Lesson 2:

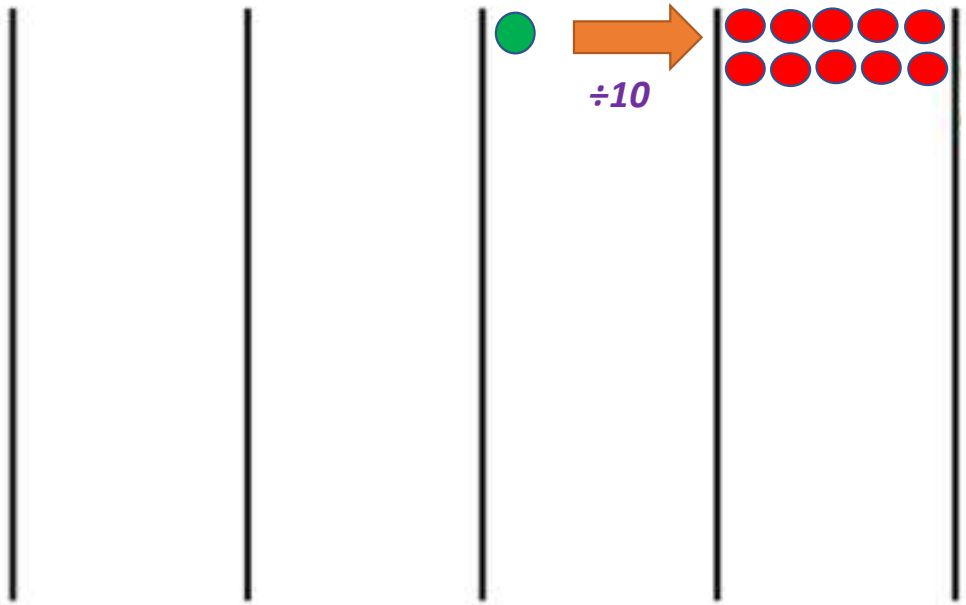
Multiply and divide by 10, 100, and 1,000 and identify patterns in the products and quotients.

CCSS Standard – 5.NBT.A.1 & 5.NBT.A.2

FLUENCY (10-min)

Rename Place Value Units

1 ten = **10** ones



What value is represented on the chart?

1 ten is equal to how many ones?

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FLUENCY (10-min) **Rename Place Value Units**

1 ten 2 ones = **12** ones

1 hundred= **10** tens

1 hundred 4 tens = **14** ones

1 thousand= **10** hundreds

1 thousand 5 hundreds= **15** hundreds

1 ten thousand= **10** thousands

1 ten thousand 7 thousands= **17** thousands

1 hundred thousands= **10** ten thousands

1 hundred thousands 9 ten thousands= **19** ten thousands

FLUENCY (10-min) **Whiteboard Exchange: Place Value**

Task: I will show you a number with a digit underlined. Identify the place value and the value of the digit. Then write the number in EXPANDED FORM.

$$\underline{4}8,359$$

What place is the underlined digit? **ten thousands place**

What is the value of the underlined digit? **40,000**

How is the number written in expanded form? **40,000 + 8,000 + 300 + 50 + 9**

FLUENCY (10-min) **Whiteboard Exchange: Place Value**

Task: I will show you a number with a digit underlined. Identify the place value and the value of the digit. Then write the number in EXPANDED FORM.

$$5\underline{3},062$$

What place is the underlined digit? **thousands place**

What is the value of the underlined digit? **3,000**

How is the number written in expanded form? **50,000 + 3,000 + 60 + 2**

FLUENCY (10-min) **Whiteboard Exchange: Place Value**

Task: I will show you a number with a digit underlined. Identify the place value and the value of the digit. Then write the number in EXPANDED FORM.

$$\underline{2}07,903$$

What place is the underlined digit? **hundred thousands place**

What is the value of the underlined digit? **200,000**

How is the number written in expanded form? **200,000 + 7,000 + 900 + 3**

FLUENCY (10-min) **Whiteboard Exchange: Place Value**

Task: I will show you a number with a digit underlined. Identify the place value and the value of the digit. Then write the number in EXPANDED FORM.

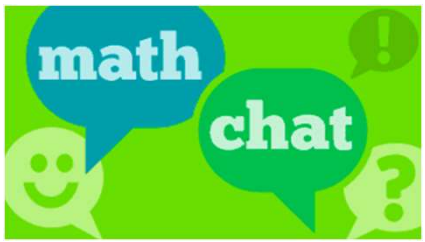
$$760{,}051$$

What place is the underlined digit? **ten thousands place**

What is the value of the underlined digit? **60,000**

How is the number written in expanded form? **700,000 + 60,000 + 50 + 1**

LAUNCH (10-min) **Apply Understanding**

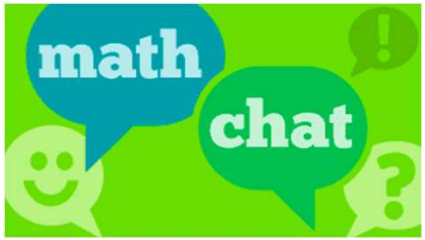


Tara has 54 nails in her toolbox.

