

2013

# Where everyone's PLACE is VALUED: A Numeration Unit

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# UNDERSTANDING BY DESIGN

## Unit Cover Page

Unit Title: “Where everyone’s *PLACE* is *VALUED*: A Numeration Unit”

Grade Level: 3rd

Subject/Topic Area(s): Math (Numeration-Base Ten)

Designed By: Karen Morrison

Time Frame: 4 weeks (19 days)

School District: R.I.S.D.

School: Forestridge Elementary

School Address and Phone: 10330 Bunchberry Dr.  
Dallas, TX 75243  
469.593.8500

### **Brief Summary of Unit** (Including curricular context and unit goals):

This is our first unit in 3<sup>rd</sup> grade math. It focuses specifically on Base Ten/Numeration, with a main emphasis on place value and money. Aligned with state standards, the students will be able to read, write in the three different forms (standard, expanded and written) and compare numbers up to the hundred-thousand place; additionally, students will be able to count collections of bills & coins and to solve real-world situations in which money is exchanged.

The performance assessment is entitled: Ritzy Roadrunner Resort. Students will be invited to participate in an imaginative ritzy summer vacation, much like present day Atlantis Paradise Island. This culminating activity is differentiated, leveled based on students various points of entry and skill acquisition throughout the unit. As “families on a summer trip” the students, in groups, will be assigned different package deals with varying “terms and conditions.” Mathematical expectations include skills from needing to accurately rank activities & restaurant items from most expensive to least expensive, using simple addition to determine money costs within a defined limit, up to giving higher students a budget and requiring them to provide you, the “hotel manager,” a balance sheet of purchases. This performance assessment will be graded on a rubric provided.

*We hope you enjoy your stay at the Roadrunner Resort: Where every place is valued!*

*\*Unit activities provided from R.I.S.D. –double check for acceptable use policy\**

**Unit: Math- Numeration (Place Value & Money)**

**Grade: 3**

**Stage 1: Desired Results**

**Understandings**

*Students will understand that...*

The value of a digit is dependent upon its position.

Digit position recognition is essential to understanding value in everyday situations.

Place value can be used to read and compare & order numbers.

Place value is essential to understanding the sums and differences of money amounts.

**Essential Questions**

1. How do we determine the value of a number?
2. When and how do we use the ordering of numbers in our everyday world?
3. How does place value impact money counting?
4. How can we use money to get what we want?

**Knowledge**

*Students will know...*

3.1A Use place value to read, write (in symbols & words), and describe the value of whole numbers through 999,999

3.1B Use place value to compare and order whole numbers through 9,999

3.1C Determine the value of a collection of coins & bills

N3.2A Compose/Decompose numbers up to 100,000 as a sum of so many ten thousands, thousands, hundreds (and so on)—using objects, pictorial models, numbers in expanded notation when appropriate

N3.2B Describe the mathematical relationships found in base 10 place value system through the hundred thousands place

N3.2D Compare & Order Numbers up to 100,000 & represent comparisons using greater than, less than & equal to

**Skills**

*Students will be able to...*

- Read, write & describe the value of numbers up to 999,999
- Compare and order numbers to 9,999
- Use symbols  $<$ ,  $>$ ,  $=$  to represent comparisons
- Count a collection of coins & bills & represent the collection using the dollar sign and decimal point

## Stage 2: Assessment Evidence

### Performance Task:

YOU'VE BEEN INVITED TO THE **Ritzzy Roadrunner Resort**. WE HOPE YOU ENJOY YOUR STAY WITH US! GUESTS INVITED TO THIS EXOTIC DESTINATION ARE 3 FAMILIES THAT ARE OLD FRIENDS AND ENJOY SUMMER VACATION TRIPS TOGETHER...THE RED FAMILY, THE GREEN FAMILY AND THE BLUE FAMILY!

(Previously assign which students will belong to what family based on points of entry of skill and growth during the unit.)

Red Family- Approaching,

Green Family- On Level

Blue Family- Beyond

EACH FAMILY CHOSE A DIFFERENT VACATION PACKAGE.

