

# Materials needed for action task:

-base ten blocks

-place value charts

-a place to record thinking

# Today's Learning Goal:

## Representing Numbers to 10 000


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### Learning Goal

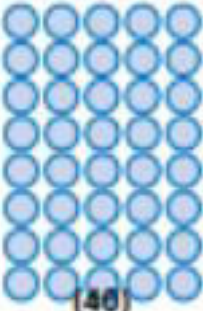
- using the patterns of the place value system to represent and interpret 4-digit numbers.

How well do I understand?

4	I can do this and explain it to someone else.
3	I understand and can do this by myself.
2	I need more practice.
1	I don't understand this yet.

Ten Thousands	Thousands	Hundreds	Tens	Ones
		 <p data-bbox="749 565 819 604">(18)</p>		



Ten Thousands	Thousands	Hundreds	Tens	Ones
		 <p data-bbox="772 644 840 671">(40)</p>		



Today we are going to be working with base ten blocks.

These are tools, not toys

When I ask you to stop, I need your hands off of the tools

However...I am going to give you 5 minutes to play and build. At the end of the 5 minutes any structures you have made need to come down.

You will need some ones, tens and hundreds

Independently....

Use base ten blocks to make the number 21....  
Record it on your place value chart.

How else could you make this number?  
Record it on your place value chart.

How else could you make this number?  
Record it on your place value chart.

With your elbow partner...

Use base ten blocks to make the number 324....

Record it on your place value chart.

How else could you make this number?

Record it on your place value chart.

How else could you make this number?

Record it on your place value chart.

# Activity Time!



## How Many Ways?

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### How to Play

- Play in two teams of two.
  - Shuffle the number cards and place them face down in a pile.
  - One player turns over a card.
  - Both teams rename the number in as many ways as they can.
  - The teams compare their lists:
    - They cross off ways that are the same on both lists.
    - Each team scores 1 point for each number representation that is left on their list.
  - The team with more points after three rounds wins.
-



Let's try one together....

1910

<b>thousand</b>	<b>hundreds</b>	<b>tens</b>	<b>ones</b>
<b>1</b>	<b>9</b>	<b>1</b>	<b>0</b>
<b>0</b>	<b>19</b>	<b>1</b>	<b>0</b>
<b>0</b>	<b>19</b>	<b>0</b>	<b>10</b>
<b>0</b>	<b>18</b>	<b>10</b>	<b>10</b>
<b>0</b>	<b>18</b>	<b>9</b>	<b>20</b>
<b>0</b>	<b>18</b>	<b>8</b>	<b>30</b>
<b>0</b>	<b>18</b>	<b>7</b>	<b>40</b>
<b>0</b>	<b>17</b>	<b>7</b>	<b>40</b>

Play the game for about 15-  
20 minutes

# Day 2

Goal: Rename 4 digit numbers by the number of thousands, hundreds, tens and ones needed to make up that number.

# Number Talk

Ten Thousands	Thousands	Hundreds	Tens	Ones
			15	

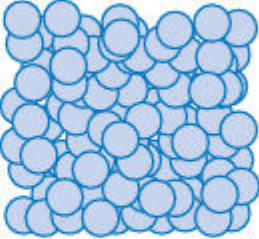
# Number Talk

Ten Thousands	Thousands	Hundreds	Tens	Ones
			76	

# Number Talk

Ten Thousands	Thousands	Hundreds	Tens	Ones
			100	

# Number Talk

Ten Thousands	Thousands	Hundreds	Tens	Ones
			 <b>(150)</b>	

Today we are going to be working with base ten blocks.

These are tools, not toys

When I ask you to stop, I need your hands off of the tools

However...I am going to give you 5 minutes to play and build. At the end of the 5 minutes any structures you have made need to come down.

You will need some ones, tens and hundreds



Independently....

Use base ten blocks to make the number 135....

Record it on your place value chart.

How could you make this number only using tens?

Record it on your place value chart.

How could you make this number only using ones?

Record it on your place value chart.

With your elbow partner....

Use base ten blocks to make the number 1560....

Record it on your place value chart.

How could you make this number only using hundreds?

Record it on your place value chart.

How could you make this number only using tens?

Record it on your place value chart.

How could you make this number only using ones?

Record it on your place value chart.

