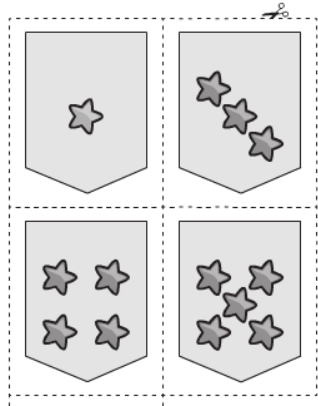
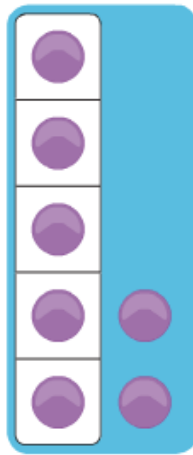


Kindergarten Models for Counting and Cardinality progresses to Number and Operations in Base Ten (from ORIGO *Stepping Stones*)



Subitizing



Five Frame

Write the numeral to match each group of dots. Then loop the group that is **greater**.

a.

b.

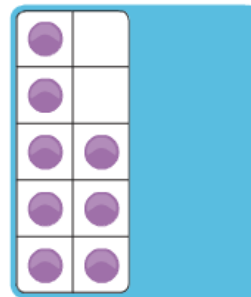
Comparing Quantities using Number Mats

Write the numeral to match each group of dots. Then loop the group that is **less**.

a.

b.

Comparing Quantities Using Dominoes



Ten Frame



"Deca" Hands

Write the numbers that are **one less** and **one more**.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

a. one less one more

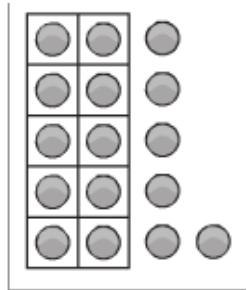
	6	
--	---	--

b. one less one more

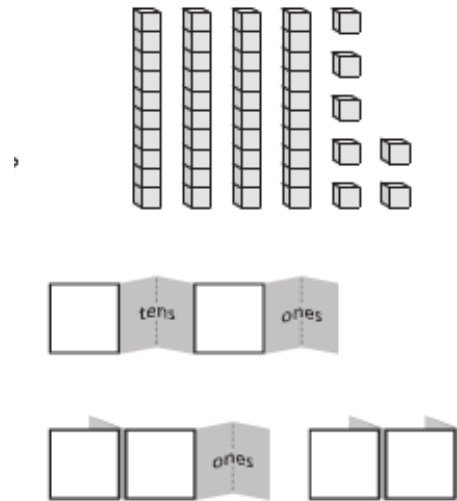
	9	
--	---	--

Number Track

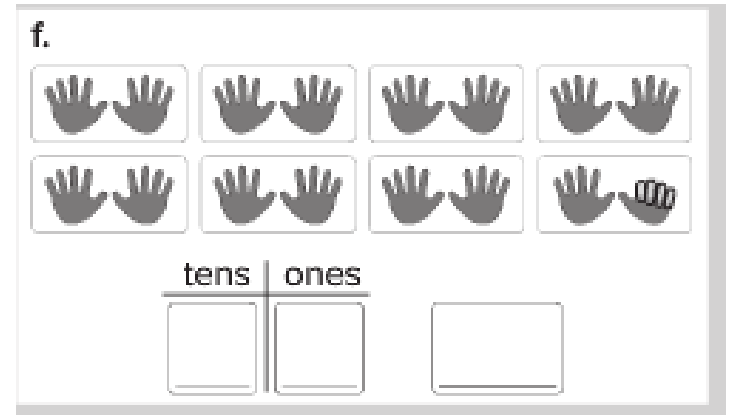
First Grade Models for Number and Operations in Base Ten (from *ORIGO Stepping Stones*)



