



Topic 10: Composing Numbers 11 to 19

Lessons 1-4 Math Intervention Resources

Reteach

MDIS:

A15: 10-1, 10-2, 10-3, 10-4

Guided Practice

Some children struggle with the concept that 10 individual objects can be combined to form a single group of 10. It can be helpful to work with these children to show that the quantities are actually the same.

Model the connection between 10 ones and a group of ten as often as possible. For instance, scatter 10 counters on the floor or on a table and have children count them. Establish that there are 10 individual counters. Then scoop the counters into a small box. Point out that there are still 10 counters, but now they are all grouped together into 1 box: it is 1 group of 10.

Reinforce

Envision Math Games:

Topic Games:

- Bumblebee Beehive

envision Online Games

- Computation Games: addition 6, 7, 8, 9, 10
- Number jungle
- Math facts practice

Symbaloo

Building Blocks (Golden CD)

10 Block Materials:

- Drill Doughnuts
- Examining the Addition Table

Assessments

K

Topic 10: Composing Numbers

11 to 19

Lesson 10-1

MDIS: A15

Making 11, 12, and 13

Quick and Easy

Lesson Overview

| Objective | Essential Understanding | Vocabulary | Materials |
|--|---|------------|--|
| Children will represent 11, 12, and 13 as the composition of 10 plus 1, 2, or 3. | Numbers from 11–19 can be represented as the sum of 10 and some more. | | Ten frame (or Teaching Tool 8), counters, paper bags |



PROFESSIONAL DEVELOPMENT

Math Background

Composing teen numbers is fundamental to our decimal system. 11 should be thought of as 1 ten and 1 one, 12 as 1 ten and 2 ones, and 13 as 1 ten and 3 ones. Writing the numbers 11 through 19 as the sum of

a ten and some ones is an important first step in understanding place value. It is also a prerequisite for fluency with addition strategies taught in first grade.

2

Guided Practice

Remind children that they will be writing number sentences using the plus and equal symbols.

Exercise 1

Error Intervention

If children switch the plus and equal signs and write a number sentence such as $10 = 2 + 12$,

then remind them that the total number, in this case 12, must be by itself on one side of the equal sign.

Do you understand? *How can you write a number sentence to describe numbers that are 1, 2, or 3 more than 10?* [Write the number 10 and add on the extra 1, 2, or 3 to make 11, 12, or 13.]

Reteaching Have children work in pairs. Have one child hold up all ten fingers. The partner holds up one, two, or three fingers. Help children say the number sentence, touching the groups of fingers in turn.



Common Core

Domain

Number and Operations in Base Ten

Cluster

Work with numbers 11–19 to gain foundations for place value.

Standard

K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

Mathematical Practices

- ✓ Make sense of problems and persevere in solving them.
- ✓ Reason abstractly and quantitatively.
- ✓ Construct viable arguments and critique the reasoning of others.
- ✓ Model with mathematics.
- ✓ Use appropriate tools strategically.
- ✓ Attend to precision.
- ✓ Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

K

Topic 10: Composing Numbers

11 to 19

Lesson 10-2

MDIS: A15

Making 14, 15, and 16

Quick and Easy Lesson Overview

| Objective | Essential Understanding | Vocabulary | Materials |
|--|---|------------|---|
| Children will represent 14, 15, and 16 as the composition of 10 plus 4, 5, or 6. | Numbers from 11–19 can be represented as the sum of 10 and some more. | | Ten frames (or Teaching Tool 8), counters |



Math Background

The ten-frame is a common model to represent 10. The two rows of 5 make it easy to understand and visualize. Other models can and should also be used, however, to help children begin to see ten ones as a single group of ten—something created by joining 10 separate things into a new whole. Other

possible models are 10 snap cubes put together in a ten tower, 10 dots grouped to form a single unit of 10, or in a more abstract form, a long line that represents a ten strip or rod. To use these tools, children must understand how the model connects to written numerals.

2

Guided Practice

Remind children that their first number sentence should begin with 10 to match the filled ten-frame.

Exercise 1

Error Intervention

If children write 14 as 41,

then tell them that the 1 needs to come first because it stands for the group of ten counters in the ten frame at the top of the picture.

