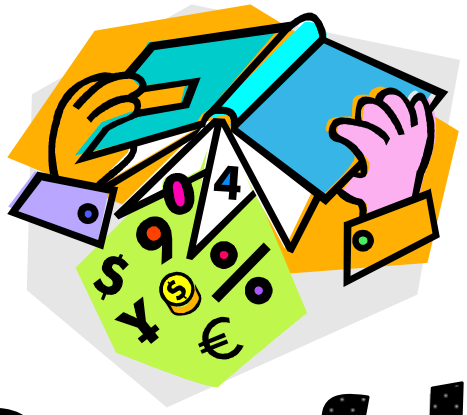
Mathematics:



"A Story of Units"

Parent Handbook

GRADE K

MODULE 5

Grade K • Module 5

Numbers 10–20 and Counting to 100

OVERVIEW

Students have worked intensively within 10 and have often counted to 30 using the Rekenrek during fluency practice. This sets the stage for Module 5, where students clarify the meaning of the 10 ones and some ones within a teen number and extend that understanding to count to 100. In Topic A, students start at the concrete level, counting 10 straws.

T: Count straws with me into piles of ten.

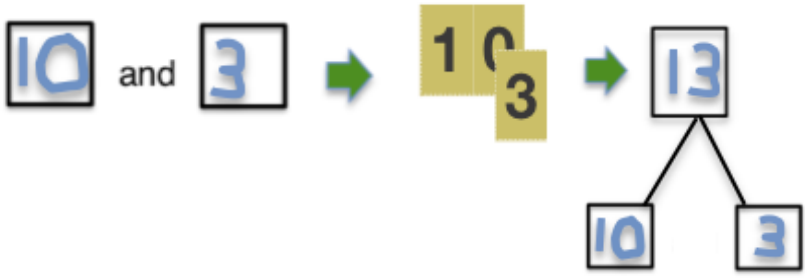
S: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. 1, 2, 3, … 8, 9, 10. 1, 2, 3, … 8, 9, 10.

T: Let's count the piles!

S: 1 pile, 2 piles, 3 piles, 4 piles.

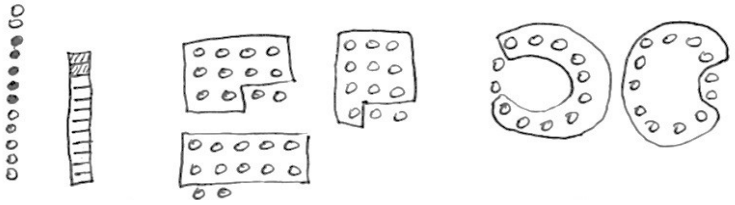
Thus, kindergarten students learn to comfortably talk about 10 ones, setting the foundation for the critical Grade 1 step of understanding 1 ten. They next separate 10 objects from within concrete and pictorial counts up to 20, analyzing the total as 10 ones and no ones or 10 ones and some ones. They see two distinct sets which are then counted the Say Ten way: ten one, ten two, ten three, ten four, ten five, ten six, ten seven, ten eight, ten nine, two ten. The students hear the separation of the 10 ones and some ones as they count, solidifying their understanding as they also return to regular counting, eleven, twelve, thirteen…etc.

In Topic B, the two distinct sets of ones are composed, or brought together, through the use of the Hide Zero cards (pictured below) and number bonds. Students represent the whole number numerically while continuing to separate the count of 10 ones from the count of the remaining ones with drawings and materials. Emerging from Topic B, students should be able to model and write a teen number without forgetting that the '1' in 13 represents 10 ones.

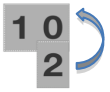


Topic C opens with the students making a simple Rekenrek to 20 (pictured below) and modeling numbers thereon. The tens can be seen both as two lines with a color change at the five or two parallel uni-color fives.

In Topic C, the focus is now on the decomposition of the total teen quantity so that one part is ten ones. This is what makes Topic C a step forward from Topics A and B. Previously, the ten and ones were always separated when modeled pictorially or with materials. Now, the entire teen number is a whole quantity represented both concretely and pictorially in different configurations: towers or linear configurations, arrays (including the 10-frame or 5-groups,) and circles. The students decompose the total into 10 ones and some ones. Through their experiences with the different configurations, students have practice both separating 10 ones within teen numbers and counting/conservation as they count quantities arranged in different ways and, as always, use math talk to share about their observations. They also come to know each successive teen number as one larger than the previous number.



Towers Arrays Circles



I have 10 ones and 2 ones.
10 and 2 is ___.
12 = 10 + ___ .

