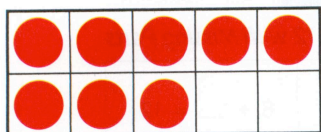


Quick Images

In this activity, students analyze images of dots, arranged in a two-by-five array or on a Ten-Frame. They determine the total number of dots, based on the mental image they form during the brief viewing. The discussion should focus on how students organize, describe, and count the dots in the images.



Math Focus Points

Students analyze and describe visual images and develop the ability to form their own mental images. In addition to spatial skills, students are developing a sense of quantities up to 10 and are practicing addition combinations ($5 + 3 = 8$) and related subtraction facts ($10 - 2 = 8$).

- ◆ Developing and analyzing visual images for quantities up to 10
- ◆ Developing fluency with combinations that make 10

Quick Images is introduced in Session 3.1 in Unit 1, *Counting, Coins, and Combinations*.

Materials

- Overhead projector (or, use a copier to enlarge the images or draw them on chart paper)
- Transparency T8, *Ten-Frame*
- Copies of Resource Master, *Blank Ten-Frame*
- Counters to re-create the image (as needed)

Basic Activity

Step 1 Flash an image for 3–5 seconds. Explain that students are to create a mental image that will help them remember the image—the number of dots and how they are arranged—when you turn off the projector (or hide the image). Teachers find that some students benefit from using pennies to re-create the image on a blank Ten-Frame. *Encourage* students to study the image carefully for the entire time it is visible.

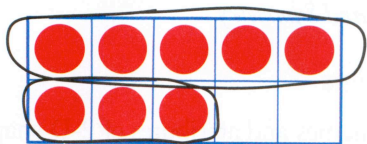
You may need to adjust the amount of time you flash the image. If you show it too long, students will work from the picture rather than from their mental image of it; if you show it too briefly, students will not have sufficient time to form a mental image.

Step 2 Students describe what they saw. If students are concerned that they cannot recall the image exactly, assure them that they will have another chance to see it. Focus the discussion on how students saw the image (e.g., “one whole row of dots and another row with some”), rather than just the total (e.g., 8).

Step 3 Flash the image for another 3–5 seconds. This gives students an opportunity to refine and/or revise their mental images.

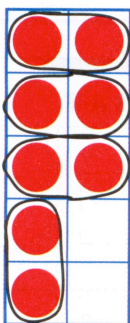
Step 4 Show and discuss the image. With the image visible, ask students to describe what they saw, how they remembered it, and how that helped them find the total.

Juan: “There’s a row of 5 and then 3 more.
That’s 8.”



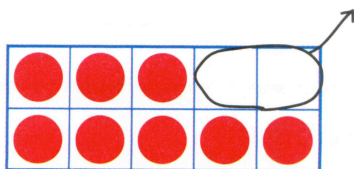
$$5 + 3 = 8$$

Amaya: “I saw 3 groups of 2, so that’s 2, 4, 6.
And then 2 more is 8.”



$$2 + 2 + 2 + 2 = 8$$

Gregory: “If every square had 1, it would be 10,
but 2 were empty. $10 - 2 = 8$.”



$$10 - 2 = 8$$

Variations

Quick Images: Ten-Frames

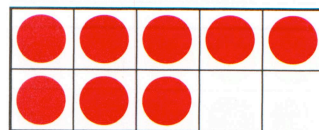
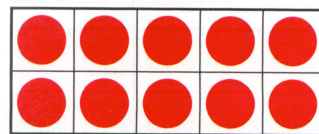
Math Focus Points

- ◆ Developing fluency with the addition combinations up to $10 + 10$
- ◆ Using known combinations (i.e., combinations that make 10) to combine numbers
- ◆ Re-creating images of dots arranged in two-by-five arrays
- ◆ Using standard notation (+, −, =) to write equations

