dimes, nickels, and pennies correctly to get a total of 33¢.</td>
<td></td>
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<tr>
<td>Colors in 10 squares for each dime.</td>
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<tr>
<td>Colors in 5 squares for each nickel.</td>
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<td></td>
</tr>
<tr>
<td>Colors in 1 square for each penny.</td>
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</tr>
<tr>
<td>Labels ____ out of 15 sets of Unifix cubes with the correct number.</td>
<td></td>
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<tr>
<td>Writes ____ out of the 15 numbers correctly (numerals facing the correct direction, digits in the correct order).</td>
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</tr>
<tr>
<td>Comments/Observations</td>
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</tr>
</tbody>
</table>

Run enough copies to record the results for all students in your class.

Color the ten-strips to show the total. Use a different color for each type of coin.
Assessment II Checkup (cont.)

How Many? How Many? How Many?

Fill in the missing numbers:
Counting by 5’s

Fill in the missing numbers:
Counting by 2’s

10’s 1’s

10’s 1’s

10’s 1’s

© The Math Learning Center
Counting Mixed Coins Bingo cards

Run one copy for each student on cardstock, cut apart, and store in an envelope.
Counting Mixed Coins Bingo

25¢ 23¢ 17¢
15¢ 16¢
7¢

20¢ 12¢ 11¢ 25¢
11¢ 10¢
7¢

17¢ 15¢ 12¢ 7¢
11¢

© The Math Learning Center
Place Value Puzzles

- 31
- 13
- 43
- 34
- 20
- 45
Place Value Puzzles (cont.)

Building Computational Fluency Blackline 11.6 Run 1 copy for each student on cardstock.

17 15
54 29
18 36
Ten-Frames counting by 5's

10's 1's

© The Math Learning Center
Penguin Pairs

How many penguins in each row? Fill in the missing counting by 2’s numbers.

<table>
<thead>
<tr>
<th></th>
<th>10</th>
<th>20</th>
<th>50</th>
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<tbody>
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<td>42</td>
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</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Penguin Pairs counting by 2’s

How many penguins in each row?
Counts a collection of dimes, nickels, and pennies correctly to get a total of 42¢

Counts 1 ten and 8 ones accurately to get a total of 18.

Counts 3 tens accurately to get a total of 30.

Counts 2 tens and 4 ones accurately to get a total of 24.

Counts 1 ten and 8 ones accurately to get a total of 18.
### Assessment II Class Checklist  page 2 of 2

<table>
<thead>
<tr>
<th>Student Names</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

Records a 1 on the 10’s side of the chart and an 8 on the 1’s side.

Fills in missing numbers on a counting-by-5’s chart from 5–100 accurately (____ out of 11 blanks filled in correctly).

Fills in missing numbers on a counting-by-2’s chart from 2–40 accurately (____ out of 13 blanks filled in correctly).
Assessment 12 Individual Interview

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</tbody>
</table>
Doubles & Neighbors cards

Run 1 copy on cardstock, cut apart, and store in an envelope.

© The Math Learning Center
Doubles & Neighbors cards

[Diagram of beetle images arranged in a grid]

© The Math Learning Center
Doubles & Neighbors cards

■ BCF Doubles & Neighbors Cards
Doubles & Neighbors cards

<p>| | | | |</p>
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- **BCF Doubles & Neighbors Cards**

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- **BCF Doubles & Neighbors Cards**

---
5 + 5 = 10
 Seeing Doubles & Neighbors sentences

\[ 1 + 1 = 2 \]

\[ 1 + 2 = 3 \]
Seeing Doubles & Neighbors sentences

\[ 2 + 2 = 4 \]

\[ 2 + 3 = 5 \]
3 + 3 = 6

3 + 4 = 7
4 + 4 = 8

4 + 5 = 9
Run 1 copy on cardstock, cut apart, and store in an envelope.
Seeing Doubles & Neighbors cards

Run 1 copy on cardstock, cut apart, and store in an envelope.
Seeing Doubles & Neighbors addition sentences

5 + 5 = 10
5 + 6 = 11
5 + 6 = 12
6 + 7 = 13
7 + 7 = 14
7 + 8 = 15
Seeing Doubles & Neighbors addition sentences

8 + 8 = 16
8 + 9 = 17
9 + 9 = 18
9 + 10 = 19
10 + 10 = 20
## Practicing the Facts: Adding Doubles & Neighbors

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## Ten & More Unifix Bingo game boards
Ten & More Unifix bingo cards

10 + 9

19 - 9

19 - 10

10 + 8

18 - 8

18 - 10

10 + 7

17 - 7

17 - 10
Ten & More Unifix bingo cards

- 10 + 6
- 16 - 6
- 16 - 10

- 10 + 5
- 15 - 5
- 15 - 10

- 10 + 4
- 14 - 4
- 14 - 10
Ten & More Unifix bingo cards

10 + 3
13 – 3
13 – 10

10 + 2
12 – 2
12 – 10

10 + 1
11 – 1
11 – 10
## Ten & More Problems bingo cards

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Bridges Breakouts
### Ten & More Problems bingo cards

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Ten & More Problems bingo cards

10
+ 3
13
− 3
13
− 10

10
+ 2
12
− 2
12
− 10

10
+ 1
11
− 1
11
− 11
### Assessment 12 Class Checklist page 1 of 2

<table>
<thead>
<tr>
<th>Student Names</th>
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<tbody>
<tr>
<td><strong>Solves ____ out of 10 addition facts correctly.</strong></td>
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<tr>
<td>Uses direct modeling to find answers. (Sets out both quantities with objects or fingers, and counts by 1’s to find the total, starting from 1.)</td>
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<tr>
<td>Counts on to find answers.</td>
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<tr>
<td>Uses derived facts to find answers. (Example: $6 + 5 = 11$ because $5 + 5 = 10$, and it’s just 1 more.)</td>
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<tr>
<td>Knows some of the addition facts instantly. (Which ones?)</td>
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<tr>
<td><strong>Solves ____ out of 10 subtraction facts correctly.</strong></td>
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<tr>
<td>Uses direct modeling to find answers. (Models the entire process with fingers or objects, counting 1 by 1 throughout.)</td>
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</tbody>
</table>
### Assessment 12 Class Checklist

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Counts backwards to find answers.</th>
<th>Uses derived facts to find answers. (Example: $8 - 5 = 3$ because $8 - 4 = 4$, and you're taking away 1 more.)</th>
<th>Understands the relationship between addition and subtraction and uses it to help get some of the answers.</th>
<th>Knows some of the subtraction facts instantly. (Which ones?)</th>
</tr>
</thead>
</table>