

# Thank you

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CORWIN

Please enjoy this complimentary excerpt from Mathematics Tasks for the Thinking Classroom, Grades K-5.

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## TASK 28: ALL ABOUT THAT BASE

#### TASK

This task has students explore base-10 representations for numbers up to 100 using base-10 blocks.

**Content**: representing numbers up to 100 using base-10 blocks, composing, decomposing, regrouping numbers to 100

**Competencies**: willingness to take risks, perseverance

**Seen Before**: numbers to 50, decomposing numbers into tens and ones (e.g. 1 ten = 10 ones)

**Before You Launch**: Make sure that every group has 10 one-blocks and 10 tenblocks. This task works well with the banner.

## LAUN(H S(RIPT

**Teacher:** Hello my magnificent mathematicians! [show base-10 blocks]. These are called base-10 blocks and they can be used to represent many different numbers. What do you think this represents? [teacher holds up a one-block]



Students: 1!

**Teacher:** Absolutely! What do you think this represents? [teacher holds up a ten-block]

Students: 10!



**Teacher:** Wonderful! Today, I will give you a number. Your job is to build that number with base-10 blocks and then draw what the blocks look like on your board. For example, how many tens do I need to make 11?

Students: 1!

**Teacher:** [teacher draws long rectangle to indicate a ten-block]

**Teacher:** How many one cubes would I need to make 11?

Students: 1!

**Teacher:** [teacher adds a small square to indicate a one-block]

**Teacher:** How many tens and ones do you need to make 14?

## TASK SEQUENCE

# Type 1: Constructing and Drawing Numbers With Base-10 Blocks Without Regrouping

Use the base-10 blocks to build each number and draw what you built on your board:

- 1. 14
- 4.35
- **1**. 67
- 10. 93

- 2. 17
- 5. 42
- **8**. 78
- 11. 99

- 3. 29
- 6. 54
- 9.83

# Type 2: Drawing Base-10 Blocks to Calculating Numbers With and Without Regrouping

**Hints:** When you drew 93, how many tens did you use? Interesting; how many ones did you use? Could that help you solve this?

Draw these base-10 blocks and calculate what number they make:

- 12. 1 ten and 6 ones
- 13. 2 tens and 15 ones
- 14. 19 ones and 2 tens
- 15. 14 ones and 3 tens
- l6. 4 tens and 1 ones

Without drawing these, calculate what number they make:

- 17. 3 tens and 21 ones
- 18. 5 tens and 28 ones
- 19. 42 ones and 4 tens
- 20. 50 ones and 4 tens
- 21. 49 ones and 5 tens

# Type 3: Drawing Numbers With Base-10 Blocks With Restrictions

Draw each number:

- 22. 15 using only one-blocks
- 23. 27 using less than 2 ten-blocks
- 24. 34 using more than 4 one-blocks
- 25. 50 using some one-blocks

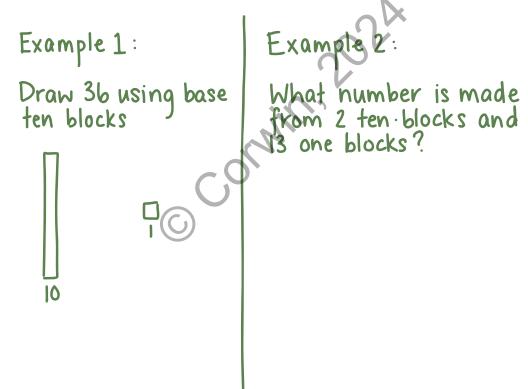
- 26. 66 using less than 5 ten-blocks
- 27. 81 using more one-blocks than ten-blocks
- 28. 100 using ten-blocks and one-blocks

## (ONSOLIDATION TASKS

**Teacher:** I have written on the board three questions like the ones you just did in your group, but I may have put them in the wrong order. Turn to your neighbor and discuss what the order should be and why.

- A What number is made from 12 ones and 2 tens? (Type 2)
- B Draw 38 using more than 10 ones (Type 3)
- ( Draw 25 using ones and tens (Type 1)

STUDENT NOTES TO THEIR FUTURE FORGETFUL SELVES



## (HE(K-YOUR-UNDERSTANDING QUESTIONS

MILD

Draw each number using ten-blocks and one-blocks:

- A. 31
- **B**. 68
- (. 82

#### **MEDIUM**

What number is made from

- A. 3 tens and 12 ones
- **B**. 21 ones and 2 tens
- (. 36 ones and 3 tens

#### **SPICY**

#### Draw:

- A. 65 using more one-blocks than ten-blocks.
- **B**. 72 with less than 7 ten-blocks
- (. 84 with less than 6 ten-blocks



#### **Author Notes**

This task can be very beneficial to younger students because it lays a foundation for place value and leads into decomposing numbers in various ways. Students can utilize and expand upon a concrete understanding that 10 one-blocks are the same as 1 ten-block for many years. A good follow up to this would be

showing your students exploding dots on Mathigon's Polypad at www.mathigon .org/polypad.



#### Notes to My Future Forgetful Self