

Getting Ready to Teach Unit 2

Learning Path in the Common Core Standards

In this unit, children continue their study of the numbers from 1 through 10 and simple shapes. They build on their knowledge of numbers 1 through 10 to understand the numbers 6–10 as composed of a 5-group and some ones. They explore number order, the +1 and –1 relationships, and partners for the numbers 1–10. Children learn and use the attributes of triangles and hexagons.

Visual models and real world situations are used throughout the unit to illustrate important number and geometry concepts.

Help Students Avoid Common Errors

Math Expressions gives children opportunities to analyze and correct errors, explaining why the reasoning was flawed.

In this unit, we use Puzzled Penguin to show typical errors that children make. Children enjoy teaching Puzzled Penguin the correct way, telling why this way is correct, and explaining why the error is wrong. The common errors are presented as requests for help from Puzzled Penguin to the children:

- ▶ **Lesson 1:** counting 5 and 6 out of order
- ▶ **Lesson 4:** counting the objects in two 5-groups as 2 rather than 10
- ▶ **Lesson 9:** ordering the numbers from 6 through 10 as 7, 6, 9, 10, and 8
- ▶ **Lesson 18:** writing the numeral 9 when asked to write 6
- ▶ **Lesson 19:** reversing 6 and 7 when asked to write the numbers from 1 through 10 in order

In addition to Puzzled Penguin, other suggestions are listed in the Teacher Edition to help you watch for situations that may lead to common errors. As a part of the Unit Test Teacher Edition pages, you will find a common error and prescription listed for each test item.

Math Expressions VOCABULARY

As you teach this unit, emphasize understanding of these terms.

- 5-group
- equal
- not equal
- partners

See the *Teacher Glossary*.



Effective Practice Routines

All Lessons

1 – 20

Role of Quick Practice Quick Practice routines include consolidating activities that help students to become faster and more accurate with concepts or skills and leading activities that prepare the way for new concepts or skills prior to introducing them. For example, children do finger activities that structure teen numbers into ten-groups and ones before the teen numbers are formally introduced.

Because of the repetition of these routines, they become so familiar that children can carry them out quickly and confidently. As soon as possible, let Student Leaders take over directing the tasks.

Quick Practice Routines Three Quick Practice routines introduced in Lesson 1 build subitizing skills by focusing on recognizing and representing numbers with 5-groups and ones. In Lesson 10, two routines that extend counting beyond 10 are introduced.

Automatic Fingers 1–5 Show the numeral (or dot) sides of Giant Number Cards 1 through 5 in random order, and have children show that many fingers and say the number.

Groups of 5 in Numbers 6–10 Point to 6 through 10 on the Number Parade. For each number, children say 5-groups and extra ones while showing them with fingers.

- 6 is 5 (show hand) and 1 (show 1 finger on other hand).
- 7 is 5 (show hand) and 2 (show 2 fingers on other hand).
- 8 is 5 (show hand) and 3 (show 3 fingers on other hand).
- 9 is 5 (show hand) and 4 (show 4 fingers on other hand).
- 10 is 5 (show hand) and 5 (show 5 fingers on other hand).

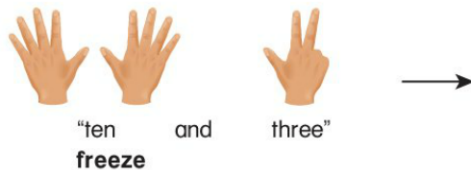


from THE PROGRESSIONS FOR THE COMMON CORE STATE STANDARDS ON COUNTING AND CARDINALITY

From subitizing to single-digit arithmetic fluency Students come to quickly recognize the cardinalities of small groups without having to count the objects; this is called *perceptual subitizing*.

Movements and Sounds Using Groups of 5 Children will pretend to play instruments in a marching band, practicing the numbers 6–10 as 5-groups and more ones.

Finger Freezes To show numbers beyond 10, children first show all 10 fingers and freeze the “10” for about 3 seconds so that they feel the ten before they show the ones in the number.