She needs 100 times as many nails to build a tree house.

How many nails does she need?

LAUNCH (10-min) **Apply Understanding**



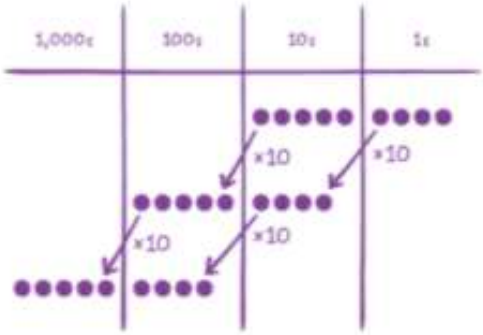
Tara has 54 nails in her toolbox.

She needs 100 times as many nails to build a tree house.

How many nails does she need?

We know that 100 is equivalent to 10 x 10.
We **multiplied** 54 by 10 and shifted the 5 and the 4 one place to the **LEFT.** Then we **multiplied** by 10 one more time, so we shifted the 5 and the 4 one place **LEFT again**.
So, 54 x 100 = 5,400

54 × 100 = 54 × 10 × 10
54 × 10 = 540
540 × 10 = 5,400

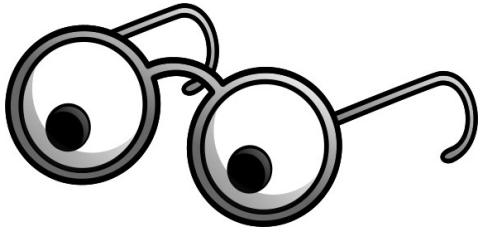


LEARN (30-min) **Multiply by 10, 100, and 1,000**

$5 \times 10 =$ **50**

$5 \times 100 =$ **500**

$5 \times 1{,}000 =$ **5,000**



Look and Notice:
Each time we multiply by 10, there is another zero at the end of the product.

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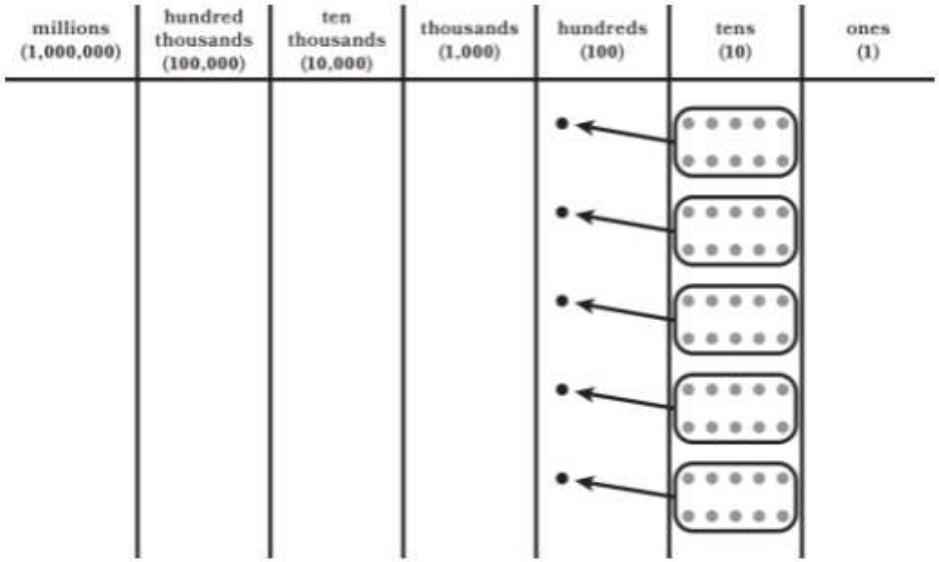
LEARN (30-min) **Multiply by 10, 100, and 1,000**

$50 \times 10 =$ **500**



We can rename 50 tens as 5 hundreds because every time we have 10 tens, we can **bundle and rename** as 1 hundred.

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LEARN (30-min) **Multiply by 10, 100, and 1,000**

$50 \times 100 =$ **50 x 10 x 10** $=$ **5,000**

millions (1,000,000)	hundred thousands (100,000)	ten thousands (10,000)	thousands (1,000)	hundreds (100)	tens (10)	ones (1)

100 is 10 times as much as 10, so 50 x 100 is 10 times as much as 50 x 10.