READ BELOW TO SEE THE 'TERMS & CONDITIONS' OF YOUR CHOSEN PACKAGE.

**Ritzzy Roadrunner Resort**  
**\*\*Where everyone has a valued place\*\***

Guests	Vacation Package	Terms & Conditions
Red Family	Package A	Congratulations! You have \$1000 on your Roadrunner Resort Card! Please rank the activities & restaurant menu items in order from most expensive to least expensive. If you can do this correctly, you get to spend your \$1000 Roadrunner Resort Card!
Green Family	Package B	Congratulations! You've chosen our 2 days/2 nights special offer! Determining your costs for 2 nights, 6 meals, and 2 recreational activities will be your task. If your total is greater than \$1,100 but less than \$2,100 this special offer will be yours!
Blue Family	Package C	Congratulations! You have a budget of \$3,000 to spend at our Ritzzy Roadrunner Resort. Don't be too quick to spend your money—as you must present to the Resort Manager a detailed list of how your money will be spent—how many nights? Rooms? Which meals? How many meals? What recreational activities? If you have at least \$10 leftover, you'll receive a free nights stay!

## Other evidence:

(quizzes, tests, academic prompts, self-assessments, etc. note – these are usually included where appropriate in Stage 3 as well)

- Pre-Assessments
- Place Value Table pop quiz
- Envision independent practice,
- Numeration Review
- Number Line & Yarn Activity
- Numbers Between
- Place Value Dry Erase Mats Activities
- Money Stations
- Numeration Test
- Ticket Out The Door

## Stage 3: Learning Activities

(Steps taken to get students to answer Stage 1 questions and complete performance task)

### Week 1:

**Understandings:** The value of a digit is dependent upon its position.

Digit position recognition is essential to understanding value in everyday situations.

**Essential Question:** How do we determine the value of a number?

-PACING GUIDE: Generalize place value understanding for multi-digit whole numbers/read & write up to 999,999

### Day 1:

-Pre-Assessment: 2<sup>nd</sup> Grade Place Value Test (pre-selected questions)

**RISD Lesson (see attached)--3 and 4 Digit Place Value:** FOCUS- Build, Draw, Read, Write 3 & 4 digit numbers in standard, expanded and word form

-Introduce vocabulary in pocket chart: digits, place value, standard form, expanded form, word form, period (family), compare, order, dollar sign, decimal point

-Introduce the PLACE VALUE TABLE (with ones period & thousands period)—create anchor chart

-In small groups consider using a tray of money... ones, tens, hundreds and creating numbers using bills...  
ex: 575 (5 hundred dollar bills, 7 ten dollar bills, 5 one dollar bills)

### Day 2:

Envision Textbook: Topic 1 Lesson 1.3 p. 8A-9B: FOCUS: Greater Numbers – how to read and write greater numbers, beyond the thousands ; Refer to place value chart; **Envision Independent Practice** p.52;

Small Groups: Re-teaching p.51 or Enrichment p.53

### Day 3:

-**RISD Lesson (see attached): Three Way Match:** FOCUS- Review of all 3 forms of place value; students given a set of “3 way match cards” into different piles of standard, expanded and word form –begin whole group, then with partners, then put in station

-**Independent: 6 Digit Place Value- All Grids Form**

-Small group: Styrofoam Cup standard/expanded form practice... idea from google images, search- “place value cups”

### Day 4:

-**RISD Lesson (see attached): More than One Way:** FOCUS: Representing numbers in variety of ways; Does decomposing a number change its value?; Create anchor chart to represent 1,342 in a variety of ways;

Divide your students into 7 groups of 3. Send each group to a different poster. The groups rotate to each poster decomposing the number in the middle in a different way shown on the butcher paper. Rotate back to their original poster to check the other groups' work; **More than One Way Independent Work**

**Day 5: Place Value Table POP QUIZ;** Review/Re-teach/Catch up; Small Groups: **Place Value Dry Erase Mats**

## Week 2: (4 days)

Understandings: The value of a digit is dependent upon its position.

Digit position recognition is essential to understanding value in everyday situations.

Place value can be used to read and compare & order numbers.

Essential Question: How do we determine the value of a number?