Say Numbers 11 Through 20 in Order To count numbers beyond 10, the numbers are pointed out on the Number Pattern Poster.

Identify Groups in a Scene

Lessons



Visualizing Numbers In these lessons, children find and circle groups of 1–10 objects in familiar real world settings. This activity supports children in their ability to “see” a number and then add to or take from or find subsets of that number. Encourage children to develop facility in visualizing 5, so that they can see and use a 5-group in adding, in subtracting, and as a partner in the numbers 6–10.

from THE PROGRESSIONS FOR THE COMMON CORE STATE STANDARDS ON COUNTING AND CARDINALITY

From subitizing to single-digit arithmetic fluency Perceptual subitizing develops into conceptual subitizing—recognizing that a collection of objects is composed of two subcollections and quickly combining their cardinalities to find the cardinality of the collection (e.g., seeing a set as two subsets of cardinality 2 and saying “four”).

Lessons

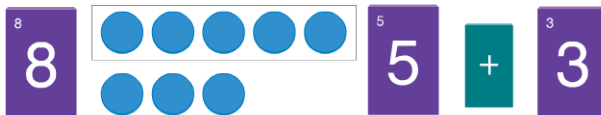


Develop Subitizing Skills with 5-Groups

Counting Mat In this unit, Parts 1–8 of the Counting Mat structure continue with the numbers 1–10, but are extended to include work with 5-Counter Strips and counters to represent numbers as 5-groups and ones.

The first two parts of this activity structure have been modified to include more emphasis on 5-groups.

- Children get started by placing the Number Tiles in order at the top of the mat first with the dot side up, paying attention to the 5-groups, and then turning the Tiles to the number side. They have 5-Counter Strips and counters at the bottom of the mat.
- After hearing a spoken number word and identifying the corresponding Number Tile, children use a 5-Counter Strip and counters to show the number as a 5-group and extra ones and use Number Tiles with symbol tiles to represent the number.



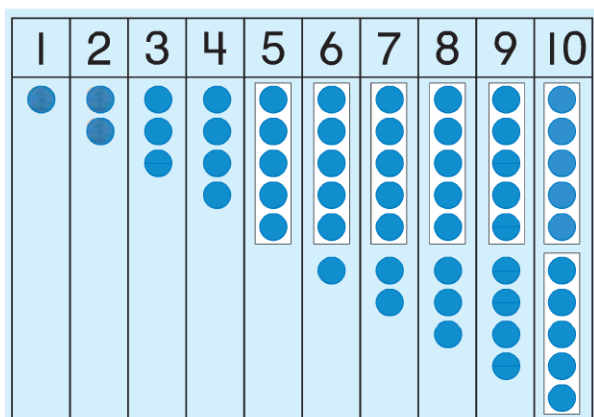
Then ask children to relate quantities, mental images, and words in the next six parts of the activity structure:

- Relating visual quantity to fingers, sounds, and body motions.
- Practicing visual imagery.
- Describing arrangements of objects.
- Copying arrangements of objects.
- Changing arrangements of objects.
- Seeing partners of numbers.

from THE PROGRESSIONS FOR THE COMMON CORE STATE STANDARDS ON COUNTING AND CARDINALITY

From saying the counting words to counting out objects Students usually know or can learn to say the counting words up to a given number before they can use these numbers to count objects or to tell the number of objects. Students become fluent in saying the count sequence so that they have enough attention to focus on the pairings involved in counting objects. To count a group of objects, they pair each word said with one object.

1–20 Board Children use the front side of the 1–20 Board as a workmat for representing the numbers 1–10 with 5-Counter Strips and counters. After children fill the board, they explore changes in these representations for the numbers. Because the 5-Counter Strips are used with extra counters for 6–10, children subitize as they see the 5-group and the group of extra counters. Children should see that two 5-Counter Strips are used to show 10. The work with the 1–20 Board also is a preview for later work with place value and the base ten system as children observe repeating patterns in the way that numbers are formed.