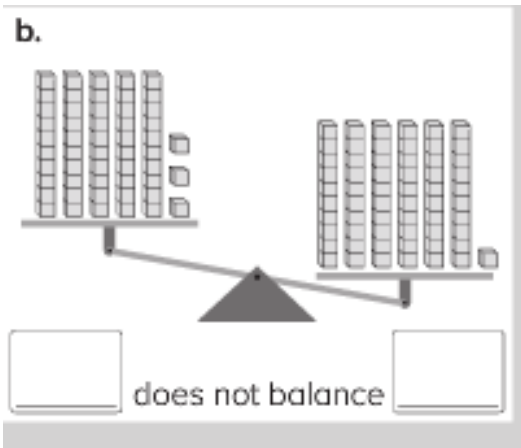
Ten Frames



Base Ten Blocks and Numeral Expanders



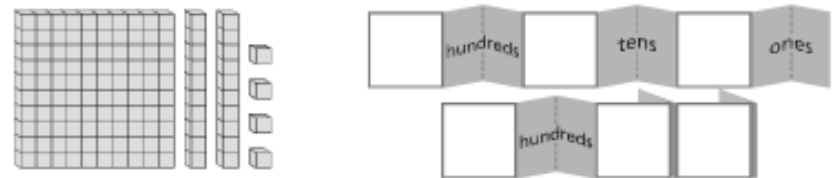
Deca Hands Showing Tens and Ones



Base Ten Blocks and Balance to Compare

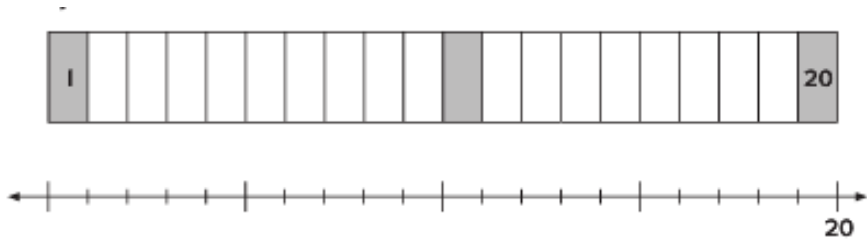
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Hundred Chart



Base Ten Blocks and Numeral Expanders

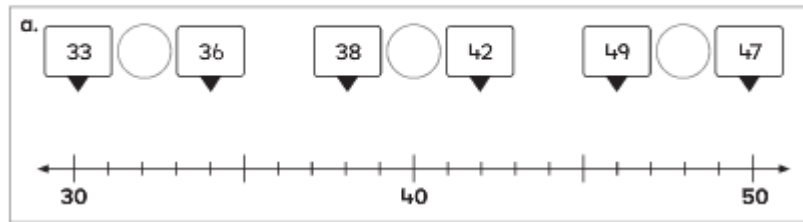
Second Grade Models for Number and Operations in Base Ten (from ORIGO *Stepping Stones*)



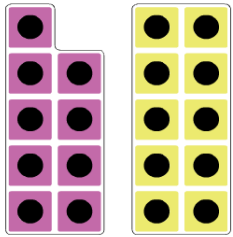
Transition from the Number Track to the Number Line

Step Up

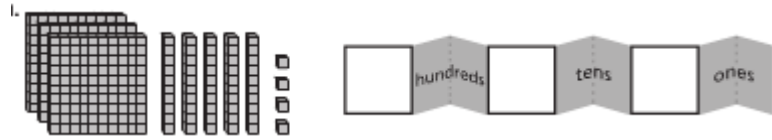
I. Draw a line to join each numeral to its position on the number line. Then write \leftarrow or \rightarrow in each circle to describe each pair of numerals.



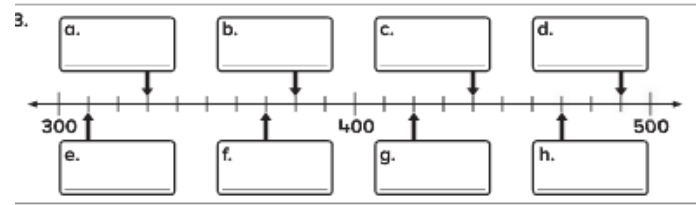
Compare Quantities "Less distance from 0" "Greater distance from 0"



Compare Even and Odd



Base Ten Blocks and Numeral Expanders



Number line for Relative Position of 3-digit Numbers

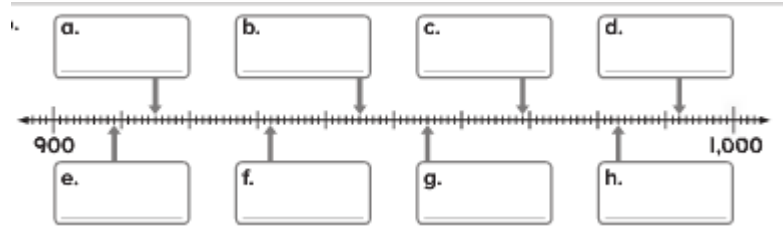
H	T	O
5	7	2

is greater than

is less than

H	T	O
4	8	9

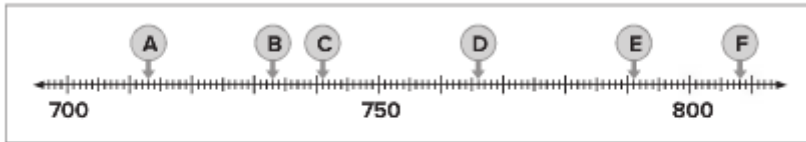
Place Value Table



Number line for Relative Position to 1,000

Third Grade Models for Number and Operations in Base Ten (from ORIGO Stepping Stones)

2. For each arrow on the number line, write the number in the table. Then write the nearest ten and nearest hundred for each number.