In Topic D, students extend their understanding of counting teen numbers to numbers 21 to 100. They first count by tens both the Say Ten way, 1 ten, 2 tens, 3 tens, 4 tens, etc. and the regular way, twenty, thirty, forty, etc. They then count by ones to 100, first within a decade and finally across the decade. Topic D involves a Grade 1 standard as students also write their numbers from 21–100. We include the writing of larger numbers because of the range of activities they make possible. The writing of these numbers is not assessed or emphasized, however. Topic D closes with an optional exploration of numbers on the Rekenrek, bringing together counting with decomposition and finding embedded numbers within larger numbers. This lesson is optional because it does not directly address a particular Kindergarten standard.

In Topic E, students apply their skill with the decomposition and composition of teen numbers. In Lesson 20, they represent both compositions and decompositions as addition statements. In Lesson 21, they model teen quantities with materials in a number bond and hide one part. The hidden part is represented as an addition

sentence with a hidden part, e.g. 10 + ___ = 13 or 13 = ___ + 3. The missing addend aligns
Lesson 21 to a Grade 1 standard. In Lesson 22, students apply their skill with decomposition into 10 ones and some ones to compare the some ones of two numbers and thus to compare the teen numbers. They "stand" on the structure of the 10 ones and use what they know of numbers 1–9. Comparison of numbers 1–9 is a Kindergarten standard**.**

In Lesson 23, students reason about situations to determine whether they are decomposing a teen number (as 10 ones and some ones) or composing 10 ones and some ones to find a teen number. They analyze their number sentences that represent each situation to determine if they started with the total or the parts, and if they composed or decomposed, e.g., 13 = 10 + 3 or 10 + 3 = 13. Throughout the lesson, students draw the number of objects presented in the situation.

The module closes with a culminating task wherein students integrate all the methods they have used up until now to show decomposition. For example, they are instructed, "Open your mystery bag. Show the number of objects in your bag in different ways using the materials you choose." This experience also serves as a part of the End-of-Module Assessment, allowing the student to demonstrate skill and understanding using all he has learned throughout the module.

Terminology

New or Recently Introduced Terms

Say Ten counting by tens to 100 (e.g., 1 ten, 2 tens, 3 tens, 4 tens, 5 tens, 6 tens, 7 tens, 8 tens, 9 tens, 10 tens)

Regular counting by ones from 11 – 20 (e.g., eleven, twelve, thirteen,…etc.)

Regular counting by tens to 100 (e.g., ten, twenty, thirty, forty, fifty, sixty, seventy, eighty, ninety, one hundred)

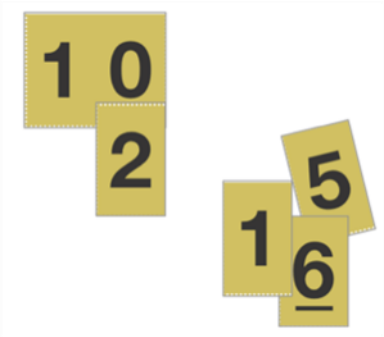
Hide Zero cards (in later grades called Place Value cards, pictured to the right)

10 ones and some ones

Teen numbers

10 and __

10 plus



Familiar Terms and Symbols

Count 10 ones

Circle 10 ones

Circular count

Number tower

Number bond

Part, whole, total

Dot path, empty path, number path

Scatter count

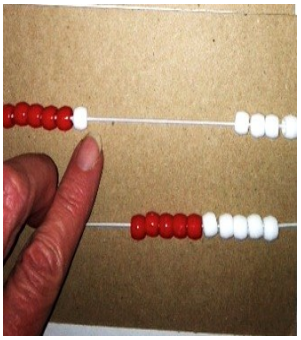
5-group

10-frame

Linear count

Say Ten counting (e.g. , 11–20 is spoken as “ten one, ten two, ten three, ten four, ten five, ten six, ten seven, ten eight, ten nine, two ten”)

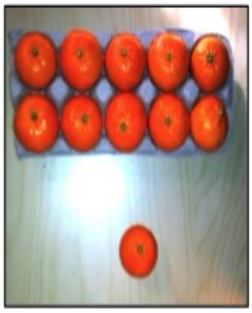
Suggested Tools and Representations



50 sticks or straws for each group of 2 students

Student made Rekenrek (pictured to the right):
10 red and 10 white pony beads, 1 cardboard strip, 2 elastics

1 egg carton per pair of students with 2 slots cut off to make a carton with 10 slots



Hide Zero cards (in later grades called Place Value cards)

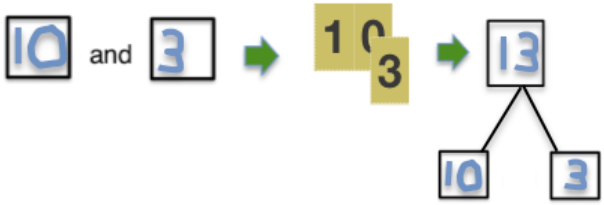
Objects to put in the egg carton such as mandarin oranges, plastic eggs or beans

