**Ten Frames (11-20)**

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| In this lesson, students work with double ten frame mats to represent and work with teen numbers.  |

**NC Mathematics Standard:**

**Understand place value.NC.1.NBT.2** Understand that the two digits of a two-digit number represent amounts of tens and ones.

• Unitize by making a ten from a collection of ten ones.

• Model the numbers from 11 to 19 as composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

• Demonstrate that the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens, with 0 ones.

**Additional/Supporting Standard:**

**Extend and recognize patterns in the counting sequence.NC.1.NBT.1** Count to 150, starting at any number less than 150.

**Standards for Mathematical Practice:**

2. Reason abstractly and quantitatively.

1. Use appropriate tools strategically.
2. Attend to precision.
7. Look for make use of structure.

**Student Outcomes:**

* I can represent a given number between 0-19 on a ten frame and/or a double ten frame and relate the representation to the written numeral.
* When given a number between 0 and 9, I can tell how many more need to be added to make a 10.
* When given a number between 11 and 19, I can tell how many groups of ten and leftovers (ones).
* When given a number between 0 and 19, I can tell how much 1 more and 1 less is.

**Math Language:**

**What words or phrases do I expect students to talk about during this lesson?**

leftovers, less, more, ones, tens

**Materials:**

* Ten Frame Mats, Double Ten Frame Mats, 2-color counters, number cards (11-19), spinner, paperclip, pencil, Recording Sheet, Splitting Up Teen NumbersActivity Sheet

**Advance Preparation**:

* Gather materials and make copies

**Launch:**

1. Ten Frames (11-19) (5-10 minutes)

Give students ten frames and approximately 20 counters each. Ask students to place ten counters on the ten frame. Observe to make sure that each space has only one counter in it.

Tell students: *Grab another counter and place it next to your ten frame. How many counters do you now have total? How many are on our ten frame? How many leftovers do we have outside of the ten frame?*

Have the students grab another counter and ask them the questions above. Make sure to emphasize that the number on the ten frame does not change, but the number of leftovers does change. For now, do not show the written numerals. Only say the numbers orally. Continue this process until students have 15 counters.

**Explore (Part One)**

2. Building Teen Numbers (10 minutes)

Write the number 16 on the board for students. Tell students to build it using the ten frame.

As students work, observe:

* *Do students put one counter in each square?*
* *Do they organize their leftovers in a way that is easy to count?*
* *How do they orally count the number of counters that they have?”*

Write the number 18 on the board for students and have them build that number using the ten frame. Observe the same things as above.

Once students have built 16 and 18, introduce the double ten frame (copy attached). Tell students that the double ten frame works just like one ten frame. Emphasize the importance of filling up the entire top ten frame before filling in the bottom ten frame.

**Explore (Part Two):**

3. More or Less with Teen Numbers (10 minutes)

Split students into pairs and give them recording sheets. Each pair receives a set of teen number cards and a spinner. Model the activity for students at least twice.

Directions:

* + - Pull a teen number card from the deck.
		- Build the number using your double ten frame.
		- Record your number on the Recording Sheet.
		- Spin the spinner.
		- Adjust the ten frame based on what you have spun.
		- Record your new number and equation on the Recording Sheet.

Ask questions such as these to ensure understanding:

* + - *What is the first thing that you will do?*
		- *After drawing a card what do we do?*
		- *What do we do after we spin the spinner?*
		- *As I walk around, what will I see on your activity sheet?*

As students play observe:

*Do they correctly record the correct number?*

*How do they count the first number of counters?*

*When they change the number do they count all the counters or count on from a number?*

These questions may be turned into a checklist to record observations.

**Discuss:**

4. Discussing Counting On and Counting Back (10 minutes)

Bring students back together to discuss the activity. The purpose of this is to have students discuss the idea of tens and leftovers as well as the ideas of changing numbers by counting on or counting back.

Show students the number card 16.