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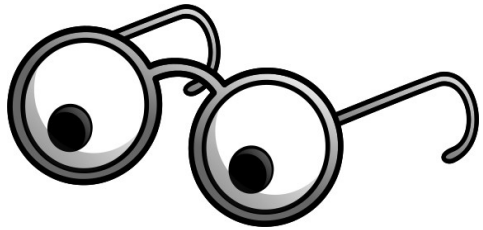
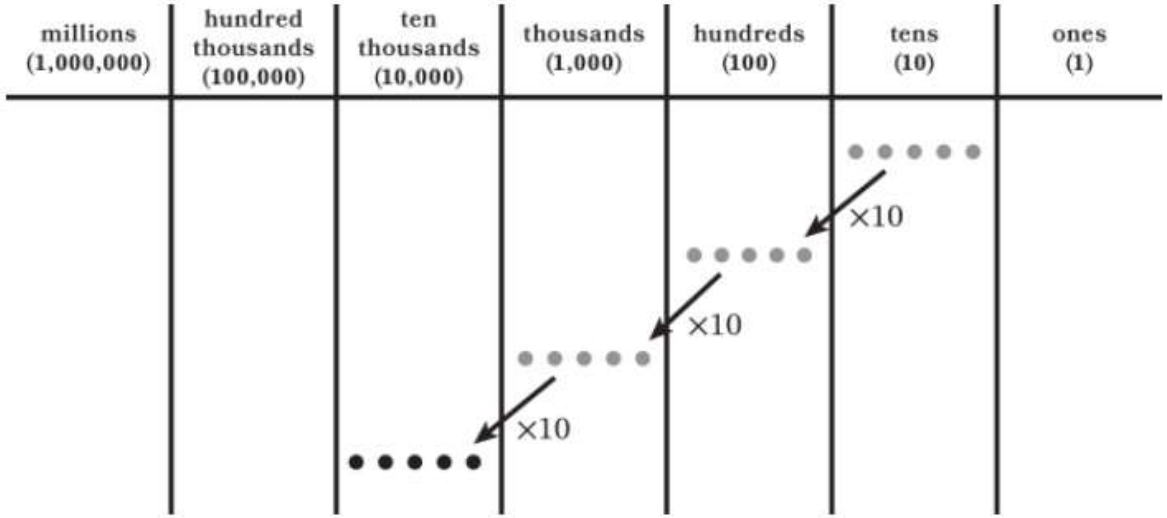
LEARN (30-min) **Multiply by 10, 100, and 1,000**



$50 \times 1{,}000 =$ **50 x 10 x 10 x 10** $=$ **50,000**



Do you notice a faster way to solve this without a place value chart?

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LEARN (30-min) **Multiply by 10, 100, and 1,000**

$48 \times 30 =$ 48 x 3 x 10 = 144 x 10 = 1,440

Let's write 30 so we can see 10 as a factor.
30 is equal to 3 x 10, so we can write the problem as…..

Now we solve 48 x 3. What is the product?

$$\begin{array}{r} {\scriptstyle 2}48 \\ \times \quad 3 \\ \hline 144 \end{array}$$

$48 \times 30 =$ 48 x 30 x 10 = 1,440 x 10 = 14,400

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LEARN (30-min) **Divide by 10, 100, and 1,000**

Now we are going to divide. When we **multiplied by 10**, the units shifted to the LEFT.

In what direction do you think the units shift when we **divide by 10**?

$270{,}000 \div 10 =$ **27,000**

$270{,}000 \div 100 =$ **270,000 ÷ 10 ÷ 10** $=$ **2,700**

$270{,}000 \div 1{,}000 =$ **270,000 ÷ 10 ÷ 10 ÷ 10** $=$ **270**

$270{,}000 \div 30 =$ **27 ÷ 3 =9** $=$ **90,000 ÷ 10** $=$ **9,000**

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LAND (10-min)

Exit Ticket

After Exit Ticket:

Work on pages 17 & 18
in workbook.

Small Group Time:
Finish pages 19 & 20

2

Find each product.

1. $80 \times 10 =$ _____

2. $80 \times 100 =$ _____

3. $80 \times 1{,}000 =$ _____

Find each quotient.

4. $340{,}000 \div 10 =$ _____

5. $340{,}000 \div 100 =$ _____

6. $340{,}000 \div 1{,}000 =$ _____

7. How does the value the 6 represents in 3,604 compare to the value the 6 represents in the product of $3{,}604 \times 1{,}000$? Explain how you know without multiplying.