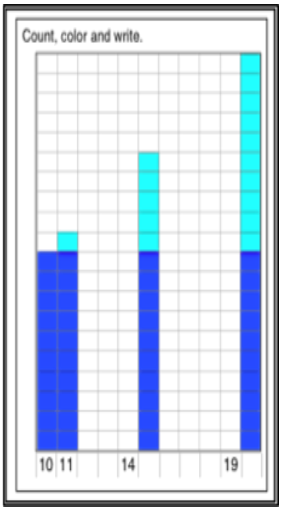
Single and double ten-frames

A variety of worksheets for lessons and Sprints

Linking cubes: ideally 10 of two different colors per student

Number bond template

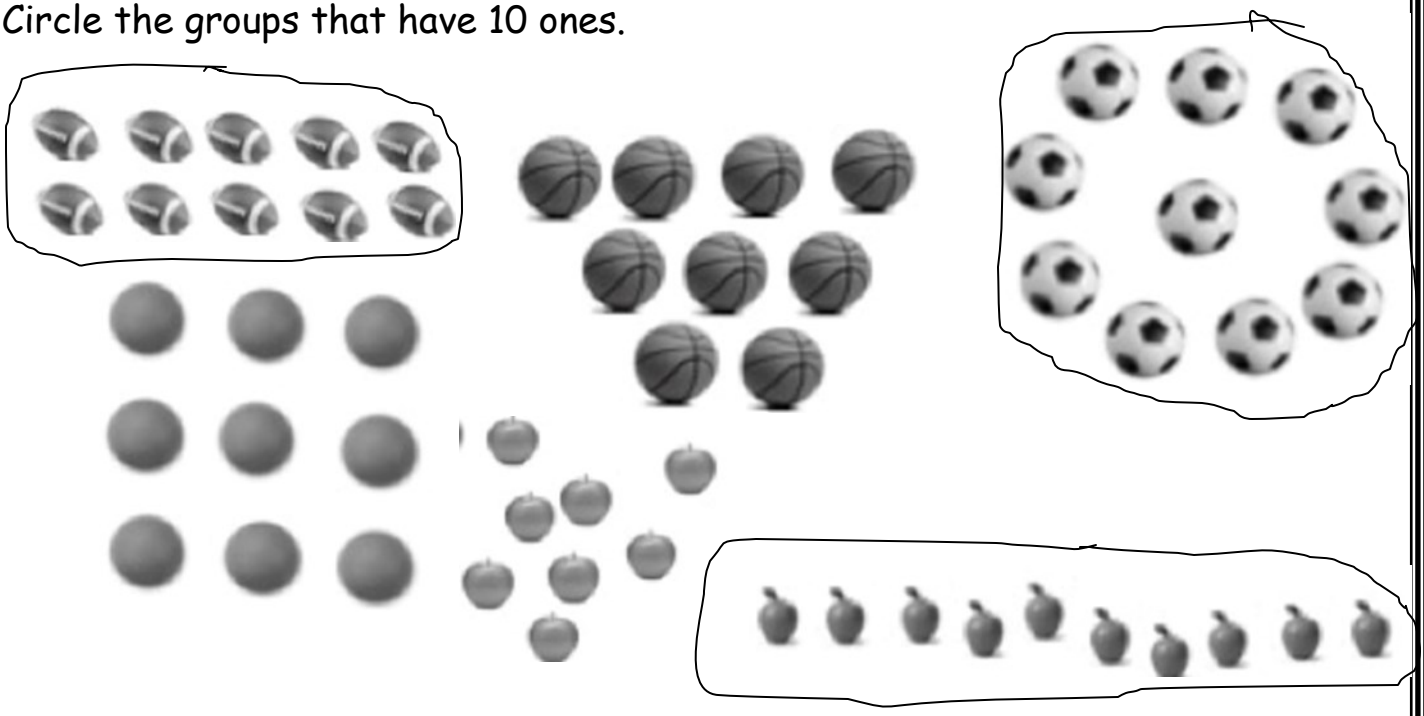




Lesson 1

Objective: Count objects into piles of ten; count the piles as 10 ones.

Circle the groups that have 10 ones.

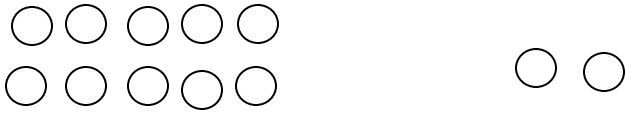


Lesson 2

Objective: Count 10 objects within counts of 10 to 20 objects, and describe as 10 ones and _____ ones.

Draw pictures to match the words.

