

# The Teen Numbers

## MATH FOCUS POINTS

- Using addition notation to record the teen numbers as 10 plus some number of ones
- Combining 10 and a single-digit number
- Counting and representing a quantity, and making an equivalent set
- Seeing and representing a teen number as a group of ten ones and some number of ones

## TODAY'S PLAN

## MATERIALS



### CLASSROOM ROUTINES: REVIEW AND PRACTICE

#### Counting on the Number Line

Number line



### 1 ACTIVITY

#### Quick Images: Teen Numbers

Teacher Presentation (or use image of ten dots and the image of four dots in a Ten Frame from T13)

T12\*

Pennies or other counters (20 per student)



### 2 MATH WORKSHOP

#### Teen Numbers

2A *Race to the Top: Teen Numbers 2*

2B *Build It, Then Race to the Top*

2C Counting Jar

2D *Race to the Top: Ten Frames*

2A Materials from Session 2.9

2B Materials from Session 2.8

2C Materials from Session 2.7

2D Materials from Session 2.6



### 3 DISCUSSION

#### The Teen Numbers

Counting Jar

Connecting cube towers\* (optional)

### SESSION FOLLOW-UP: REVIEW AND PRACTICE

#### Practice

Student Activity Book, p. 164

\* See *Materials to Prepare* in the Investigation 2 Planner.

Common  
Core State  
Standards

**Classroom Routines:** K.CC.A.1, K.CC.A.2  
**Session:** K.CC.A.1, K.CC.A.2, K.CC.A.3, K.CC.B.4a,  
K.CC.B.4b, K.CC.B.5, K.CC.C.6, K.OA.A.1, K.OA.A.2,  
K.NBT.A.1

**Practice:** K.CC.A.3, K.CC.B.4a, K.CC.B.4b, K.CC.B.5,  
K.NBT.A.1

## CLASSROOM ROUTINES: REVIEW AND PRACTICE

## Counting on the Number Line



### MATH FOCUS POINTS

- Using the number line as a tool for practicing the rote counting sequence, to 100
- Counting from numbers other than 1

Explain that students are going to continue practicing counting on the number line, but today they will begin with 61 and count to 100. Point out 100 on your number line. Ask a volunteer to find 61 on the number line and to keep track of the numbers as the class counts from 61 to 100. Ask another volunteer to find 71 on the number line, and again count to 100 as a class. Continue to use **Assessment Checklist: Counting Sequence to 100 (A28)** in this classroom routine.

## 1 ACTIVITY

### Quick Images: Teen Numbers



Display the Teacher Presentation (or use image of ten dots and the image of four dots in a Ten Frame from T13). Follow the usual steps. **TN**



After discussing the image, ask students to help you write an addition equation that represents it. Connect the numbers and symbols in the equation to the image and students' recreations of it.

Repeat this process with images that show 10 dots and 6 dots.

### TEACHING NOTE

#### **TN** Quick Images Routine

- Show the image for about five seconds.
- Students use pennies or other counters to make a copy of the image on their copy of Two Ten Frames (T12).
- Show the image for another five seconds.
- Students finish/revise their work.
- Reveal the image. Volunteers share how many dots they saw and how they remembered the image.

## 2 MATH WORKSHOP

## Teen Numbers



Explain that the following four activities are available during Math Workshop, and that students need to visit the Counting Jar before the discussion at the end of this session. Remind students what each activity entails, what materials are required, and where they are located.

2 A *Race to the Top: Teen Numbers 2*

For complete details on this activity, see Session 2.9. Continue to use **Assessment Checklist:** Writing Numbers to 20 (A31) and **Assessment Checklist:** The Teen Numbers and MP7 and MP8 (A32) in this activity.

2 B *Build It, Then Race to the Top*

For complete details on this activity, see Session 2.8. Continue to use **Assessment Checklist:** Writing Numbers to 20 (A31) and **Assessment Checklist:** The Teen Numbers and MP7 and MP8 (A32) in this activity.

2 C *Counting Jar*

For complete details on this activity, see Session 2.7.

2 D *Race to the Top: Ten Frames*

For complete details on this activity, see Session 2.6. Continue to use **Assessment Checklist:** Writing Numbers to 20 (A31) and **Assessment Checklist:** The Teen Numbers and MP7 and MP8 (A32) in this activity.

## 3 DISCUSSION

## The Teen Numbers



## MATH FOCUS POINT FOR DISCUSSION

- Seeing and representing a teen number as a group of ten ones and some number of ones

Use the Counting Jar to begin a conversation about the teen numbers. **PD**

## PROFESSIONAL DEVELOPMENT

**PD** DIALOGUE BOX 3: The Teen Numbers

What did you notice about what was in the Counting Jar?

## STUDENTS MIGHT SAY



"There were two towers."



"There were 19 cubes."



"One had 10, the other had 9."



"Yeah, just like Race to the Top."