# Activity Time!



## How Many Ways?

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### How to Play

- Play in two teams of two.
  - Shuffle the number cards and place them face down in a pile.
  - One player turns over a card.
  - Both teams rename the number in as many ways as they can.
  - The teams compare their lists:
    - They cross off ways that are the same on both lists.
    - Each team scores 1 point for each number representation that is left on their list.
  - The team with more points after three rounds wins.
-

Let's try one together....on your place value chart and/or white board,  
how many different ways can you make this number?

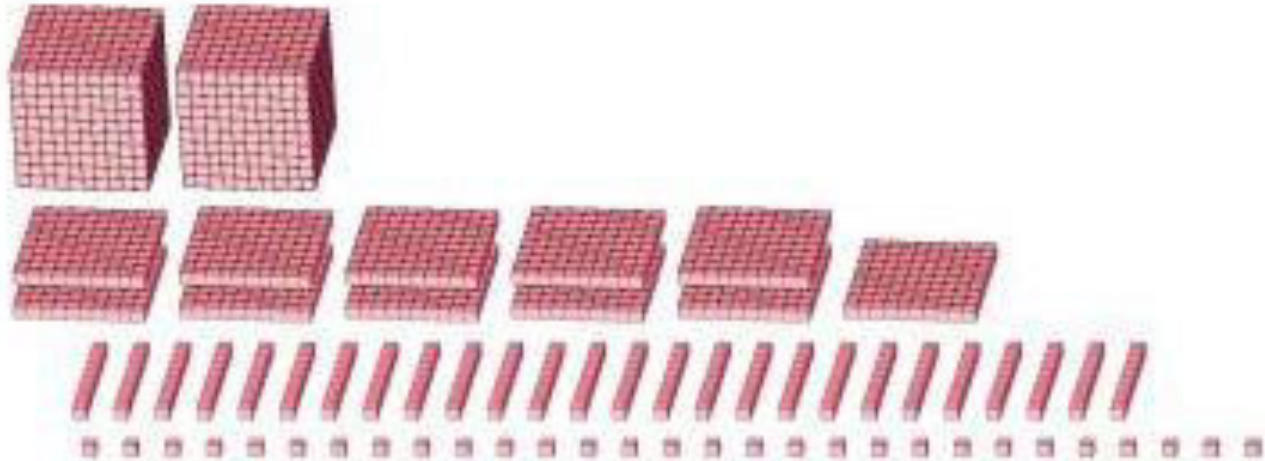
1065

thousand	hundreds	tens	ones
1	0	6	5
	10	6	5
	9	16	5
	8	26	5
	7	36	5
	6	46	5
	5	56	5
	4	66	5

Play the game for about 15-  
20 minutes

Day 3

# Number Talk



# MINDS ON

## Place Value: Lesson 1

*Representing numbers in a variety of ways*

Name: \_\_\_\_\_

Partners: \_\_\_\_\_

### **MINDS ON:**

- a) I have 23 ones and 4 tens. Who am I? \_\_\_\_\_
- b) I have 4 hundreds, 12 tens, and 6 ones. Who am I? \_\_\_\_\_
- c) I have 30 ones and 3 hundreds. Who am I? \_\_\_\_\_
- d) I have 25 ones and 13 tens. Who am I? \_\_\_\_\_
- e) I have 22 tens and 4 hundreds. Who am I? \_\_\_\_\_
- f) I have 13 tens, 2 hundreds, and 21 ones. Who am I? \_\_\_\_\_
- g) I have 3 thousands, 14 hundreds and 35 ones. Who am I? \_\_\_\_\_



# EXPLORATION

You can also  
use \$100 bills



\$100 bills



\$10 bills



\$1 coins



1. The cost of a new refrigerator is \$2698.  
How could you pay for it using only \$100 bills, \$10 bills, and \$1 coins?  
List as many ways as you can.

