## Resource Overview

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<th>Quantile® Measure:</th>
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<td>Read and write numerals using one-to-one correspondence to match sets of 0 to 10. (QT-N-4) Represent numbers up to 100 in a variety of ways such as tallies, ten frames, and other models. (QT-N-33) Model the concept of addition for sums to 10. (QT-N-36)</td>
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### Excerpted from:

**BRIDGES IN MATHEMATICS K-5**

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This resource may be available in other Quantile utilities.
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The Quantile® Framework for Mathematics, developed by educational measurement and research organization MetaMetrics®, comprises more than 500 skills and concepts (called QTaxons) taught from kindergarten through high school. The Quantile Framework depicts the developmental nature of mathematics and the connections between mathematics content across the strands. By matching a student’s Quantile measure with the Quantile measure of a mathematical skill or concept, you can determine if the student is ready to learn that skill, needs to learn supporting concepts first, or has already learned it. For more information and to use free Quantile utilities, visit www.Quantiles.com.
Set A4 ★ Activity 1

Numbers and Combinations to Ten Through the School Year

Overview
Below, you’ll find a set of exercises to add to your Number Corner routines each month. These exercises involve the numbers 1 through 10, and are designed to be taught from the start of each month, in conjunction with the Our Month in School workout. They are short and simple, and provide a solid foundation on which to help kindergartners build skills with early addition and subtraction.

Skills & Concepts
★ count objects in a set using one-to-one correspondence and produce sets of given sizes
★ recognize the number of objects in a small set without counting
★ read and write numerals to 10
★ model addition by joining sets of objects and model subtraction by removing objects from sets for numbers less than 10.
★ verbally describe mathematical relationships involving addition and subtraction situations for numbers less than 10
★ compose and decompose numbers from 2 to 10
★ record mathematical thinking by writing simple addition and subtraction sentences

September: Dots & Fingers

You’ll need
★ Five Plus Dot cards (pages A4.10 – A4.14, run 1 copy of each sheet on white cardstock)

1. In addition to posting the number of days students have been in school on the Our Month in School pocket chart each day, have children hold up the corresponding number of fingers. Also, post the corresponding dot card.
Activity 1  Numbers & Combinations to Ten Through the School Year (cont.)

2. Continue to post a dot card and have students show the number of days with their fingers through the tenth day of school. After the first 3 to 4 days, vary the routine by doing one or more of the following:

- Point to a numeral card on the Our Month in School Chart and have children show that number of fingers. Encourage students to begin showing the number without counting their fingers one by one.
- Show a number of fingers on your own hand(s) to represent the quantity on one of the dot cards posted so far. Have students name the number of fingers they see.
- Point to one or more of the posted dot cards, and ask students to name the quantity and show that many on their fingers. Encourage the group to find more than one way to show the quantity.

![Dot Card and Fingers]

_Students_  It's 4!  
I can make that on one hand!  
I do it like this, 1 and then 3.  
I do 2 and 2.

3. After you have been in school for 10 days, you will have posted all of the dot cards, 1-10. Continue throughout the rest of the month with the activities described above. From time to time, take several of the cards down, mix them up, and place them in a stack, face down. Turn the first card up and show it to the students for about half a second before turning it face down again. Ask students to pair-share how many dots they saw, and then have the group hold up their fingers to show the corresponding number of dots. Show the card a second time so they can confirm their responses.

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October: Frames & Bunny Ears

_You’ll need_

- Ten Frames sheet (page A4.15, run 1 copy on paper, post on your calendar display board)
- 3/4” adhesive dots or marking pens in two different colors
- Five Plus Dot cards (pages A4.10 – A4.14, run 1 copy of each sheet on white cardstock)

1. In addition to posting a weather card each day during the Our Month in School workout, place an adhesive dot, or make a colored circle on the Ten Frame sheet. Start in the upper left-hand corner of the sheet, and work your way across the top row, using the same color dot for the first five school days in October.
2. Each day, have children show the number of days you've been in school so far this month with their fingers, and name the quantity. Starting from the first day, ask them to place their fists on top of their heads (like bunny ears) and show the number without looking at their fingers, if possible. While some children may need to move their hands down to count or double-check the number of fingers they're holding up, others will begin to gain confidence at showing the correct number of fingers quickly, sight unseen, as they develop a “feel” for the numbers one through ten.

Encourage them to explain how they can tell how many dots are on the Ten Frame Sheet.

**Teacher** We all agree that there are 3 dots so far on our Ten Frame Sheet. How do you know it’s 3?

**Students** I went 1, 2, 3!
I can just do 3 on my fingers
I can just see it’s 3!
There are 2 and then 1 more. That’s 3.
There’s 5 in the whole row, but 2 are empty, so that makes 3.