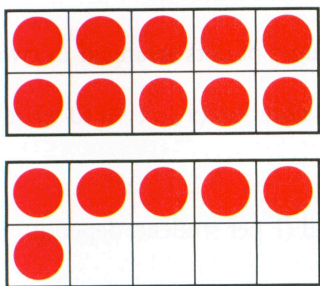
Materials

- Paper and pencil (1 per student, depending on the daily write-up)

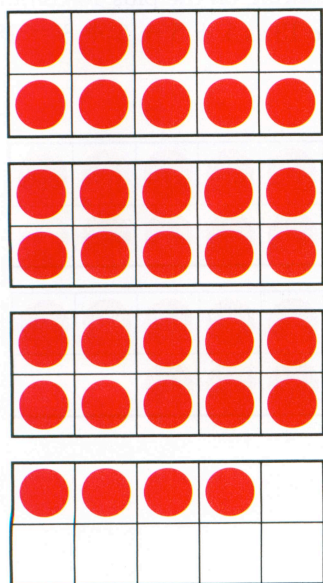
Addition Combinations Show the suggested Ten-Frames and do the basic *Quick Images* activity. By specifying the numbers shown, this variation focuses on particular categories of addition combinations such as combinations of 10 (e.g., 4 and 6 or 7 and 3), doubles (e.g., 8 and 8 or 4 and 4), and plus 10 combinations (e.g., 10 and 8 or 5 and 10). Use equations to record the ways students see the images. For example, when working on the plus 10 combinations, students might see 18 as $5 + 5 + 5 + 3 = 18$, $10 + 8 = 18$, or $20 - 2 = 18$.



Drawing Images Show the suggested Ten-Frames. After the image is flashed, ask students to draw what they saw on a piece of blank paper, which provides an opportunity to observe how students see and organize Ten-Frame images. For example, do they draw five-by-two arrays of dots to show 10? As students share what they saw, and how they knew how many dots there were, record equations that match their thinking, such as $5 + 5 + 5 + 1 = 16$ or $10 + 6 = 16$.



Writing Equations Show the suggested Ten-Frames and do the basic *Quick Images* activity. Once the class agrees on the total amount, students write equations that represent the image (e.g., $10 + 10 + 10 + 4 = 34$ or $40 - 5 - 1 = 34$). Discussion focuses on students' equations and on how they match the image.



Quick Images: Drawing Shapes

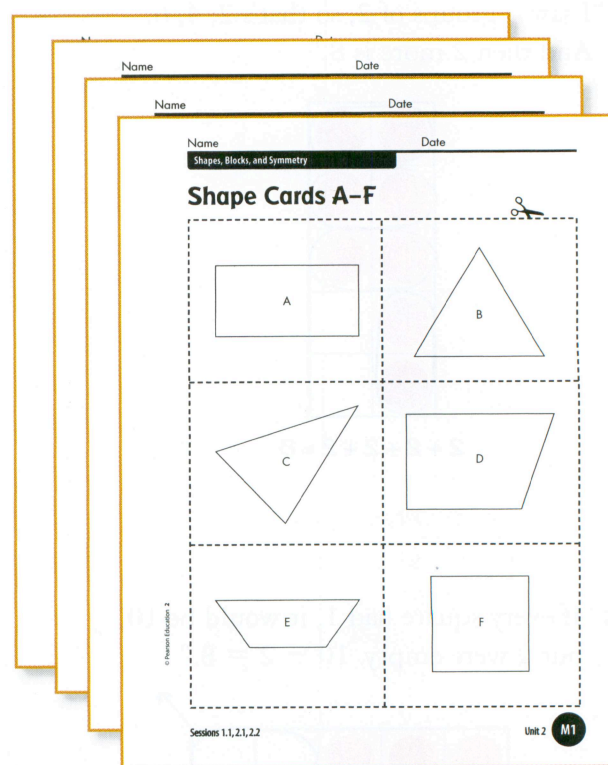
This variation is introduced in Session 1.1 in Unit 2, *Shapes, Blocks, and Symmetry*.