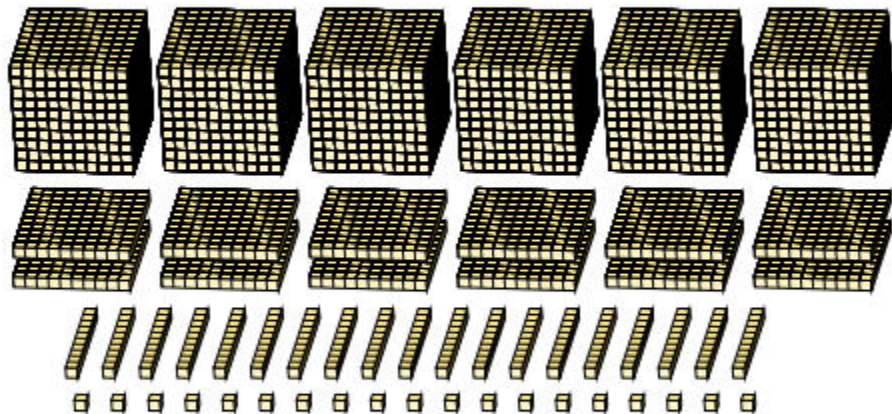
# Regrouping Base Ten Blocks (B)

Name: \_\_\_\_\_

Date: \_\_\_\_\_

What number is shown in each group of base ten blocks?

1.



<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
thousands	hundreds	tens	ones

→  
regroup

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Day 4

### Place Value: Lesson 1

*Representing numbers in a variety of ways*

Name: \_\_\_\_\_

Partners: \_\_\_\_\_

Use the digits 3, 7, 0, 8 to create a 4-digit number. \_\_\_\_\_

How many different ways can you represent your number using base ten blocks?

Record your thinking using a place value chart:

# of ways	thousands	hundreds	tens	ones
1				
2				
3				
4				
5				
6				
7				

h) I have 17 ones and some other values as well. I am between 40 and 50. Who am I? \_\_\_\_\_

Please put this into your math duotang.\

Let's use our place value charts to model the answers.

- a) I have 23 ones and 4 tens. Who am I? \_\_\_\_\_
- b) I have 4 hundreds, 12 tens, and 6 ones. Who am I? \_\_\_\_\_
- c) I have 30 ones and 3 hundreds. Who am I? \_\_\_\_\_
- d) I have 25 ones. How many tens do I have? \_\_\_\_\_
- e) I have 22 tens. How many hundreds do I have? \_\_\_\_\_
- f) I have 13 tens, 2 hundreds, and 21 ones. Who am I? \_\_\_\_\_

h) I have 17 ones and some other values as well. I am between 40 and 50. Who am I? \_\_\_\_\_

Please put this into your math duotang.\

Let's work as a class to create the number 9 999

What will happen when we add on more thousand block?

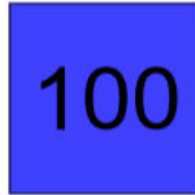
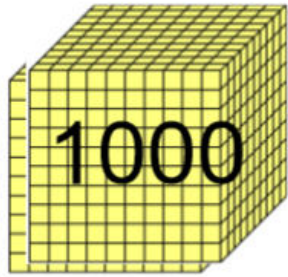


# PLACE VALUE CHART

MILLIONS TO ONES

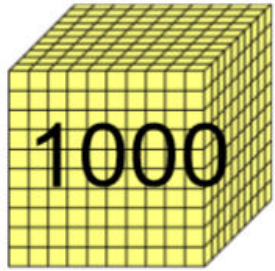
Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

How might you represent the number 2016 with 18 base blocks?



What does that look like on a place value chart?