I have 10 small circles and 2 small circles:

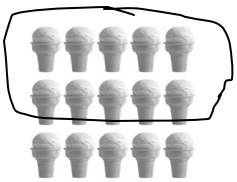


Lesson 3

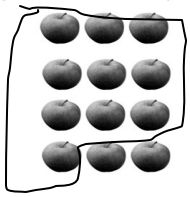
Objective: Count and circle 10 objects within 10 to 20 objects and describe as 10 ones and ____ ones.

I have 10 ones and 2 ones.

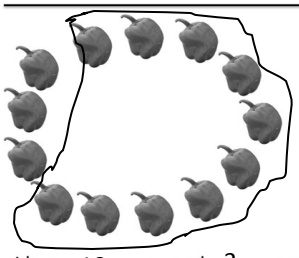
Count and circle 10 things. Tell how many there are in two parts, 10 ones and some more ones.



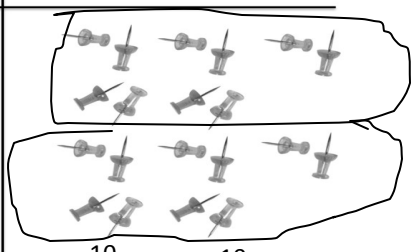
I have 10 ones and 5 ones.



I have 10 ones and 2 ones.



I have 10 ones and 3 ones.



I have 10 ones and 10 ones.

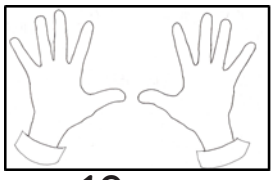
Lesson 4

Objective: Count objects the Say Ten way to 19; make a pile for each ten.

Count and write how many the Say Ten way.

10

1

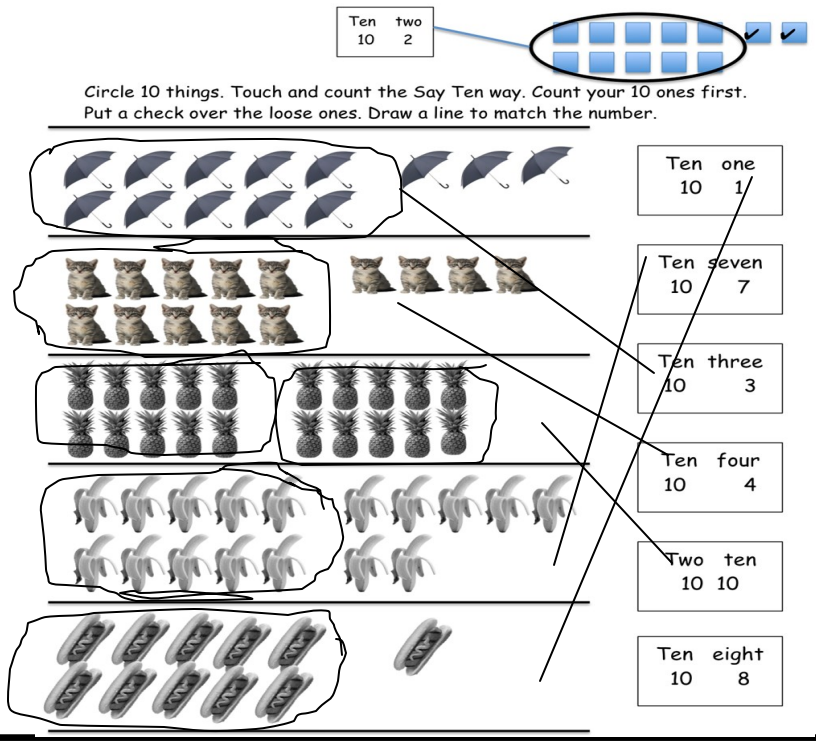


10

5

Lesson 5

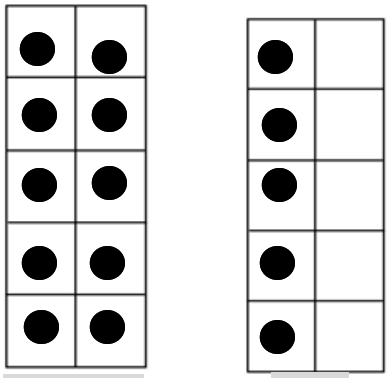
Objective: Count objects the Say Ten way to 20; make a pile for each ten.



Lesson 6

Objective: Model with objects and represent numbers 10 to 20 with place value or Hide Zero cards.

Write and draw the number. Use your Hide Zero cards to help you.