Either have a student model how to build and change the double ten frame or do it for the class as students tell you what to do. Spin the spinner, but before changing the ten frame ask:

*How should we change our double ten frame?*

Follow up by asking: *How did you count when we had to change the number?*

Possible student responses:

* “I started at 1 and counted all of the counters.”
* “I knew that I had one full ten frame so I started at 10 and then counted 11, 12…”
* “We started with 16 and the spinner said to add 1, so I counted 1 more, 17.”

#### 5. Discussing the Idea of Tens and Leftovers (5 minutes)

Show students a blank copy of the chart below. The first two rows are filled in to show you an example.

|  |  |  |  |
| --- | --- | --- | --- |
| **Counters in First Ten Frame** | **Leftovers in Second Ten Frame** | **Total Counters** | **Number Sentence** |
|  10 | 6 |  16 | 10 + 6 = 16 |
|  10 | 7 |  17 | 10 + 7 = 17 |

Show students a teen number built on the double ten frame. Ask students questions as they help you fill out the table. For example, if you built the number 16 on the ten frame, ask:

*How many counters are in the first ten frame? How many counters are in the second ten frame?*

*If we added the counters from both ten frames, how many would we have?*

*What would our number sentence be if we added the counters in each of the ten frames?*

Repeat this with a few of the teen numbers.

This discussion is intended to help students understand that the teen numbers are composed of one ten and some leftovers. For example, 15 is made up of a group of 10 and 5 leftovers which can be shown as 10 + 5 = 15. This is a Kindergarten standard, but needs to be revisited frequently in First Grade.

**Additional Activities**

6. Splitting Up Teen Numbers Activity Sheet (10 minutes)

Give students the Activity Sheet titled “Splitting Up Teen Numbers” for them to work on.

As students are working, provide extra support to struggling students by revisiting the ideas of tens and leftovers.

**Evaluation of Student Understanding**

**Informal Evaluation:**

See questions in the various activities.

**Formal Evaluation/Exit Ticket:**

“Splitting Up Teen Numbers” activity sheet could be used to evaluate students’ understanding.

**Meeting the Needs of Different Learners**

**Intervention:**

Struggling students will work with the numbers 0-10 on a ten-frame before moving onto numbers 11-19. Small group instruction should be given to these students.

**Extension:**

Students that are successful with the numbers 0-19 could begin exploring the numbers 21-29 during the Explore part of the lesson.

**Possible Misconceptions/Suggestions:**

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| **Possible Misconceptions** | **Suggestions** |
| Not realizing that a ten is a group of 10 ones | Continue to work with ten frames that have 10 individual counters or pictures on them and encourage students to talk about and work with the idea that 12 includes a full ten frame (1 group of 10) and 2 ones (leftovers).  |
| Trouble writing the equations | Since equation writing is not a focus in Kindergarten, students may struggle making sense of the meaning of the addition and equals signs. Support students by having them talk about and think about the addition sign as “joined with” and the equal sign as “the same as.” For example, “15 is the same as 10 joined with 5.” |
| Students may not be consistent with finding one more/one less | Allow students to count all of the counters at first, but encourage them to use a number line and their knowledge of the counting sequence to determine what one more or one less is. |

**Special Notes:** Consider revisiting the activities from this lesson in an ongoing basis.

Double Ten Frame Sheet

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Teen Number Cards

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| --- | --- | --- | --- |
| **11** | **11** | **11** | **12** |
| **12** | **12** | **13** | **13** |
| **13** | **14** | **14** | **14** |
| **15** | **15** | **15** | **16** |
| **16** | **16** | **17** | **17** |
| **17** | **18** | **18** | **18** |
| **19** | **19** | **19** | **19** |

Spinner



Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Splitting Up Teen Numbers

Recording Sheet Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- | --- | --- |
| **First Number** | **Number Changed** | **New Number** | **Number Sentence** |
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Activity Sheet Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