[Latoya] said there are 10 cubes in one tower, and 9 cubes in the other tower. How does knowing that there are 10 cubes in this tower (hold it up) and 9 cubes in this tower (hold it up) help you know how many cubes there are altogether? **MPN**

Discuss students' ideas. While some count the cubes from one and others count on from the number in one of the towers, focus on strategies that focus on the structure of teen numbers as having ten ones and some number of ones. **PD**


[Kaitlyn] said that every teen number has a ten in it. Do you agree? Let's use cubes to look at it. We know that the tower of 10 has 10 in it, right?

Display a tower of 10 cubes of one color. Ask a student to choose the appropriate Teen Number Card and place it beneath the tower.

Now I'm going to build 11. I'll take a tower of ten cubes and add one more. How many is that?

Build a tower of 11 cubes using 10 cubes of the same color, and one cube of another color. Again ask a student to place the appropriate Teen Number Card beneath your tower. **TN**

### MATH PRACTICE NOTE

**MPN**  **MP7 Look for and make use of structure.** Students who have formulated the idea that a teen number is composed of a group of ten plus the number of cubes at the end of the number may apply this structure to determine that a group of 10 cubes combined with 9 cubes must be 19 cubes.

### PROFESSIONAL DEVELOPMENT

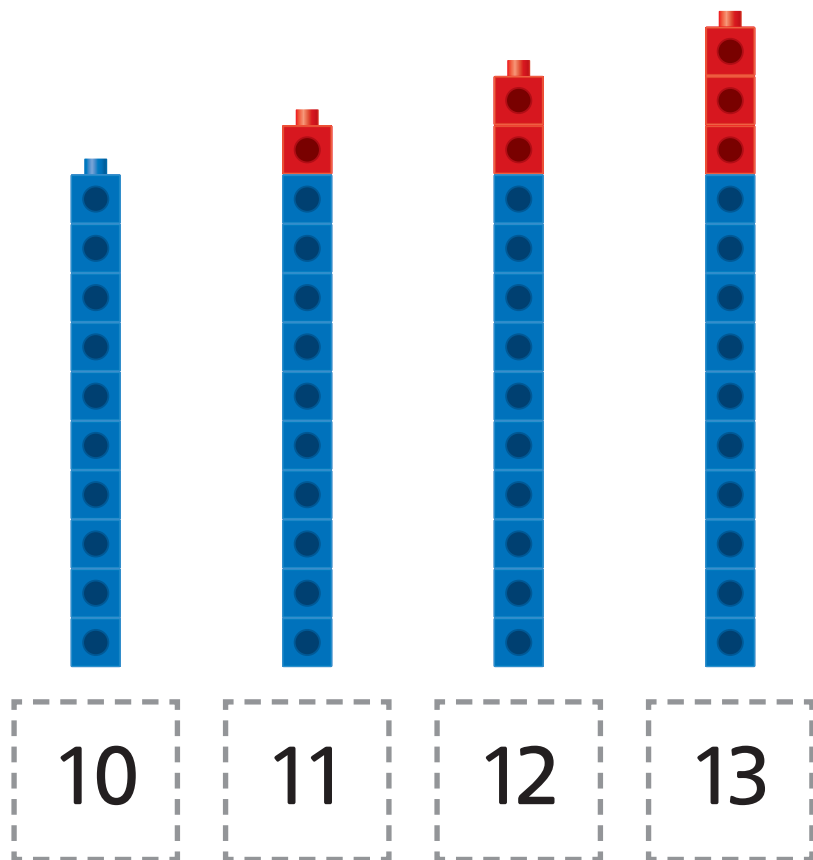
**PD** **TEACHER NOTE 6:** The Foundations of Place Value

### TEACHING NOTE

**TN** **Single Towers** This discussion begins by building one tower for each number. For some students, this organization makes the most sense; one number is represented by one tower. (Later in the discussion, one number is represented by two towers.) When placed side-by-side, the 10 blue cubes that are common to each number becomes visually obvious.



Continue in the same way, asking students to help you build a tower for each number, to 19, in succession. For each, use a tower of 10 cubes in one color, and the rest of the cubes in another color, and label each with a Teen Number Card.



Once the numbers to 19 have been built and labeled, ask students to take a minute to look at the towers.

**We built towers that show the teen numbers, all of the numbers from 10–19.**  
**What do you notice?** **MPN**

Some students notice that each tower has one cube more than the previous (or one cube less than the next). Others notice that the one new cube is always red. Many students notice that there are 10 blue cubes in each tower, although they describe this fact differently.

### STUDENTS MIGHT SAY



“Every tower has the same number of blues.”



“There’s a blue stripe. It goes across all of the towers.”



“There are 10 blues in every tower.”