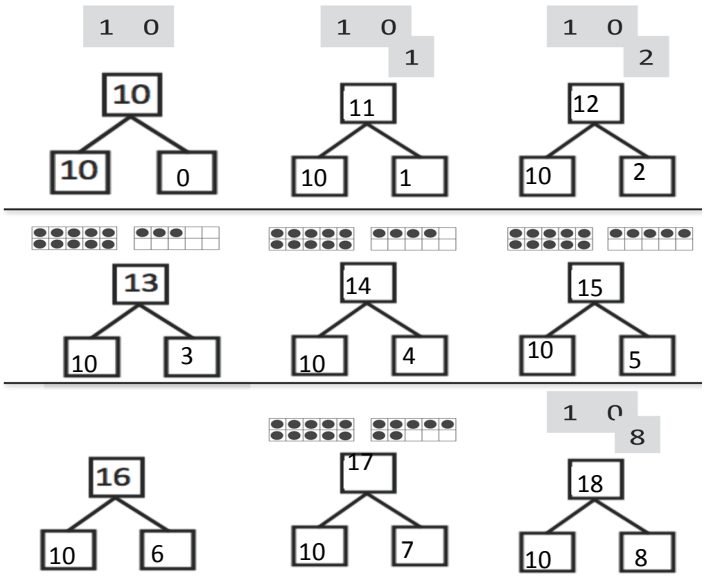
1 0 5

15

Lesson 7

Objective: Model and write numbers 10 to 20 as number bonds.

Look at the Hide Zero cards or the 10-frame cards. Use your cards to show the number. Write the number as a number bond.

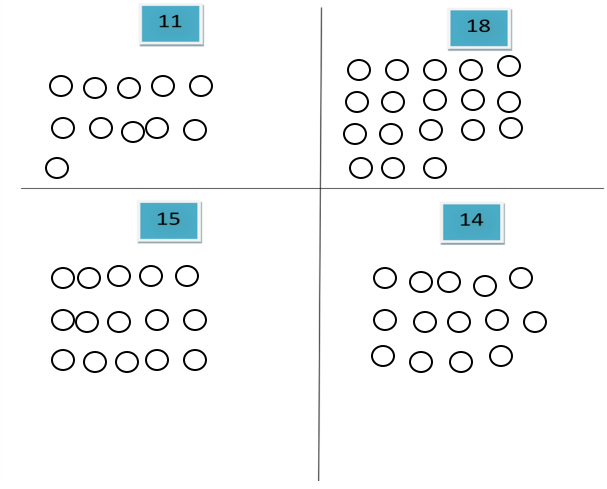


Lesson 8

Objective: Model teen numbers with materials from abstract to concrete.

Use your materials to show each number as 10 ones and some more ones.

Use your 5-Groups way of drawing.

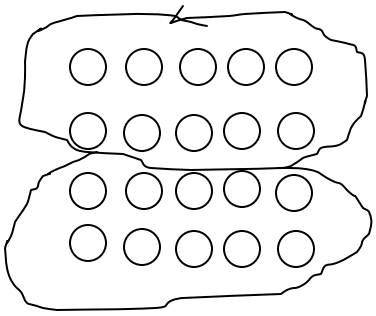


Lesson 9

Objective: Draw teen numbers from abstract to pictorial.

Draw and circle 10 ones and some more ones to show each number.

20



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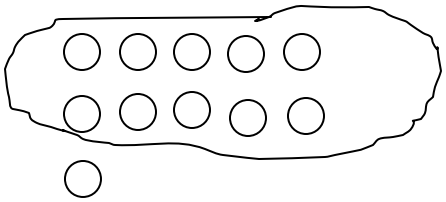
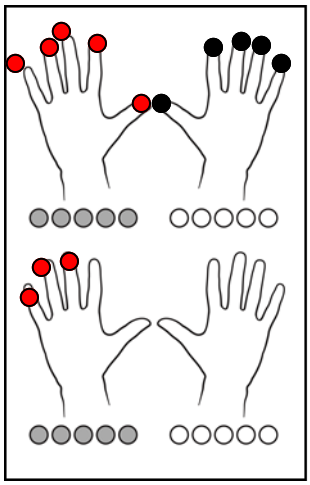
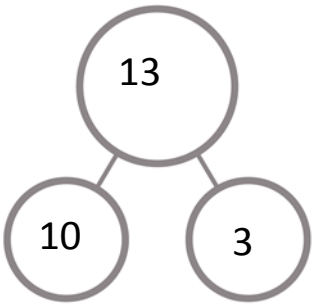


Lesson 10

Objective: Build a Rekenrek to 20.