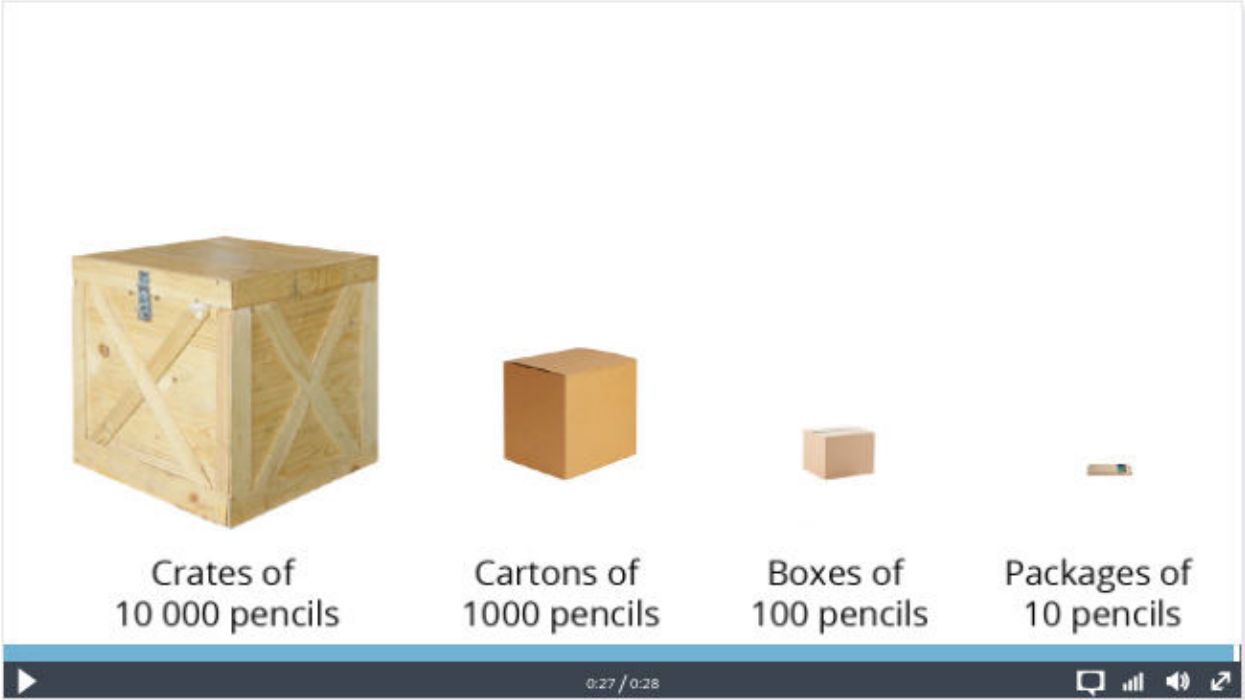
How might you represent the number 2018 with 29 base blocks?



What does that look like on a place value chart?

# Introduction to the action task:

A pencil company uses these sizes of containers:



Crates of 10 000 pencils

Cartons of 1000 pencils

Boxes of 100 pencils

Packages of 10 pencils

0:27 / 0:28

Navigation icons: play, volume, and share.



Crates of  
10 000 pencils



Cartons of  
1000 pencils



Boxes of  
100 pencils



Packages of  
10 pencils

They have these numbers of pencils to pack into containers:

30 000	11 010	8200
28 000	10 300	7000
22 200	10 000	5420

- Choose a number of pencils to pack into containers.
- How many full crates can you make?
- How many full cartons can you make?
- How many full boxes can you make?
- How many full packages can you make?

# Compare your thinking with these answers:

1. a) Choose a number of pencils to pack into containers.

E.g., 28 000

- b) How many full packages can you make?

Explain your thinking.

E.g., 2800 packages

28 000 is 2800 tens.

Ten thousands (Crates)	Thousands (Cartons)	Hundreds (Boxes)	Tens (Packages)	Ones
2	8	0	0	0
			2800	0

- c) How many full boxes can you make?

E.g., 280 boxes

28 000 is 280 hundreds.

Ten thousands (Crates)	Thousands (Cartons)	Hundreds (Boxes)	Tens (Packages)	Ones
2	8	0	0	0
		280	0	0

- d) How many full cartons can you make?

E.g., 28 cartons

28 000 is 28 thousands.

Ten thousands (Crates)	Thousands (Cartons)	Hundreds (Boxes)	Tens (Packages)	Ones
2	8	0	0	0
	28	0	0	0

- e) How many full crates can you make?

E.g., You can't make only full crates. 28 000 would be 2 full crates with 8000 pencils left over.

Ten thousands (Crates)	Thousands (Cartons)	Hundreds (Boxes)	Tens (Packages)	Ones
2	8	0	0	0

Choose a different number of pencils and answers these questions:

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They have these numbers of pencils to pack into containers:

30 000	11 010	8200
28 000	10 300	7000
22 200	10 000	5420

When they pack the containers,

- Each container must be full.
- There can be no pencils left over.

- a) How many full packages can you make?
- b) How many full boxes can you make?
- c) How many full cartons can you make?
- d) How many full crates can you make?

Repeat for 2 more different numbers

Have a number of students share their answers until many of the nine numbers given in the Action task have been addressed. Record students' answers in a place-value chart that relates the container sizes to the place-value columns. This will help students transition from thinking in terms of the context of the task to generalizing place-value ideas.