Do you understand? *How can you write a number sentence to describe a teen number with 10 as one part?* (Fill a ten-frame and then add the number of counters you have left. Those parts (10 and the number of extras) go together to make the total number of counters. Write $10 +$ the number of extras = the total number of counters.)

Reteaching Have children write the number in each ten-frame to the right of the frame. For instance, in Example 1, children should write 10 to the right of the filled ten-frame and 4 to the right of the other frame. Then have children use these numbers to put together their number sentence.



Common Core

Domain

Number and Operations in Base Ten

Cluster

Work with numbers 11–19 to gain foundations for place value.

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Mathematical Practices

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Topic 10: Composing Numbers

11 to 19

Lesson 10-3

MDIS: A15

Making 17, 18, and 19

Quick and Easy Lesson Overview

| Objective | Essential Understanding | Vocabulary | Materials |
|--|---|----------------|---|
| Children will represent 17, 18, and 19 as the composition of 10 plus 7, 8, or 9. | Numbers from 11–19 can be represented as the sum of 10 and some more. | How many more? | 2 ten frames (or Teaching Tool 8), counters |



Math Background

Composing numbers when ten is one of the addends provides an excellent opportunity for children to identify both general methods and shortcuts for calculations. “How many more” problems represent a type of addition/subtraction situation in which one part and

the whole are known and the other part is missing. If children can see this type of problem visually with drawings and write number sentences that describe them, they can begin to see the regularity in mathematics and repeat their reasoning.

2 Guided Practice

Remind children that they need to find “how many more,” not “how many in all.”

Exercise 1

Error Intervention

If children complete the number sentence by writing 17 rather than 7 in the blank,

then show them that the number added to ten must be the number of counters in the second ten frame, and point out that the total is already written in the number sentence.

Do you understand? *How can you write a number sentence and draw a picture to describe a teen number with ten as one part?*

[Fill one ten frame with counters to show 10. Add counters to the other ten frame until the total number of counters equals the teen number. The number of counters in each ten frame shows the teen number as ten and some more.]

Reteaching Help children make 18 on a pair of ten frames. Touch the filled ten frame and say 10. Touch the second ten frame and say plus something. Indicate both frames together and say equals 18. Repeat, having children say the words with you. Then have children count how many spaces are filled on the second ten frame to find the missing amount. Repeat with 17 and 19 as needed.



Common Core

Domain

Number and Operations in Base Ten

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K

Topic 10: Composing Numbers

11 to 19

Lesson 10-4

MDIS: A15

Problem Solving: Look for a Pattern

Quick and Easy Lesson Overview

| Objective | Essential Understanding | Vocabulary | Materials |
|---|--|------------|---|
| Children will use drawings and number sentences to identify patterns on the first two rows of the hundreds chart. | Patterns on the hundreds chart can be represented using number sentences and drawings. | | Large sheet of chart paper, glue or tape, markers, 2 sets of number card pairs; (per pair) 3 ten-frames (or Teaching Tool 8), 30 counters |



Math Background

The pattern on the 100s chart is part of a counting pattern that emphasizes place value. Because each row has ten numbers, each number in each row is 10 more or 10 less than the number directly above or below it. Recognizing these patterns is an important part of recognizing structure in mathematics.

In particular, the structure of our decimal system allows us to generate computation shortcuts and procedures. While young children will not understand the benefit of this structure at this level, the patterns on the first two rows of the 100s chart can provide a beginning foundation for understanding place value.



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2

Guided Practice

Remind children that they are looking for patterns that help them see how to get from a one-digit number to a teen number.

Exercise 1

Error Intervention

If children do not see a connection between 9 and 19,

then ask them how many counters there are in the ten-frame that shows 9 [9] and how many there are in the bottom ten-frame that shows 19 [9]. Point out that the number in each is the same.

Do you understand? *What number patterns can you find on the first two rows of the 100s chart?* [Each number in the second row of the 100s board is ten more than the number on top of it.]

Reteaching Have children show 9 on the lowest of the three ten frames. Then have them place counters on the middle ten-frame so there are 19 counters showing in all. Elicit or explain that going from 9 to 19 requires adding a completed ten frame, or 10.