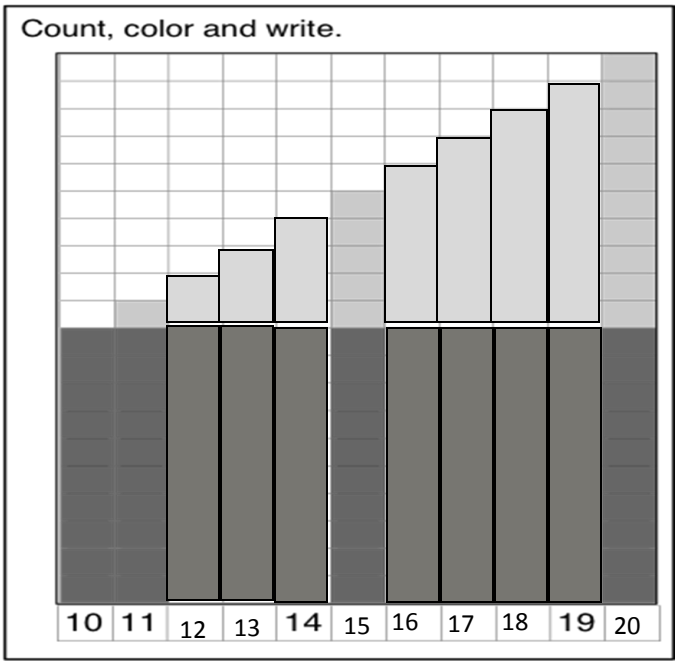
Color the number of fingernails and beads to match the number bond. Show by coloring 10 ones above and extra ones below. Fill in the number bonds.





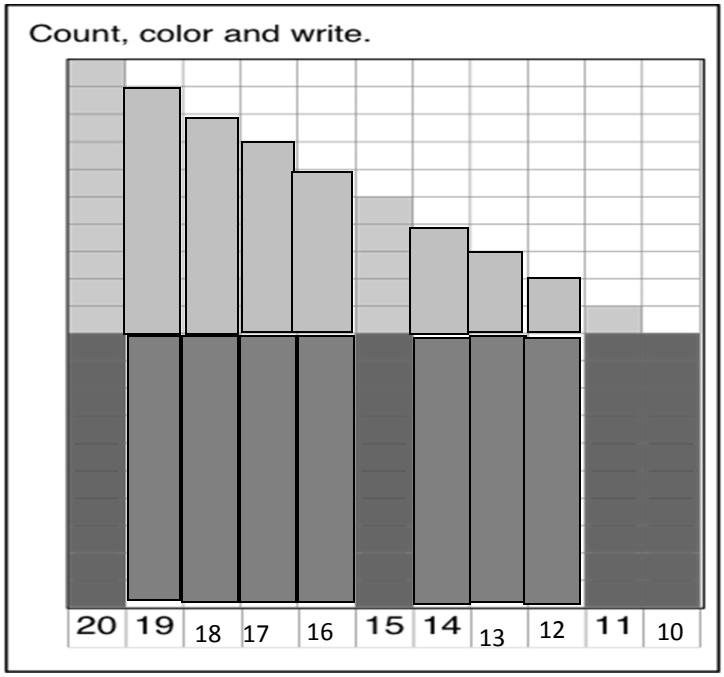
Lesson 11

Objective: Show, count, and write numbers 11 to 20 in tower configurations increasing by 1—a pattern of 1 *larger.*



Lesson 12

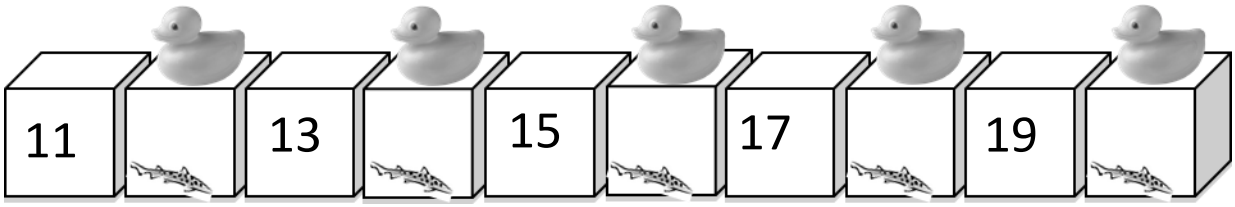
Objective: Represent numbers 20 to 11 in tower configurations decreasing by 1—a pattern of *1 smaller.*



Lesson 13

Objective: Show, count, and write to answer *how many* questions in linear and array configurations.

Count up on the number path. Write the missing numbers that have ducks on them.

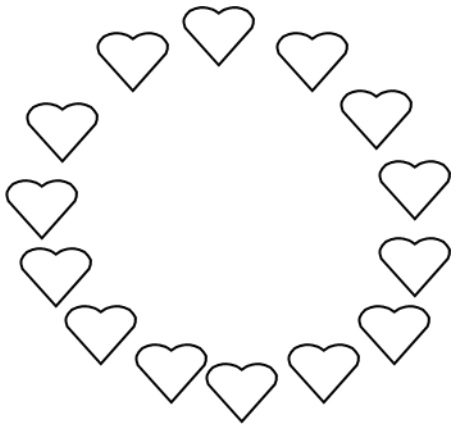


_12___ __14____ _16_____ _18_____ __20___

Lesson 14

Objective: Show, count, and write to answer *how many* questions with up to 20 objects in circular configurations.