Relate Mathematics to the Real World with Scenarios

Lessons

3 **5** **10** **15**

The Scenario structure is used for these activities in which children share stories about family meals and get-togethers. Using a common setting such as a family meal allows all children to participate in the discussion and to contribute their own ideas. Elicit some mathematics from each child's story, helping children to describe what happened using mathematical language.

As children become familiar with the activity, adapt their stories to bring out addition, subtraction, and partner situations. Because the stories are their own, children see how mathematics can be used to describe a situation and to create and answer questions about the situation. Acting out and discussing situations from their own stories helps make mathematics engaging and meaningful for children. As children relate mathematics to their own everyday lives, they begin to see it as useful and important.

from THE PROGRESSIONS FOR THE COMMON CORE STATE STANDARDS ON COUNTING AND CARDINALITY

Working within 5 Focusing attention on small groups in adding and subtracting situations can help students move from perceptual subitizing to conceptual subitizing in which they see and say the addends and the total, e.g., "Two and one make three."

Write Numbers and Draw Objects

Lessons

5

7

8

10

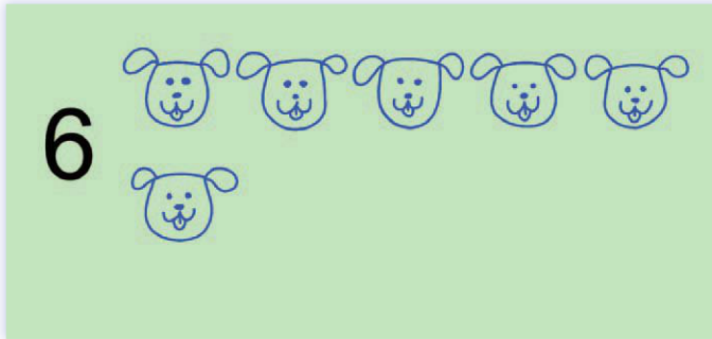
11

15

18

Connecting Numerals and Objects As children learn to form the numerals that represent the numbers from one through ten, they must develop a sense of what quantity each numeral represents. They do this by counting objects as they draw them and by matching a group of objects to a number/numeral. A multisensory approach to learning the shapes of the numerals is used in *Math Expressions* so that all children can relate in one or more ways the name, the shape, and the quantity to the numeral.

This solid foundational understanding of numbers is essential for children to order, compare, and use operations with numbers as they progress in their study of mathematics.



from THE PROGRESSIONS FOR THE COMMON CORE STATE STANDARDS ON COUNTING AND CARDINALITY

From comparison by matching to comparison by numbers The standards about comparing numbers focus on students identifying which of two groups has more than (or fewer than, or the same amount as) the other. Students first learn to match the objects in the two groups to see if there are any extra and then to count the objects in each group and use their knowledge of the count sequence to decide which number is greater than the other (the number farther along in the count sequence).

Order Numbers

Lessons

6

8

Understanding that each consecutive number is one greater than the one before it is an essential part of being able to order numbers. The ability to order numbers helps children develop both number sense and measurement skills. As children work on the dot-to-dot activities in these lessons, ask questions that help children relate the numbers to each other: *How do you know that 8 comes right after 7? How many more than 8 is 9? Why does 3 come before 4 in counting order?*

from THE PROGRESSIONS FOR THE COMMON CORE STATE STANDARDS ON COUNTING AND CARDINALITY

From counting to counting on Finally, understanding that each successive number name refers to a quantity that is one larger is the conceptual start for Grade 1 counting on.

Identify Shapes

Lessons

8

10

18

Among the Geometry skills in the Kindergarten Common Core State Standards are identifying and describing two-dimensional and three-dimensional shapes in the environment. The lessons in this unit focus on identifying attributes of triangles and hexagons, classifying objects as triangles or not triangles and as hexagons or not hexagons, and on recognizing and identifying three-dimensional shapes in a playroom. Recognizing these shapes in a familiar environment helps children see the usefulness of geometry.