3. Continue in this fashion through the tenth day. (Switch dot colors on the sixth day, and move across the second row of the first frame from left to right.)

4. From the eleventh day forward, count the dots on the sheet one by one with the children. Alternate colors each time you start a new row so that the groups of 5 show up as clearly as the groups of 10 on the sheet.
Activity 1  Numbers & Combinations to Ten Through the School Year (cont.)

5. Use your dot cards as described in September, Step 3, to have children practice recognizing, naming, and showing quantities from 1 through 10 on their fingers through the rest of the month.

November: More Frames & Bunny Ears

You’ll need
★ Ten Frames sheet (page A4.15, run 1 copy on paper, post on your calendar display board)
★ 3/4” adhesive dots or marking pens in one color
★ Doubles Dot cards (pages A4.16–4.20, run 1 copy of each sheet on pastel cardstock)

Repeat October’s activities, with the following modifications:

1. Post the Ten Frame Sheet sideways, and place the dots in rows of 2 instead of 5. Use a single color throughout the month. This provides children with a slightly different model and may elicit counting strategies based on pairs instead of 5’s. Continue through the month. Once past the tenth day, work with the students to count the dots one-by-one each day, but ask students to share other counting strategies as well.

2. After the tenth day, use the Doubles Dot cards to have children practice recognizing, naming, and showing quantities from 1 through 10 on their fingers through the rest of the month.
You'll need

- Quick Fives Frame (page A4.21, run 1 copy on a transparency)
- 10 translucent counters; 5 blue and 5 red
- overhead projector or document camera
- chart paper and markers in blue, red, and black

In addition to discussing the ten-frame dot cards you post on the Our Month in School pocket chart each day, conduct the exercises described below a couple times a week.

1. Display the Quick Fives Frame on the overhead. Ask students how many squares they see, first whispering to one another, and then reporting the number out loud.

2. Turn off the projector light, and place blue counters in 3 of the squares on the frame. Work from left to right, leaving no empty squares between markers.

3. Turn on the projector light. Ask students how many dots they see, and how many empty squares. Have them raise their fists to their foreheads to make bunny ears, and then show the number of dots on one hand, and the number of empty squares on the other. Ask them to share observations.

4. Repeat this exercise several times during the first half of the month. During the latter half of the month, modify it by turning off the projector light and filling the 5-frame with blue and red counters. When you turn the light on, ask students to use their bunny ears to show what they see, and have them share their observations.
### Activity 1  Numbers & Combinations to Ten Through the School Year (cont.)

**Students**  2 blues and 3 reds, like this!

*Now they all have dots.*

*I see 5 dots.*

5. Make a quick sketch of the frame and dots on a piece of chart paper, and record students' observations. Work with input from the class to write a number sentence reflecting the numbers of counters.

```
2 blue dots
3 red dots
5 dots in all

\[
\begin{array}{cccc}
\bullet & \bullet & \bullet & \bullet \\
\end{array}
\]

2 + 3 = 5
```

6. Repeat steps 4 and 5 several times, keeping records on the same piece of chart paper if possible. By the end of the month, you should have several combinations of 5 displayed on the chart.

### January: Combinations to 10 on Frames and Fingers

**You'll need**
- Quick Tens Frame (page A4.22, run 1 copy on a transparency)
- 20 translucent counters; 10 blue and 10 red
- overhead projector or document camera
- chart paper and markers in blue, red, and black

In addition to discussing the ten-frame dot cards you post on the Our Month in School pocket chart each day, conduct the exercises described below a couple times a week.

1. Display the Quick Tens Frame on the overhead. As students watch, place 5 blue counters in the top row and 2 red counters in the bottom row. Ask:
Activity 1  Numbers & Combinations to Ten Through the School Year (cont.)

Teacher How many blue markers do you see?
How many red markers do you see?
How many markers are there in all? How do you know?
Can you show this combination on your fingers? Right – 5 fingers on one hand and 2 on the other.
Keep your fingers showing and put your hands on your head, like bunny ears. Wiggle the hand that has 5 fingers up. Wiggle the hand that has 2 fingers up How many fingers are you showing in all? Can you figure it out without looking at your fingers?

2. Repeat with other “5-plus” combinations, such as $5 + 1, 5 + 3, 5 + 4,$ and $5 + 5.$

3. Later in the month, place 4 blue counters in the top row of the Quick Tens frame, and 3 red counters in the bottom row with the projector light turned off. Explain that you are going to show the frame for just a moment, and ask children to watch carefully. Turn on the projector light for a little less than a second, and then turn it off again. Ask:

Teacher How many blue markers did you see? Show it on your fingers.
How many red markers did you see? Show it on your fingers.
How many markers in all? How do you know?