Whisper count how many objects there are. Write the number.



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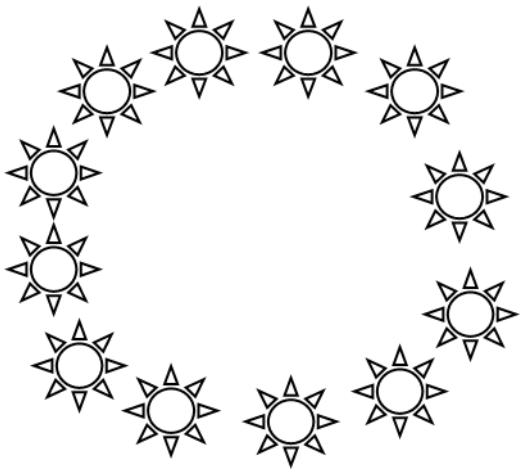

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Lesson 15

Objective: Count up and down by tens to 100 with Say Ten and regular counting.

Help the puppy down the stairs! Count down by tens. Write the numbers.

100

90

80

70

60

50

40

30

20

10

Lesson 16

Objective: Count within tens by ones.

Help the boy get to his present. Count up by 1s. When you get to the top, count down by 1s.

31

32

33

34

33

32

31

Lesson 17

Objective: Count across tens when counting by ones through 40.

.Count up by 1s. Help the kitty play with her yarn!

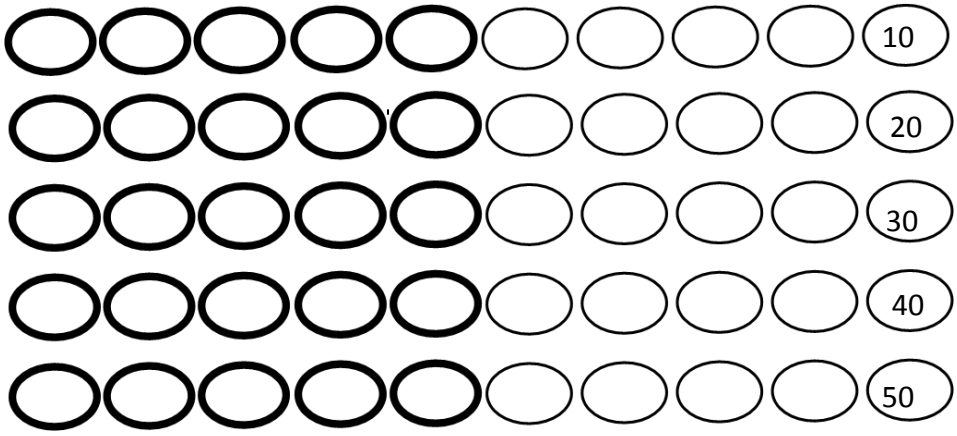
31	32	33	34	35	36	37	38

Lesson 18

Objective: Count across tens by ones to 100 with and without objects.

Touch and whisper count the circles by 1s to 100. Say the last number in each row loudly and color it purple. Do your best. Your teacher may call time before you are finished.

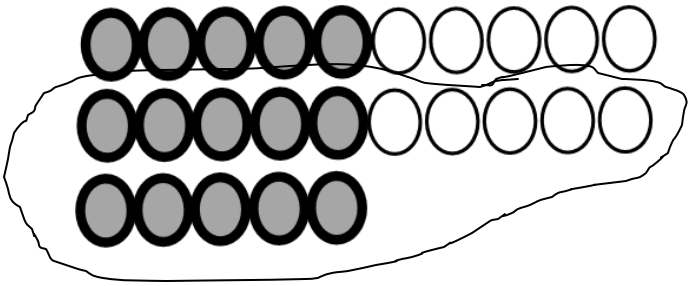
Note: For space reasons only 50 are shown here.



Lesson 19

Objective: Explore numbers on the Rekenrek. (Optional).

Write the number of objects that matches the number in the box. Circle the teen number you see. Write the teen number in the other box.



