

# Jumbo Magnetic Place Value Demonstration Discs

Place value discs are math tools students use to represent quantities. They are best used when students understand the values printed on the discs. All Sensational Math™ place value teaching aids use the same place value color-coding system for easy visual reference to values. These colorful Jumbo Magnetic Discs allow teachers to demonstrate place value strategies on a magnetic surface. Students can follow along with any of these activities using regular Sensational Math™ Place Value Discs at their desktop.

Using a dry erase marker, chalk or even electrical tape, teachers can turn a standard magnetic white board or file cabinet into an interactive place value chart. Just create the number of place value columns according to your grade level needs.

## INTRODUCING JUMBO MAGNETIC PLACE VALUE DISCS

### 1. BASIC USAGE

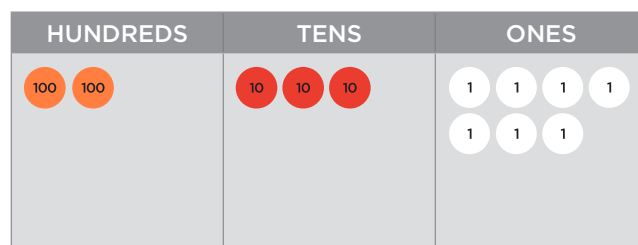
**Example 1:** Using Jumbo Magnetic Place Value Discs, the teacher builds 237 using:

2 (100's)

3 (10's)

7 (1's)

$$237 = 2(100) + 3(10) + 7(1)$$

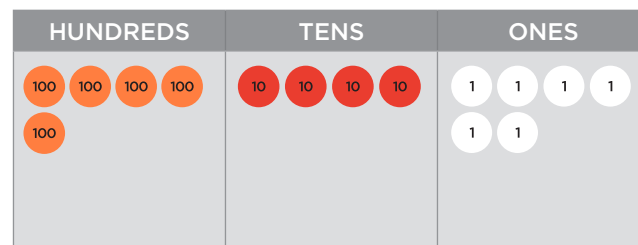


**Example 2:** Using Jumbo Magnetic Place Value Discs, the teacher builds 546 using:

5 (100's)

4 (10's)

6 (1's)



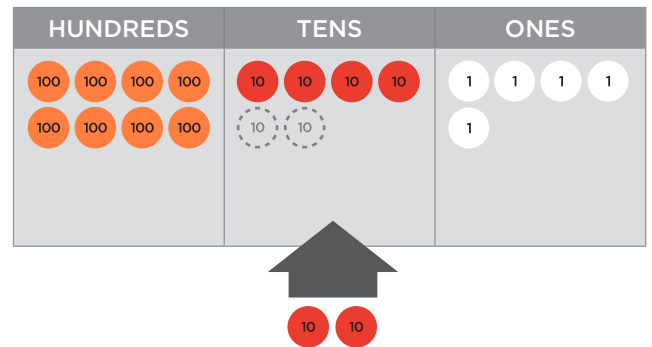
**THEN** Students write the quantity in standard form.

## 2. DEMONSTRATING MORE/LESS

The concept of more/less is foundational for addition and subtraction. Using Jumbo Magnetic Place Value Discs, build the number 845. Ask the following:

**Example 3:** What is 20 more than 845?

Add 2 (10 's) to the place value chart and record the number.



## 3. DEMONSTRATING COMPARING QUANTITIES

Use Jumbo Magnetic Place Value Discs to compare numbers. Divide the place value chart into two or three sections. Plot a number in each section to compare the quantities.

**Example 4:** Compare 4,343 and 4,334.



# ADDITION

Use magnetic place value discs to add whole numbers.

**Solve:**  $3872 + 2364$  ("2364 more than 3872")

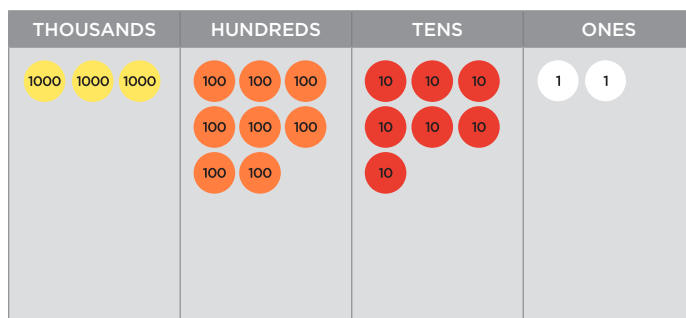
- Place discs on the place value chart to represent the first value. Working from left to right, place:

3 (1000 's) in the thousands place

8 (100 's) in the hundreds place

7 (10 's) in the tens place

2 (1 's) in the ones place



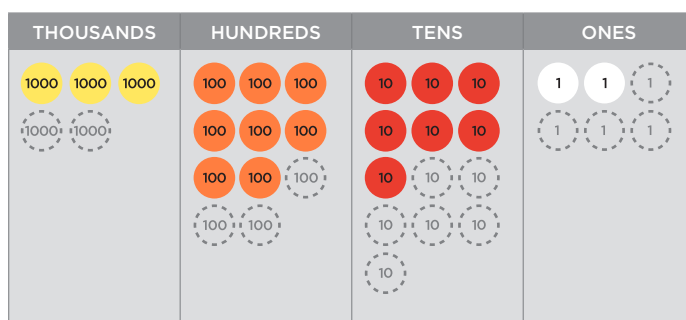
- Continue by adding 2,364 in the appropriate columns on the place value chart:

2 (1000 's)

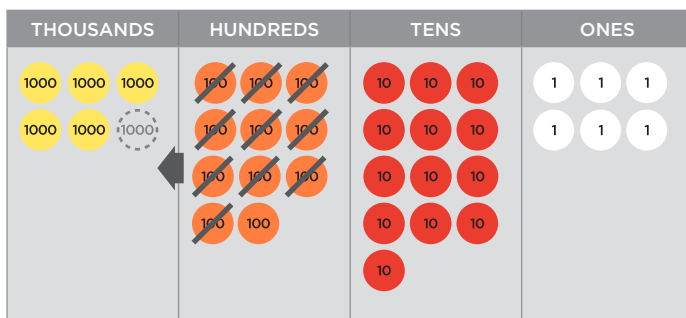
3 (100 's)

6 (10 's)

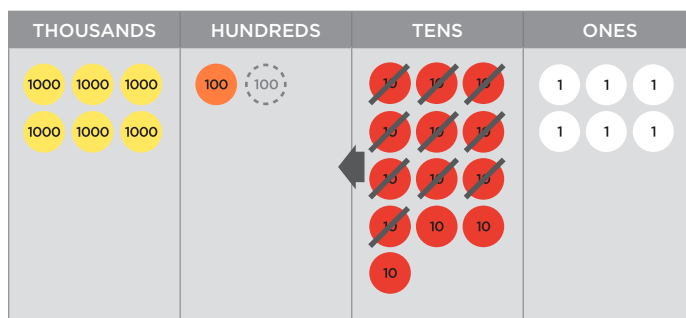
4 (1 's)



- Since no regrouping is required in the thousands place, begin regrouping in the hundreds place. Pick up 10 (100 's) and exchange them for 1 (1000) and place the new disk in the thousands place.



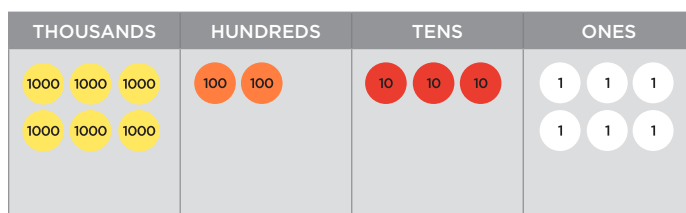
- Check each column for trading opportunities. Once all trades have been made, the solution can be recorded.



- Record the quantity of each column, writing it in expanded form and standard form.

Expanded:  $6000 + 200 + 30 + 6$

Standard: 6,236



# SUBTRACTION

Use magnetic place value discs to subtract whole numbers.

**Solve:**  $263 - 54$  ("54 less than 263")

- Using Magnetic Place Value Discs, make 263 using:

2 (100's) in the hundreds place

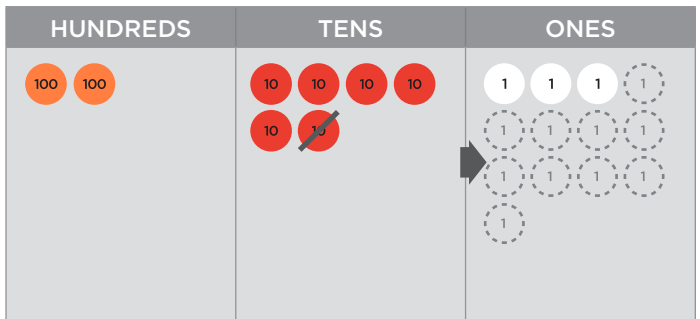
6 (10's) in the tens place

3 (1's) in the ones place

*You will only be plotting the first number.*



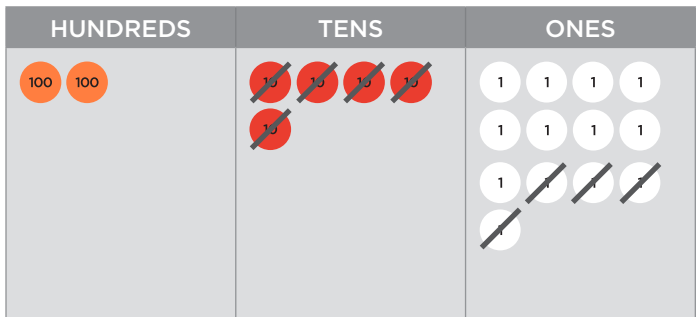
- Working from right to left, since 4 (1's) cannot be subtracted from 3 (1's), trade or regroup 1 (10) for 10 (1's), making a total of 13 (1's).