#### MATH PRACTICE NOTE

**MPN** **MP8** Look for and express regularity in repeated reasoning.

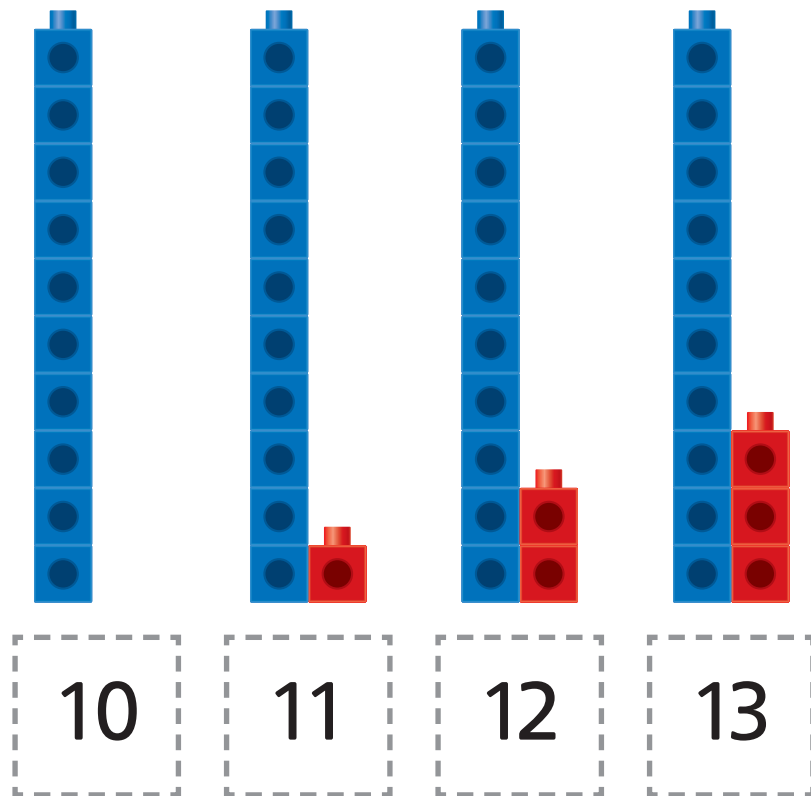
Throughout the last sessions, students may have noticed and made use of the structure of teen numbers. It is another challenge to express the regularity they have noticed. In this discussion, draw students attention to aspects of the cube-tower and numeral representations that are relevant to the ten-and-some-ones structure.

[Timothy] said there are 10 blues in every tower. Do you agree? Let's check.

Count the 10 blue cubes in the first tower, to establish that there are 10. Keep the tower of 10 with the Teen Number Card showing 10.

Move to the next tower. Count the 10 blue cubes, and break the tower into two parts at that point. Ask students how many red cubes there are. Place the one red cube next to the tower of 10, and keep the 11 card with those two towers. **TN**

Do this with each of the towers, asking students to predict the number of red cubes and to comment on what they notice as you proceed.



### STUDENTS MIGHT SAY



"Every number has a tower of 10."



"The reds are like staircases."



"Yeah, there's one more each time."



"The number of red cubes is on the card. See? One red, and there's a 1 in 11. 2 reds, and there's a 2 in 12!"

### TEACHING NOTE

**TN Two Towers** Representing each number with two cube towers—a tower of 10 and another tower—is another way to look at the teen numbers. Some students see more clearly that each teen number is made of a group of 10 cubes and some leftover cubes in this representation. Others find it challenging to hold on to the connection between the single cube tower (total number of cubes) and the two towers of ten and some ones—that there are *two* towers, but they represent *one* number.

If it doesn't come up, ask students to look at the number cards.

Take a minute and look at the number cards that label our cube towers. How do the number cards relate to the cube towers? What do you notice? **MN**

If this doesn't result in much discussion, ask:

What if I cover one of our towers with a piece of paper? (Cover the towers that represent 13 cubes.) What's under the paper? How do you know? Does the Number Card help you know what to expect the cube towers to look like?

Students may just know that 13 comes after 12 while others may be looking at the pattern of the written number or the pattern in the cube towers. Cover a different number and as a group talk through each of the strategies that students previously suggested for identifying the hidden amount.

### SESSION FOLLOW-UP: REVIEW AND PRACTICE

## Practice



**PRACTICE** For reinforcement of this unit's content, students complete *Student Activity Book* page 164.

### STUDENT ACTIVITY BOOK, P. 164



PRACTICE

NAME \_\_\_\_\_ DATE \_\_\_\_\_

#### Teens with Ten Frames

How many dots? Write the number.

1 **12**

2 **18**

Fill in the empty Ten Frame to show the number.

3 **14** **14**

4 **16** **16**

#### NOTE

Students represent a quantity with numbers and on Ten Frames.  
**MN** Teen Numbers

UNIT 8 | 164 | SESSION 2.10

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### MATH NOTE

**MN** **Why Do We Write [the Teen] Numbers The Way We Do?** While kindergarteners can write the teen numbers, and many see a pattern in how they are written, most will not yet understand the place value meaning of the digits in these (and other) two-digit numbers. Students more easily identify the ones digit as representing the set of leftover cubes, but few understand that the 1 in the tens place represents one tower of ten cubes. Students continue to work on the idea that a group of ten ones is the same as one ten in first grade.