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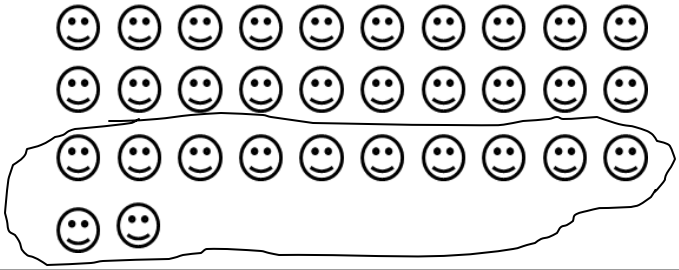

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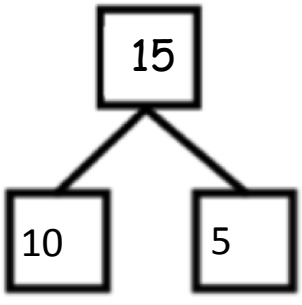
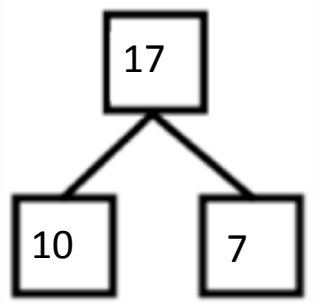
Lesson 20

Objective: Represent teen number compositions and decompositions as addition sentences.

Fill in the number bonds and write a number sentence to match it.



15 = 10 + 5

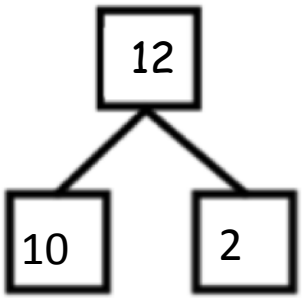


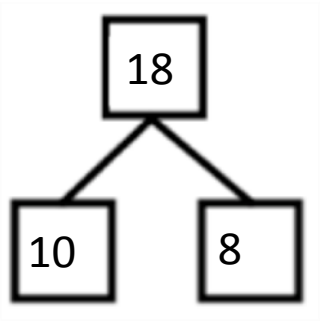
17 = 10 + 7

Lesson 21

Objective: Represent teen number decompositions as 10 ones and some ones, and find a hidden part.

Complete the number sentences and number bonds.





12 = 10 + 2

10 + 2 = 12

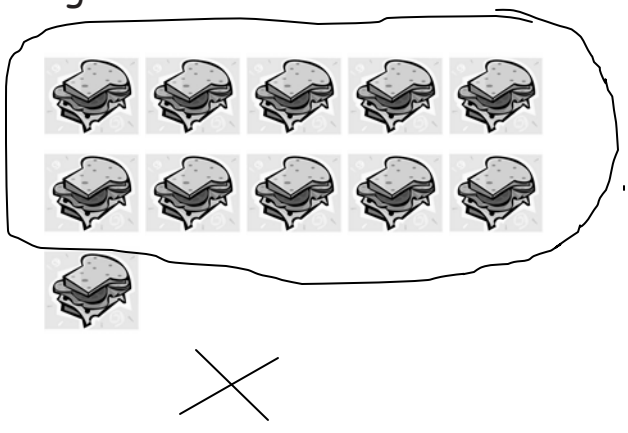
18 = 10 + 8

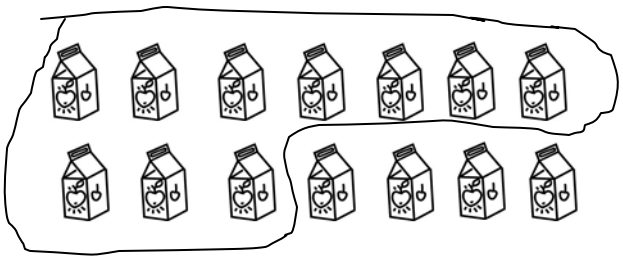
10 + 8 = 18

Lesson 22

Objective: Decompose teen numbers as 10 ones and some ones; compare *some ones* to compare the teen numbers.

Circle 10 sandwiches. Circle 10 milk cartons. Check the group that has **less** things.

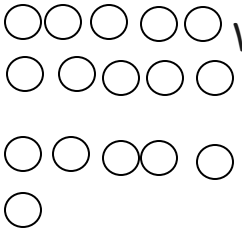




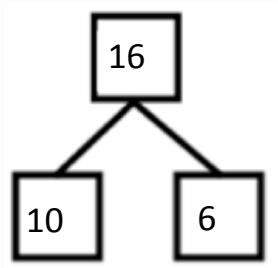
Lesson 23

Objective: Reason about and represent situations, decomposing teen numbers into 10 ones and some ones, and composing 10 ones and some ones into a teen number.

Our class has 16 bags of popcorn. Draw and show the popcorn bags as 10 ones and some ones.



Write a number bond and an addition sentence to match your picture



16 = 10 + 6

Lesson 24

Objective: Culminating Task—Represent teen number decompositions in various ways.

Due to the Culminating Task, there is no homework for Lesson 24.