

**North Penn School District**  
**Elementary Math Parent Letter**

**Grade 4**

**Unit 1 – Chapter 1: Place Value, Addition, and Subtraction to One Million**

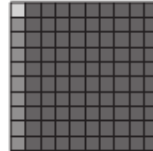
**Examples for each lesson:**

**Lesson 1.1**

## Model Place Value Relationships

**A hundred grid can help you understand place-value relationships.**

- One small square has been shaded to represent 1.
- Shade the rest of the first column. Count the number of small squares. There are 10 small squares. The model for 10 has 10 times as many squares as the model for 1.
- Shade the remaining 9 columns. Count the number of small squares. There are 100 small squares. The model for 100 has 10 times as many squares as the model for 10.
- If you shade ten hundred grids, you will have shaded 1,000 squares. So, the model for 1,000 has 10 times as many squares as the model for 100.



**A place-value chart helps you find the value of each digit in a number.**

THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones
		8,	5	1	6

In the number 8,516:

The value of the digit 8 is 8 thousands, or 8,000.

The value of the digit 5 is 5 hundreds, or 500.

The value of the digit 1 is 1 ten, or 10.

The value of the digit 6 is 6 ones, or 6.

## Lesson 1.2

# Read and Write Numbers

Look at the digit 6 in the place-value chart below. It is in the hundred thousands place. So, its value is 6 hundred thousands .

In **word form**, the value of this digit is six hundred thousands.

In **standard form**, the value of the digit 6 is 600,000.

↙      PERIOD      ↘

THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones
6	5	9,	0	5	8

Read the number shown in the place-value chart.  
In word form, this number is written as six hundred fifty-nine thousand, fifty-eight.

You can also write the number in **expanded form**:  
 $600,000 + 50,000 + 9,000 + 50 + 8$

Note that when writing a number in words, a comma separates periods.

## Lesson 1.3

### Compare and Order Numbers

Compare 31,072 and 34,318. Write  $<$ ,  $>$ , or  $=$ .

**Step 1** Align the numbers by place value using grid paper.

**Step 2** Compare the digits in each place value. Start at the greatest place.

Are the digits in the ten thousands place the same?

Yes. Move to the thousands place.

Are the digits in the thousands place the same?

No. 1 thousand is less than 4 thousands.

start here

		3	1	0	7	2
		3	4	3	1	8

$3 = 3$

		3	1	0	7	2
		3	4	3	1	8

$1 < 4$

**Step 3** Use the symbols  $<$ ,  $>$ , or  $=$  to compare the numbers.

$<$  means *is less than*.       $>$  means *is greater than*.       $=$  means *is equal to*.

There are two ways to write the comparison.

31,072  $<$  34,318    or    34,318  $>$  31,072

More information on this strategy is available on Animated Math Models #1, 2.

## Lesson 1.4

### Round Numbers

When you round a number, you replace it with a number that is easier to work with but not as exact. You can round numbers to different place values.

**Round 478,456 to the place value of the underlined digit.**

**Step 1** Identify the underlined digit.

The underlined digit, 4, is in the hundred thousands place.

**Step 2** Look at the number to the right of the underlined digit.

If that number is 0–4, the underlined digit stays the same.

If that number is 5–9, the underlined digit is increased by 1.

The number to the right of the underlined digit is 7, so the underlined digit, 4, will be increased by one;  $4 + 1 = \underline{5}$ .

**Step 3** Change all the digits to the right of the hundred thousands place to zeros.

So, 478,456 rounded to the nearest hundred thousand is 500,000.

More information on this strategy is available on Animated Math Model #3.

## Lesson 1.5

### Rename Numbers

You can use place value to rename whole numbers.  
Here are different ways to name the number 1,400.

- **As thousands and hundreds**

**Think:**  $1,400 = \underline{1}$  thousand  $\underline{4}$  hundreds.

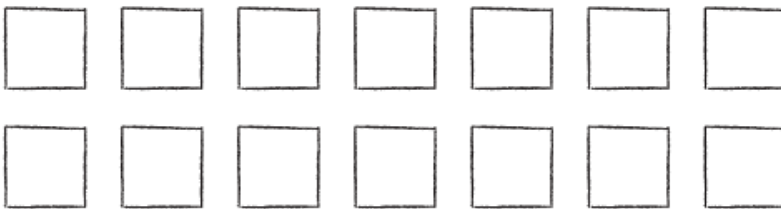
You can draw a quick picture to help.