- Subtract the 4 (1's) from the ones column.

**THEN**, moving left to the tens column, take away 5 (10's).

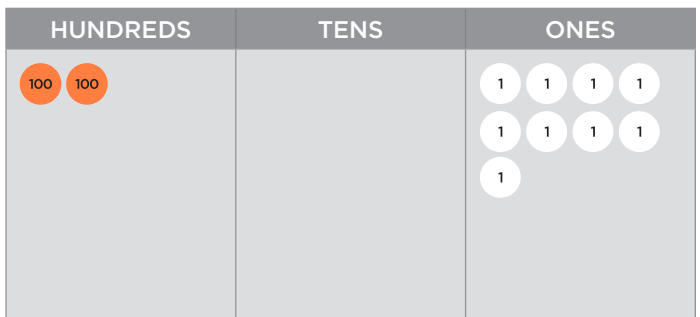
No regrouping is required.



- The remaining discs represent the difference.

Expanded:  $200 + 0 + 9$

Standard: 209



# MULTIPLICATION

Use magnetic place value discs to multiply whole numbers.

**Solve:**  $3 \times 24$  ("3 groups of 24")

1. Make 24 in the tens and ones place.

HUNDREDS	TENS	ONES
	10 10	1 1 1 1

2. Create a second and third group of 24 directly below the first set.

You have created a visual representation of  $3 \times 24$  (3 groups of 24).

HUNDREDS	TENS	ONES
	10 10	1 1 1 1
	10 10	1 1 1 1
	10 10	1 1 1 1

3. Working from left to right, look for regrouping opportunities.

In this example, no regrouping is necessary in the tens place, **BUT** the ones place can trade 10 (1's) for 1 (10).

Remove 10 (1's) and place 1 (10) in the tens column.

HUNDREDS	TENS	ONES
	10 10	<del>1</del> <del>1</del> <del>1</del> <del>1</del>
	10 10	<del>1</del> <del>1</del> <del>1</del> <del>1</del>
	10 10	<del>1</del> <del>1</del> 1 1

4. Record the quantity in each column, writing in expanded form and standard form.

Expanded:  $70 + 2$

Standard: 72

HUNDREDS	TENS	ONES
	10 10 10 10	1 1
	10 10 10	

# DIVISION

Use magnetic place value discs to divide whole numbers.

**Solve:**  $327 \div 34$  ("327 divided into 3 groups)

- Plot 327 at the top of the place value chart using:

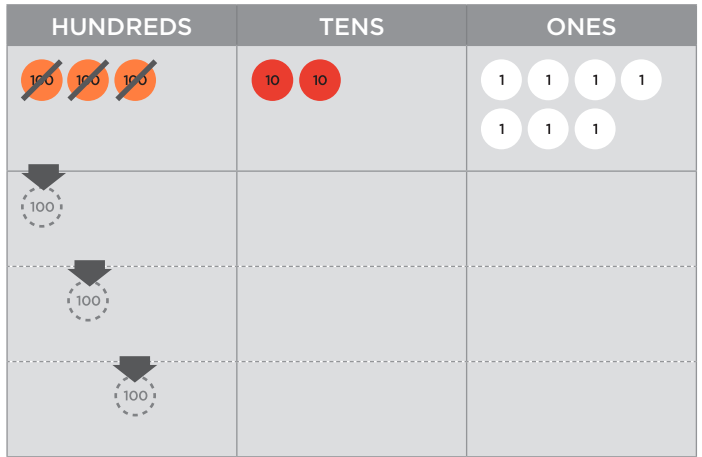
3 (100's)

2 (10's)

7 (1's)



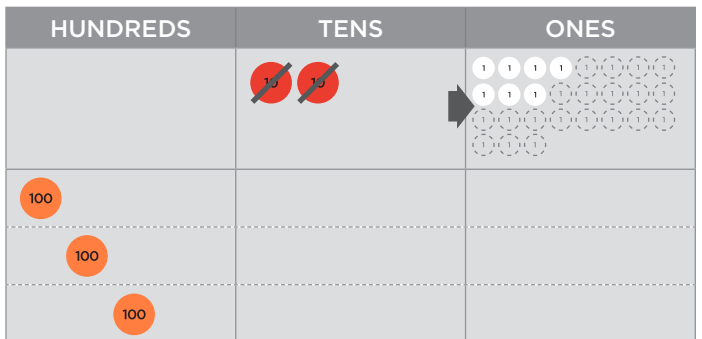
- Since the divisor is 3, divide the remaining space on the place value chart into three sections to divide 327 into 3 groups.



- Working from left to right, dividing will start in the hundreds place.

The 3 (100's) are split into the three newly created sections on the place value chart (300 divided into 3 groups).

- Since 2 (10's) cannot be split into three groups, regroup/trade each ten for 10 (1's) for a total of 27 ones.



- Distribute the 27 (1's) into three groups, so there are 9 (1's) in each group.



- Once the entire dividend is divided into three groups, look at one group to determine the quotient.

The solution: 109

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