Making Teen Numbers

Objective/Goal: Students will build two digit numerals less than twenty on their ten frames. Students will connect building of concrete numerals to pictorial representation and explain their thinking.

Benchmarks Touched On	Benchmark Emphasized
1.1.1.1	Use place value to describe whole numbers between 10 and 100 in terms of tens and ones (medium benchmark).
1.1.1.2	Read, write, and represent whole numbers up to 120. Representations may include numerals, addition and subtraction, pictures, tally marks, number lines and manipulatives such as base ten blocks (high benchmark).

Misconceptions From Scimathmn.org: Saying the number that is ten more than a given number does not always mean that the student understands the quantity of 10 more. Having students demonstrate the meaning of ten more or less than a given number using place value materials helps make the concept explicit. Organizing numbers in different ways can help highlight patterns in the base ten number system. Another misconception is that the teen numbers are written in reverse order. For example, when hearing fourteen students might record 41 because they heard four first.

Materials:
▪ Everyday Math cards, card deck or dice
▪ 10-frame Recording Sheet
▪ 20 unifix cubes in 10 of each color
▪ Math notebook
▪ Pencil
▪ Crayons/Markers (two different colors)

Directions for Flex Group:
▪ Teacher asks *Student A* to choose a card from the stack of EDM cards 1- 9.
▪ All students place that number of cubes on the 10-frame with one color of the cubes.
▪ Teacher asks *Student A,* "How many cubes do you have on your 10-frame?"
▪ Teacher tells *Student A,* "Now add 10 cubes to your number on your 10-frame."
▪ All Students add 10 cubes to their 10-frame with the other colored cubes.
▪ *Student A* counts the number of cubes and *Student A* says " _____ cubes and 10 cubes make ____cubes altogether."
▪ All Students fill in their original number on the small 10-frame Recording Sheet and then add 10 to their number to represent their ten frames and unifix cubes.
▪ All Students record their tens and ones under the small 10-frames.
▪ Students then record the number model in the column next to their representation.
▪ Students turn and explain to their partner their representations.
▪ *This work is repeated three more times with teacher asking Student B, C and D to choose card and answer prompts.*

Variations: When students have shown mastery of this activity with numbers up to 20, this activity can be adjusted by adding a base ten (long) block above the ten frame to represent 10, and the base ten units placed above the ones place to represent ones. This helps students transition from the ten frames to the base ten blocks.

Directions for Partner Work:
1. Partners work in groups of two and decide who is *Partner A* and who is *Partner B*.
2. *Partner A* chooses a number from 0 – 9 and tells *Partner B*.
3. Both place that number of cubes on the 10-frame with one color of the cubes. Have students check their partner's work.
4. *Partner A* asks *Partner B*, "Now add 10 cubes to your number on your 10-frame."
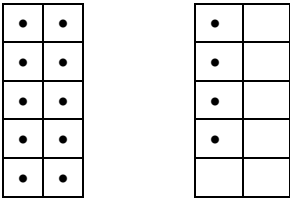5. Both partners add 10 to their number on their 10-frame.

6. Both count the number of cubes and say to their partners, " _____ cubes and 10 cubes make _____cubes altogether."
7. Both fill in their original number on their small 10-frame, and then add 10 to their original number on the Adding 10 to your 10-frame Recording Sheet.
8. Both record their tens and ones under the small 10-frames. Both fill in their number model in the column next to their representation. Students check their partner's work.
9. Partners continue to work together switching roles to find and record as many different facts as they can.

Student Sentence Frames (what the students say to each other):
- "Who is partner A? Who is partner B?"
- Partner A: "We start with the quantity _____"
- Partner A: "Add 10 more cubes to our first number."
- Partner A: " I see that_____ cubes and 10 cubes make _____cubes altogether."
- Partner A: "_____ + 10 = _____.

Student Math Notebook Samples:

Title   **Adding 10**   **Date and Time**
(Students can glue the Recording 10-frame Sheet into their Math Notebook).

Beginning Number	+10	Picture Representation of + 10	Addition Model
4	+10	1 ten 4 ones	4 +10 14

Once students are proficient with this activity with numbers up to twenty have them look for patterns in a chart like the one below. Be sure to use student generated answers in the table.

Beginning Addend	Add 10	Sum
4	10	14
7	10	17
6	10	16
5	10	15
3	10	13

Purposefulness of Chosen Problems: This activity of working with a numeral and adding ten will help the student to understand the quantity of 10 more. By having the student use place value materials and then illustrating their quantity by a pictorial representation, following up with the symbolic representation will help solidify this concept and make it more explicit. Students need to practice to read, write, and represent the teen numbers to avoid misconceptions.
By organizing numbers in the follow up chart, helps highlight patterns in the base ten number system for the students.

Student Sentence Frames for *Making Teen Numbers*
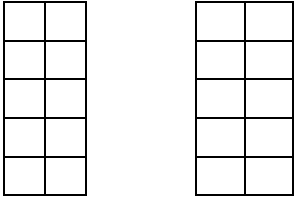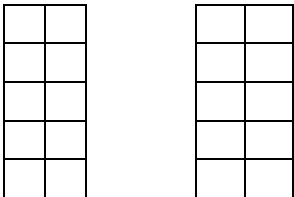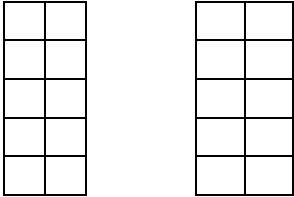
Student Frames (what the students say to each other)
- "Who is partner A? Who is partner B?"
- Partner A: "We start with the quantity _____"
- Partner A: "Add 10 more cubes to our first number."
- Partner A: " I see that_____ cubes and 10 cubes make _____cubes altogether."
- Partner A: "_____ + 10 = _____.

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Starting Number	+ 10	Picture Representation	Addition Model
		_____ _____	

Starting Number	+ 10	Picture Representation	Addition Model
		_____ _____	

Starting Number	+ 10	Picture Representation	Addition Model
		_____ _____	

Starting Number	+ 10	Picture Representation	Addition Model

		▦ ▦ _____ _____	