Arrow	A	B	C	D	E	F
Number						
Nearest ten						
Nearest hundred						

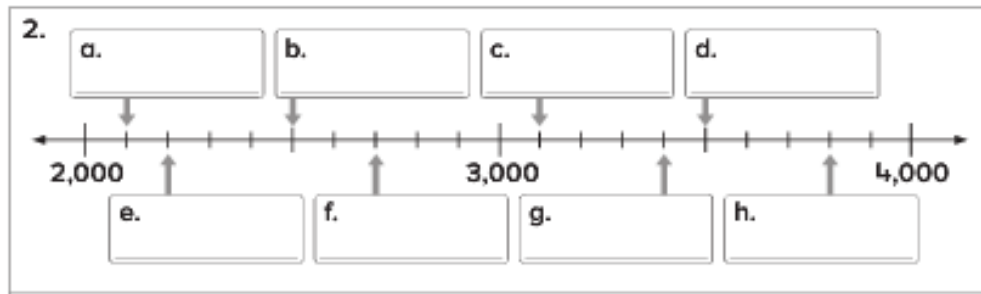
Number line for Rounding

2. Look at the blocks. Write the matching number on the expander.

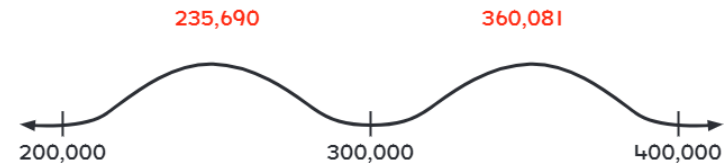


Base Ten Blocks and Numeral Expander

Write the number that is shown by each arrow.



Locating Numbers in the Thousands on the Number Line



Curved Number Lines for Rounding

Fourth Grade Models for Number and Operations in Base Ten -(from ORIGO Stepping Stones)

2. Draw beads or write numbers to complete the missing parts.

a.

b.

Base Ten Blocks and Numeral Expanders

i.

_____ × 10,000 = _____

_____ × 1,000 = _____

_____ × 100 = _____

_____ × 10 = _____

_____ × 1 = _____

Abacus

Step Up

i. Round each population to the nearest **ten**. Use the number line to help your thinking.



a. Population 35,678

35,680

b. Population 35,683

c. Population 35,656

Number line for Rounding

2. Look at the abacus. Write the matching number on the expander.

a.

b.

Abacus and Numeral Expander

Fifth Grade Models for Number and Operations in Base Ten (Including Operations with Decimal Fractions) (from ORIGO Stepping Stones)

1.2 Building a Picture of One Million

Imagine you start at 1,000 and skip count by 1,000.
What number will you say after 999,000?



1,000 ... 2,000
3,000 ... 4,000...

Look carefully at the place-value chart below.
What place names belong in the three spaces below Millions?
What abbreviations would you write?

Millions			Thousands			Ones		
			H	T	O	H	T	O

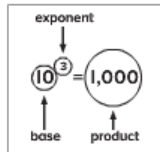


How many thousands are there in one million?

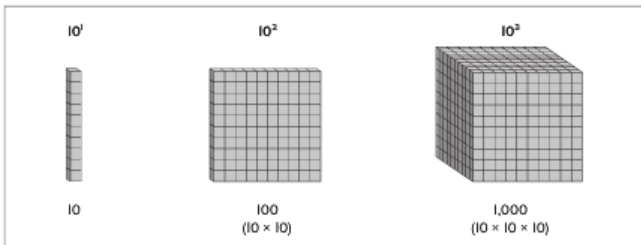
Write numbers in the chart to show one million.

How could you represent one million using different base-10 blocks?
How do you know?

Exponential notation is often used to represent very large numbers. It involves repeatedly multiplying a base number. The diagram on the right shows that 10^3 is equivalent to $10 \times 10 \times 10$, so $10^3 = 1,000$.



Look at the picture below.



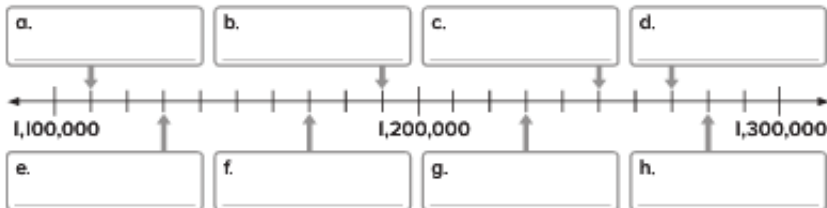
Complete the number name below to show how you would read the number on this expander.

