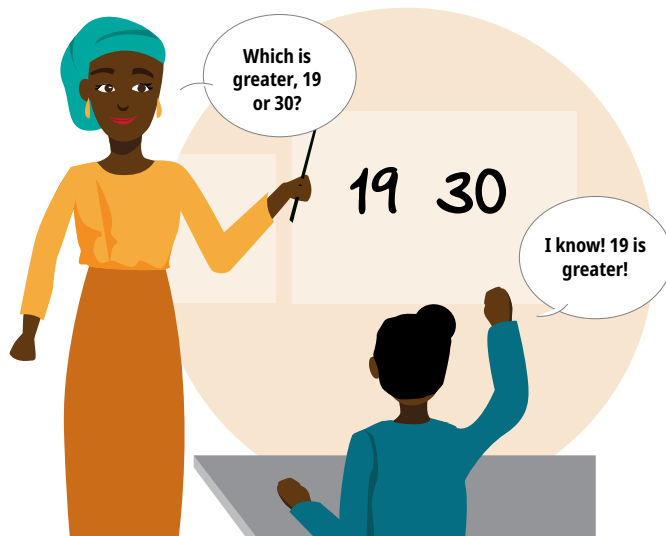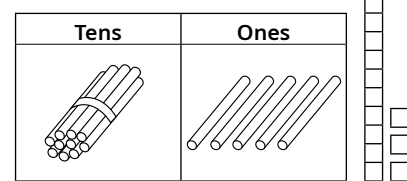# Compare Two- and Three-Digit Numbers

Objectives

This mini-module aims to help teachers:

- Build students' understanding of how to use place value to compare two-digit and three-digit numbers.
- Identify how some place value materials are used to compare numbers.
- Practice a new teaching activity.

Illustration of Teaching

Recommended Materials

Tens	Ones	

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

REFLECT:

- What does this mistake tell you about the student's knowledge of numbers?
- How can you support this student?

Ideas to Consider

The student was asked whether 19 or 30 is greater, and incorrectly responded with 19. They might think this because 19 has the largest digit, 9. They might also think that 30 is only 3 because the other digit is 0. Or, they might think of 19 as 1 and 9, and 30 as 3 and 0.

It seems like the student does not have a good understanding of place value. Students with a good understanding of place value should be able to identify that 30 is more than 19 because it has more tens. Students build a good

understanding of place value by using materials such as sticks, base 10 blocks, and the 100 chart to count and compare numbers.

As teachers, we should try to understand why students make mistakes so that we can support them. In this mini-module, you will learn how to help children compare numbers by building their understanding of place value.

ACTIVITY: COMPARE TWO NUMBERS

This activity can be completed alone, in pairs, or with a group of teachers. If you have colleagues to work with, take turns choosing numbers and representing them with place value materials. Discuss your responses to the questions.

Purpose: Compare two numbers using the place value of their digits.
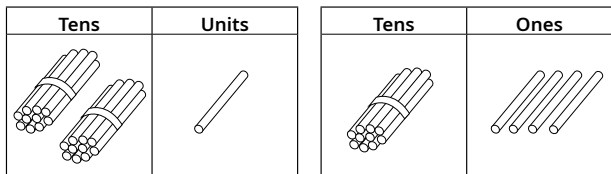
Materials needed: Place value manipulatives (e.g., sticks with rubber bands or strings to group them; base 10 blocks).
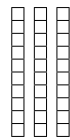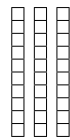
Instructions

- Write down a pair of two-digit numbers. For example: 24 and 17
- Count out each number using place value materials.
- Ask: *How can you tell which number is greater?*
- Repeat with a pair of numbers with the same tens digit. For example: 21 and 25
- Ask: *How can you tell which number is greater?*
- Repeat with a pair of numbers with the same ones digit. For example: 23 and 13
- Ask: *How can you tell which number is greater?*
- Repeat with different pairs of numbers. Use examples with the same digit and different digits in the tens place and ones place.

What Do Children Learn about Comparing Two- and Three-Digit Numbers?

You used your knowledge of place value to compare numbers during the activity. Children build their understanding of place value during the early grades. Teachers can lead many different activities, and use different materials, to teach and practice the skills in the table below. Children first learn about place value by using place value materials to compare numbers. Then, they learn to compare numbers using the place value of the digits.

Children should be able to . . .	What does this mean?	Example
Compare quantities using materials	Identify the relative size of two numbers (greater than/less than) using materials to represent the digits.	21 is greater than 15 because it has more tens.

Compare numbers	Identify the relative size of two numbers (greater than/less than) using the place value of their digits.	21 is greater than 15 because the tens digit is greater.
		Tens / Units: 2 1 **Tens / Ones:** 1 5
		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
Identify 10 more / 10 less / 100 more / 100 less	Identify the number that is 10 more/10 less/100 more/100 less than a given number using the place value of digits.	33 is 10 more than 23 because it has 1 more group of ten. 23 is 10 less than 33 because it has 1 fewer group of ten. **Tens / Ones** (33) **Tens / Ones** (23)

Reflection

Write your responses down or discuss your ideas with your colleagues:

- Think of your own students. Which skills from the above table do you think they would find challenging? Why? How can you support them?
- What are some mistakes that your students make when comparing numbers?
- What can you do to help the students realize their mistake and correct it?

Teaching Practice

This practice activity may be completed by teachers with their own class or with a smaller group of students.

ACTIVITY: COMPARE TWO NUMBERS

Purpose: Be able to compare two numbers using place value.

Materials needed: Place value manipulatives (e.g., sticks with rubber bands or strings to group them).

Note: This activity may be changed based on students' knowledge and available materials. For example, you may use a place value chart with hundreds or use base 10 blocks instead of sticks.

Instructions

- Ask students to work with a partner (or for larger classes, students can work in groups).

- Write two numbers on the board (e.g., 23 and 15). Assign each partner to make one of the numbers with their sticks.
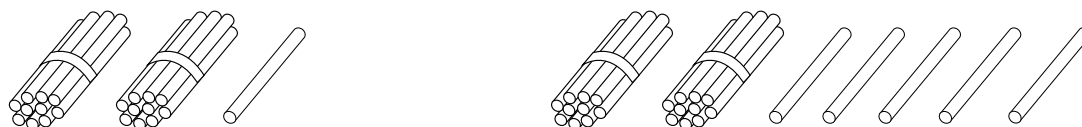

- Ask: *Compare your number with your partner's number. Which number is greater, 23 or 15? How do you know?*

23 is greater because it has 2 groups of sticks, and 15 has only 1 group.

15 is greater than 23 because 5 is more than 3.

(Tip: The child may not understand the place value of digits. Emphasize that the first digit of the number (tens) has a greater value than the second digit (ones), so a number with more tens is greater.)

- Say: *23 is greater than 15 because it has more tens. This means that there are more sticks in the number 23.*

- Repeat with a pair of numbers with the same tens digit. For example, 21 and 25.

- Ask: *Compare your number with your partner's number. Which number is greater, 21 or 25? How do you know?*

- Allow students to answer.

- Say: *21 and 25 both have 2 tens. We must compare the ones. 25 is greater than 21 because it has more ones. This means that there are more sticks in the number 25.*

- Repeat many times with different pairs of numbers. Use a variety of examples with the same and different digit in the tens place, and same and different digits in the ones place.

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