When and how do we use the ordering of numbers in our everyday world?

-PACING GUIDE: Generalize place value understanding for multi-digit whole numbers/read & write up to 999,999

### **Day 6:**

Envision Textbook: Topic 1 Lesson 1.4 p. 10A-13B (\*Small Groups) FOCUS: Comparing Numbers – Students use place value blocks and place-value charts to compare 3-digit numbers and write number sentences to show the comparison.... *ASK: How can place value help you compare whole numbers?\**Utilize Place Value Chart

### **Day 7:**

-*RISD Lesson (see attached) Comparing to 9,999:* FOCUS- Compare numbers to 9,999 and use greater than, less than, equal to symbols; use pre-cut number cards to have students compare numbers with a partner; **Ticket Out the Door**- 2 word problems (at back of lesson)

### **Day 8:**

Envision Textbook: Topic 1 Lesson 1.5 p. 14A-15B:FOCUS: Ordering Numbers—students use place value charts to compare three 4 digit numbers & order numbers, writing them least to greatest and greatest to least; **Envision Independent Practice**; Small Groups: Re-teaching p.72 and Enrichment p.74 (high-use Student Atlas and order and compare square miles or populations)

### **Day 9:**

-*RISD Lesson (see attached) Comparing Whole Numbers: Information Packet Lesson:* FOCUS: Teacher posts 6 Information Packet problems around the room; students, in cooperative learning groups, then examine the different sets of numbers on each poster and generates true information about the data; **Independent work: Comparing Numbers Info Packet (9 questions)**

## Week 3:

Understandings: Place value can be used to read and compare & order numbers.

Essential Questions: When and how do we use the ordering of numbers in our everyday world?

PACING GUIDE:

-Generalize place value understanding for multi-digit whole numbers/read & write up to 999,999

-Compare & Order Numbers

-Number Line (Whole Numbers)

### **Day 10**

- *RISD Lesson (see attached) Number Line* :FOCUS: Students will be able to figure out the intervals on a number line in order to locate and name points on a number line; utilize math journal; (*pose*) *How can we determine the interval of the number line? To determine the interval we have to look at 2 numbers close together to find their difference;* Draw number line on butcher paper and have students justify the location of numbers on sticky notes within the number line; Independent Work- Number Lines (10 questions)

### **Day 11**

-*RISD Lesson (see attached) Numbers Between Lesson:* FOCUS: Teacher poses problems on big butcher paper/poster; use number line strategy to explain comparisons based on meanings of digits; check work by lining numbers vertically; **Independent: Numbers Between Worksheet**

### Day 12

-**Number Line/Yarn Activity** – (very helpful for visual learners) String yarn the length of your classroom... have pre-made numbers cut in half with numbers 0-1,100; make enough numbers so that each student has one (or two) to place on this classroom number line.... Ask probing questions: *Who thinks they have the lowest digit? Who thinks they have the highest digit? Who has a digit between \_\_\_ and \_\_\_? Who has a digit greater than \_\_\_ but greater than \_\_\_\_\_?* This number line can remain up throughout the rest of the unit

-(Optional) Closing the Distance: Number Lines p.171-188

-Review/Re-teach Number lines/Numbers Between

### Day 13

-**Money Pre Assessment** (small group)—give students fake money coins to count observe what coins they start with, if they count by 5s, or determine their prior knowledge of money counting

-**RISD Lesson (see attached) Counting Money**: FOCUS: Practice counting groups of coins and dollar bills & then match the groups the coins and bills to their values (can be in partners)

-**Money Stations**

### Day 14

-**RISD Lesson (see attached) Dollars & Cents**: FOCUS: Practice counting money in groups of dollars and cents in real-life situations; **Dollars & Cents Independent Work**—independent, small group or in partners (teacher discretion)

## Week 4:

Understandings: Place value is essential to understanding the sums and differences of money amounts.

Essential Questions: How does place value impact money counting?

How can we use money to get what we want?