		1	millions	2	3	4	thousands	5	6	7	ones
			million		hundred		thousand		hundred		

Numeral Expander

Base Ten Blocks, Place Value Table and Exponents

2.

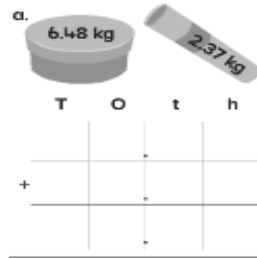
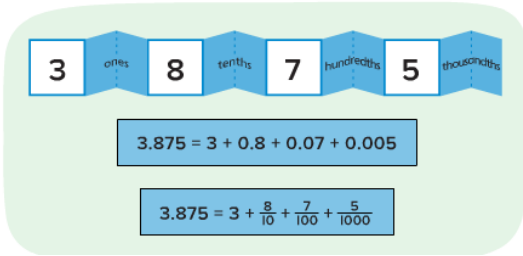


Number line for Relative Position

3.



Number line for Relative Position of Millions Expressed as Fractions



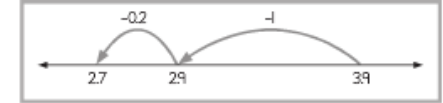
Layla is planning a hike. How much farther is Springwood Falls than Hard Rock Valley?



Springwood Falls is more than double the distance.



Damon drew jumps on this number line to figure out the exact difference.



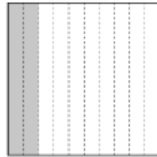
Numeral Expander-Decompose Decimal Fractions Place Value Table to Add/Subtract Decimals Number line model to Add/Subtract Decimal Fractions

This large square represents one whole. What fraction is shaded? How do you know?

How would you write the fraction that is shaded?

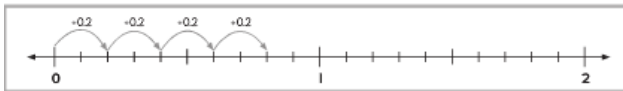


Two-tenths of the whole square is shaded so that's $\frac{2}{10}$ or 0.2.



The shaded part shows one group of 0.2. How could you show 4 groups of 0.2?

Nina used this number line to show the multiplication another way.

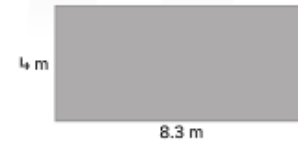


This picture shows the dimensions of a room.

How could you figure out its area?



It must be about 32 m² because $4 \times 8 = 32$.



Janice split the rectangle into parts that are easier to multiply.

How did she split the rectangle?

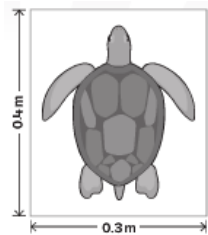
How will it help her figure out the area?

What is the total area? How do you know?



Area and Number line Model to Multiply Decimal Fractions

Array Model to Multiply Decimal Fractions

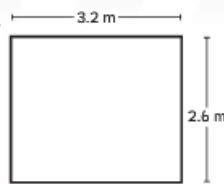


Imagine you need to find the area of a floor with these dimensions. What do you know about the answer?



The length is a little more than 3 m and the width is a little less than 3 m so the area will be close to 9 m².

The answer will include hundredths.



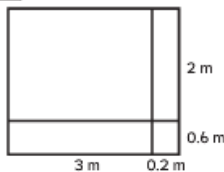
How could you figure out the exact answer?

James split the rectangle into parts that were easier to multiply.

How did he split the rectangle?

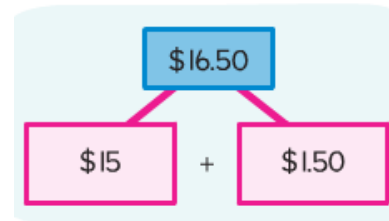
How do the parts make it easier to multiply?

What partial products does he add to figure out the area?

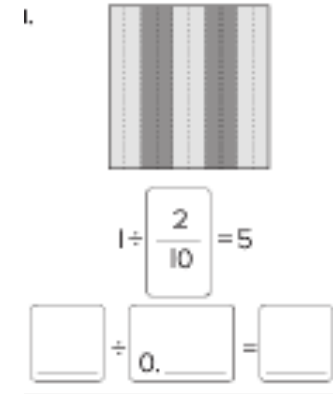


Array Model

Open Array Model to Multiply Decimals



Break-Apart to Divide Decimals



Area Model to Divide