- **As hundreds**

**Think:**  $1,400 = \underline{14}$  hundreds.

You can draw a quick picture to help.



- **As tens**

**Think:**  $1,400 = \underline{140}$  tens.

- **As ones**

**Think:**  $1,400 = \underline{1,400}$  ones.

## Lesson 1.6

### Add Whole Numbers

Find the sum.  $63,821 + 34,765$

**Step 1** Round each addend to estimate.

$$60,000 + 30,000 = \underline{90,000}$$

**Step 2** Use a place-value chart to line up the digits by place value.

	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
		6	3,	8	2	1
+		3	4,	7	6	5
		9	8,	5	8	6

**Step 3** Start with the ones place.  
Add from right to left.  
Regroup as needed.

The sum is 98,586. Since 98,586 is close to the estimate 90,000, the answer is reasonable.

Lesson 1.7

## Subtract Whole Numbers

Find the difference.  $5,128 - 3,956$

Estimate first.

**Think:** 5,128 is close to 5,000. 3,956 is close to 4,000.

So, an estimate is  $5,000 - 4,000 = 1,000$ .

Write the problem vertically. Use grid paper to align digits by place value.

**Step 1** Subtract the ones.

	5	1	2	8	
-	3	9	5	6	
				2	

$$8 - 6 = 2$$

**Step 2** Subtract the tens.

		0	12		
	5	1	2	8	
-	3	9	5	6	
			7	2	

There are not enough tens to subtract. Regroup 1 hundred as 10 tens.  
 $12 \text{ tens} - 5 \text{ tens} = 7 \text{ tens}$

**Step 3** Subtract the hundreds.

	4	10	12		
	5	1	2	8	
-	3	9	5	6	
		1	7	2	

There are not enough hundreds to subtract. Regroup 1 thousand as 10 hundreds.  
 $10 \text{ hundreds} - 9 \text{ hundreds} = 1 \text{ hundred}$

**Step 4** Subtract the thousands.

	4	10	12		
	5	1	2	8	
-	3	9	5	6	
	1	1	7	2	

$4 \text{ thousands} - 3 \text{ thousands} = 1 \text{ thousand}$

The difference is 1,172. Since 1,172 is close to the estimate of 1,000, the answer is reasonable.

More information on this strategy is available on Animated Math Model #4.

## Lesson 1.8

# Problem Solving • Comparison Problems with Addition and Subtraction

For a community recycling project, a school collects aluminum cans and plastic containers. This year the fourth grade collected 5,923 cans and 4,182 containers. This is 410 more cans and 24 more containers than the fourth grade collected last year. How many cans did the fourth grade collect last year?

Read the Problem		
<b>What do I need to find?</b>  I need to find the number of <u>cans the fourth grade collected last year.</u>	<b>What information do I need to use?</b>  The fourth grade students collected <u>5,923</u> cans this year.  They collected <u>410</u> more cans this year than the fourth grade collected last year.	<b>How will I use the information?</b>  I can draw a <u>bar model</u> to find the number of cans the fourth grade collected last year.
Solve the Problem		
I can draw a bar model and write an equation to represent the problem.		
<p>The diagram shows a bar model with two horizontal bars. The top bar is longer and labeled with the number 5,923. Below it, a shorter bar is labeled with the number 410. A horizontal line with a bracket underneath spans the length of the longer bar, and the number 5,513 is written below this bracket, representing the difference between the two bars.</p>		
$5,923 - 410 = \underline{5,513}$		
So, the fourth grade collected <u>5,513</u> aluminum cans last year.		

## **Vocabulary**

**Estimate** – a number close to an exact amount

**Expanded form** – a way to write numbers by showing the value of each digit

**Period** – each group of three digits separated by commas in a multi-digit number

**Round** – to replace a number with another number that tells about how many or how much

**Standard form** – a way to write numbers by using the digits 0-9, with each digit having a place value

**Word form** – a way to write numbers by using words

**Compare** – to describe whether numbers are equal to, less than, or greater than each other

**Order** – a particular arrangement or placement of things one after the other

**Place value** – the value of a digit in a number, based on the location of the digit