Math Focus Points

- ◆ Identifying names and attributes of 2-D shapes

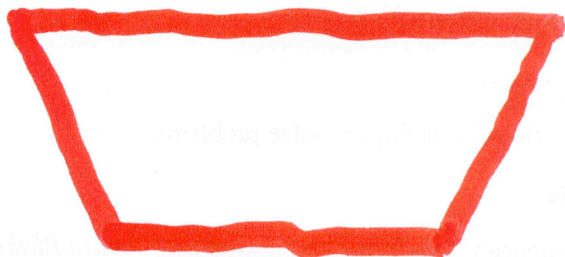
Materials

- Transparencies T15–T18, *Shape Cards*



▲ Transparencies, T15–T18

Display the suggested image. After the image is flashed, ask students to draw what they see. Discussion focuses on the attributes of the 2-D shapes shown in the images and on comparing and contrasting the different shapes shown.



A student's drawing of Shape Card E

Quick Images: Double Arrays

Math Focus Points

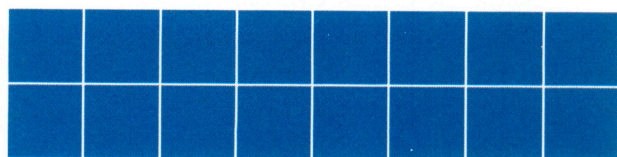
- ◆ Developing fluency with the doubles combinations up to $10 + 10$
- ◆ Using arrays and standard notation ($+$, $=$) to represent doubles up to $10 + 10$

Materials

- Transparency T24, *Rectangular Arrays*

Display a transparency of the suggested double combination and do the basic *Quick Images* activity. Focus the discussion on how many squares students saw and how they know.

Ask students to help you write an addition equation (e.g., $8 + 8 = 16$) for each image.



$$8 + 8 = 16$$

Quick Images: Strips and Singles

Math Focus Points

- ◆ Combining groups of tens and ones
- ◆ Adding 10 to or subtracting 10 from a two-digit number
- ◆ Noticing what happens to the tens place when a multiple of 10 is added to or subtracted from a two-digit number

Materials

- Transparent strips and singles (T81)

Display the suggested number of transparent strips and singles on the overhead and do the basic *Quick Images* activity. Students determine how many stickers are in each image and explain how they figured it out. Often, a set of three related numbers is suggested, for example, each 10 more or fewer than the last. After doing *Quick Images* for each, students find those numbers on the number line and the 100 chart. Discussion focuses on what is the same or different about the numbers, particularly the value of each place and their sticker representations.



Strips and Singles showing 13, 23, and 33.

Quick Images: Coins

Math Focus Points

- ◆ Identifying coins and their values
- ◆ Adding coin amounts
- ◆ Using standard notation (¢ , $+$, $=$)

Materials

- Overhead coins (class set)

Display the suggested number of coins and do the basic *Quick Images* activity. Focus the discussion on the type and number of coins (e.g., “What kinds of coins did you see?” or “How many pennies did you see?”). Then when the coins are covered, ask about the value of the coins displayed (e.g., “How much were the coins you saw worth altogether?”) Encourage students to explain their strategies. Use equations to record (e.g., $10\text{¢} + 10\text{¢} + 7\text{¢} = 27\text{¢}$ or $5\text{¢} + 5\text{¢} + 10\text{¢} = 20\text{¢}$).