4. Turn on the projector light so children can confirm the quantities and the total. Then make a quick sketch of the frame and dots on a piece of chart paper, and record students’ observations. Work with input from the class to write a number sentence reflecting the numbers of counters.

5. Repeat steps 3 and 4 with other combinations for numbers between 6 and 10 that can be shown on frames and fingers, such as $3 + 3, 4 + 2, 3 + 4, 4 + 4,$ and $4 + 5.$

February: How Many Empty Squares?

You’ll need
★ Quick Fives Frame (page A4.21, run 1 copy on a transparency)
★ Quick Tens Frame (page A4.22, run 1 copy on a transparency)
★ 10 red translucent counters
Activity 1  Numbers & Combinations to Ten Through the School Year (cont.)

★ overhead projector or document camera
★ white board and markers
★ individual whiteboards/chalkboards, markers/chalk, and erasers for students (optional)

In addition to discussing the pennies and nickels you post on the Our Month in School pocket chart each day, conduct the exercises described below a couple times a week.

1. Seat children so they can all see the screen. Place the Quick Fives Frame under the projector, light turned off. Explain that you’re going to turn on the projector light for just a second so they can see the picture, and then turn it off again, so they’ll need to watch carefully.

2. Show the frame for a little less than a second, and turn the projector light off again. Ask children to show on their fingers how many empty squares they saw.

3. Tell the class that you’re going to put a red counter in 4 of the empty squares. How many of the squares will still be empty? Working with the projector light still off, place the 4 counters while children pair-share responses to your question. Then turn on the projector light so they can see if they were correct. Ask:

   **Teacher** How many squares do you see in all? (5)
   How many of the squares have counters in them? (4)
   How many of the squares are empty? (1)

4. Work with input from the class to record the combination, as shown below:

   \[
   \begin{array}{c}
   5 \\
   \backslash \\
   4 \\
   1 \\
   \end{array}
   \]

   \[4 + 1 = 5\]

5. Repeat with other partitions of 5 (2 + 3, 1 + 4, 3 + 2, 0 + 5)

6. Later in the month, repeat steps 1–4 with the ten frame instead of the five frame. Start with 8 counters. Repeat with other partitions of 10 (9 + 1, 7 + 3, 6 + 4, 5 + 5, and so on). You might also consider giving students each an individual whiteboard or chalkboard, marker or chalk, and eraser later in the month, and having them record the combinations with you when you get to that step in the exercise.

**March & April: Exploring Probability with Frogs & Toads, Cats and Dogs**

The Our Month in School workouts in March and April provide many opportunities for children to verbalize, read, and write addition combinations to 10.
**Activity 1 Numbers & Combinations to Ten Through the School Year (cont.)**

**May: Dot Card Subtraction**

**You’ll need**

- Doubles Dot Cards, 2 – 9 (pages A4.16–4.20, run 1 copy of each sheet on pastel cardstock)
- Five Plus Dot Cards, 6 – 10 (pages A4.12 – A4.14, run 1 copy of each sheet on white cardstock)
- White board and markers
- Individual whiteboards/chalkboards, markers/chalk, and erasers for students

In addition to counting by 5’s with the 5-pointed stars during the Our Month in School workout, do the exercise described below a couple of times a week.

1. Place the Doubles Dot Cards in a stack face down. Turn the top card up and show it to the children for about half a second. Ask them to use their bunny ears to show the number of dots they saw.

2. Show the card again so children can confirm the quantity and discuss what they see.

3. Cover one side of the card, and ask children how many dots they can still see. Where are the other dots? (hiding under your hand) Are there still (4) dots on the card (yes) How many are you hiding? (2)

4. Make a record of the action with sketches, words, and an equation.

5. Repeat steps 1–4 with a couple more of the Doubles Dot cards.

6. Toward the middle of the month, mix the Five Plus cards into the stack. Also, give children each a whiteboard/chalkboard, pen/chalk, and eraser, and ask them to record the subtraction equations with you.
Five Plus Dot Cards  Sheet 1 of 5
Five Plus Dot Cards  Sheet 2 of 5
Five Plus Dot Cards  Sheet 3 of 5

Set A4 Number & Operations: Addition & Subtraction Blackline  Run 1 copy on white cardstock. Cut cards apart and laminate if desired.
Five Plus Dot Cards  Sheet 5 of 5
Ten Frames

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Doubles Dot Cards  Sheet 1 of 5
Doubles Dot Cards  Sheet 2 of 5
Doubles Dot Cards  Sheet 4 of 5
Doubles Dot Cards  Sheet 5 of 5
Quick Five Frames
Quick Ten Frames