For example:

Ten thousands (Crates)	Thousands (Cartons)	Hundreds (Boxes)	Tens (Packages)	Ones
3	0	0	0	0
	30	0	0	0
		300	0	0
			3000	0

Ten thousands (Crates)	Thousands (Cartons)	Hundreds (Boxes)	Tens (Packages)	Ones
2	8	0	0	0
	28	0	0	0
		280	0	0
			2800	0



On a place-value chart, the number 10 000 looks like this:

Ten thousands	Thousands	Hundreds	Tens	Ones
1	0	0	0	0

10 000 is 1 ten thousand.

You can use the place-value chart to rename 10 000 in other ways.

Ten thousands	Thousands	Hundreds	Tens	Ones
	10	0	0	0

10 000 is 10 thousands.



Ten thousands	Thousands	Hundreds	Tens	Ones
		100	0	0

10 000 is 100 hundreds.

Ten thousands	Thousands	Hundreds	Tens	Ones
			1000	0

10 000 is 1000 tens.

We can rename numbers as a number of ten thousands, as a number of thousands, as a number of hundreds, or as a number of tens.

Thousands (Cartons)	Hundreds (Boxes)	Tens (Packages)	Ones
 5	 8	0	0
	58	0	0
		580	0

# Today's Learning Goal:

describe a number as a number of ten thousands, as a number of thousands, as a number of hundreds, or as a number of tens.



# Consolidation questions:



Crates of  
10 000 pencils



Cartons of  
1000 pencils



Boxes of  
100 pencils



Packages of  
10 pencils

1. Write a four-digit number and a five-digit number for each description. Which containers could you use for that number of pencils?
  - a) A number that can be written as a number of tens but not as a number of hundreds (4440, 55 550; Packages)
  - b) A number that can be written as a number of hundreds but not as a number of thousands (4400, 55 500 Boxes or packages)
  - c) A number that can be written as a number of thousands but not as a number of ten thousands (4000, 55 000 Cartons, boxes, or packages)
    - a) A number that can be written as a number of ten thousands (50 000; Crates, cartons, boxes, or packages)  
I can't write a four-digit number for this description.

# Independent Task

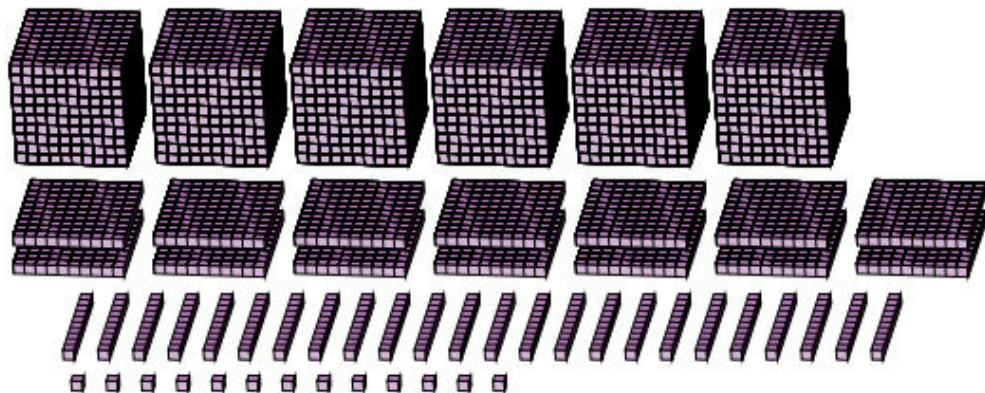
## Regrouping Base Ten Blocks (A)

Name: \_\_\_\_\_

Date: \_\_\_\_\_

What number is shown in each group of base ten blocks?

1.



# Independent Exit Ticket:

1. Which number is **not** another name for 70 000?

**A** 7 ten thousands

**B** 700 tens

**C** 70 thousands

**D** 700 hundreds

1. Rename each number.

a) 40 000 = \_\_\_\_ ten thousands

b) 60 000 = \_\_\_\_ thousands

c) 31 000 = \_\_\_\_ hundreds

d) 2020 = \_\_\_\_ tens

# Independent Exit Ticket

3. Can you write the number 3300 as a number of thousands? Why or why not?
4. Write two numbers greater than 5000 as a number of hundreds.
5. Write two numbers as a number of ten thousands.
6. A number can be written as a number of thousands. Write four things that you know for sure about the number.

# TO RENAME OR NOT TO RENAME