Quick Images: Pattern Blocks

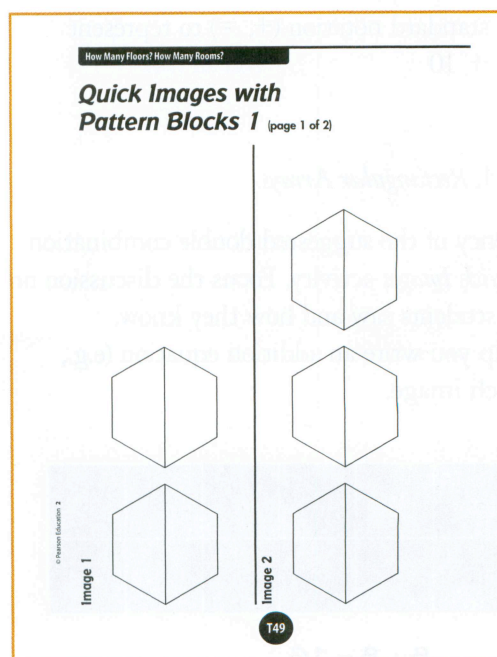
Math Focus Points

- ◆ Using ratio relationships to solve problems

Materials

- Transparencies T49–T50, *Quick Images with Pattern Blocks 1*
- Transparencies T51 and T59, *Quick Images*

Display the suggested image and do the basic *Quick Images* activity. First focus the discussion on the overall image (i.e., the number of hexagons). Then focus on the number of shapes (e.g., trapezoids, rhombuses, or triangles) that make up the hexagons.



▲ Resource Masters, Unit 5 M12; Transparencies, T49

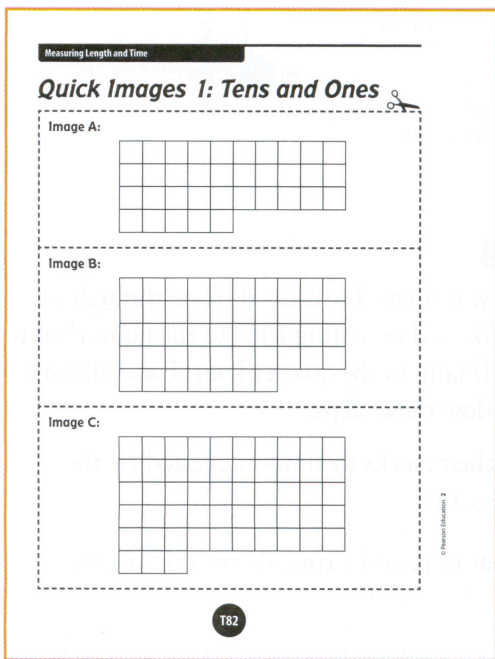
Quick Images: Tens and Ones

Math Focus Points

- ◆ Combining groups of tens and ones
- ◆ Using standard notation (+, −, =) to write equations

Materials

- Transparencies T69, T73–T74, *Quick Images 1, 2, and 3*
- Transparencies T82–T86, *Quick Images 1: Tens and Ones*, *Quick Images 2: Tens and Ones*, *Quick Images 3: Tens and Ones*, *Quick Images 4: Tens and Ones*, and *Quick Images 5: Tens and Ones*



▲ Resource Masters, Unit 9 M3; Transparencies, T82

Display the suggested image and do the basic *Quick Images* activity. Focus the discussion on how students saw and combined the groups of tens and ones in the image and on how to write equations that represent the image ($20 + 5 = 25$ or $30 - 5 = 25$).



Quick Images: Cover Up with Tens and Ones

Math Focus Points

- ◆ Solving problems about an unknown change
- ◆ Adding or subtracting 10
- ◆ Noticing what happens to the tens place when a multiple of 10 is added or subtracted.

Materials

- Transparent strips and singles (Transparencies T38–T39)

Display the suggested number of transparent strips and singles on the overhead and do the basic *Quick Images* activity. Once students agree on the total number of stickers, cover some of the stickers. Students use the number of stickers still showing to figure out how many you hid. Discuss and model students' strategies for figuring this out. This routine often suggests keeping the total number of stickers the same and then hiding a related number of counters (e.g., 1 or 10 more or fewer).

Ten-Frame Cards



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Name _____

Date _____

Stickers, Number Strings, and Story Problems

Blank Ten-Frames