PACING GUIDE: Determine the value of a collection of coins & bills

### Day 15:

**Review/Re-teach money concepts**

### Day 16 & 17

**\*\*PERFORMANCE TASK\*\*** (see attached)

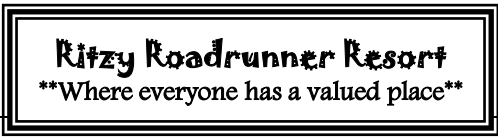
### Day 18

Base Ten/Numeration REVIEW

### Day 19

Base Ten/Numeration TEST (not included due to district yearly changes)

## PERFORMANCE TASK:



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## RUBRIC FOR ASSESSMENT:

	1- BELOW EXPECTATIONS	2- MEETS EXPECTATIONS	3- BEYOND EXPECTATIONS
GROUP PARTICIPATION	COLLABORATED WITH GROUP MEMBERS 50% OF THE TIME	COLLABORATED WITH GROUP MEMBERS 75% OF THE TIME	COLLABORATED WITH GROUP MEMBERS 100% OF THE TIME
FOLLOWED R-TIME RULES	FOLLOWED R-TIME RULES 50% OF THE TIME	FOLLOWED R-TIME RULES 75% OF THE TIME	FOLLOWED R-TIME RULES 100% OF THE TIME
MATH PROCESS	FAILED TO SHOW WORK AND EVIDENCE OF THINKING THROUGHOUT THE ASSIGNMENT	SHOWED WORK & EVIDENCE OF THINKING PARTIALLY THROUGHOUT ASSIGNMENT	SHOWED WORK & EVIDENCE OF THINKING THROUGHOUT WHOLE ASSIGNMENT
MATH ACCURACY	DID NOT ORDER NUMBERS OR PERFORM COMPUTATION ACCURATELY	FEW MISTAKES IN MATH COMPUTATION & ORDERING OF NUMBERS	MATH COMPUTATION & ORDERING COMPLETED ACCURATELY WITH NO MISTAKES



### 3 & 4 Digit Place Value

**TEKS FOCUS** – (plus aligned new standards)

The student is expected to use place value to read, write (in symbols and words), and describe the value of whole numbers through 999,999. (3.1A) Compose and decompose numbers up to 100,000 in more than one way as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects pictorial models, and numbers, including expanded notation as appropriate. (N3.2A) Describe the mathematical relationships found in the base-10 place value system through the 100,000 place. (N3.2B)

**Materials**

For teacher

- Pg 4
- Base ten blocks

Per student

- Pg 4-5
- Base ten blocks

**Vocabulary**

- Place value
- Standard form
- Expanded form
- Word form

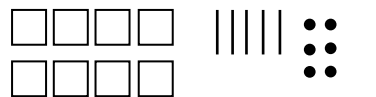
**Activity:** Today we are going to build, draw, read and write 3 and 4 digit numbers in standard, expanded and word form.

**Part 1:**

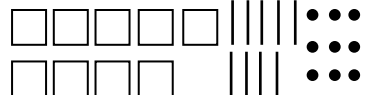
Write the number 856 on the board. Tell the students that this number is written in **standard form**- a number written in a way that shows only its digits. The teacher says, “**Place value** tells you the value of each digit in a number according to its position in the number.” Draw a place value chart on the board and write the number 856 in the chart. (Students write the number in row 1 of the chart on page 4 or in their journal.)

Ask the following questions:

- What digit is in the hundreds place (8), the tens place (5), the ones place (6)? So 856 is the sum of 8 hundreds, 5 tens and 6 ones.
- How would you build this number with base ten blocks? (in groups use manipulatives to build the number) How many hundreds? Tens? Ones? Draw the number in row 1 of your chart or in your journal.
- How do you write this number in expanded form? Tell the students that **expanded form** shows the number written as the sum of the values of its digits. (800 + 50 + 6)
- How do you write the number in **words**? (eight hundred fifty-six)

856		800 + 50 + 6	eight hundred fifty-six
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Repeat the steps with the number 999. (Students write this number in the second row of the chart.)

999		900 + 90 + 9	Nine hundred ninety-nine
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Ask the students, “If we added one to 999, what will be our new number?”

The teacher writes the number 999 in a place value chart on the board and draws the base ten pieces. The students manipulate their base ten blocks as the teacher leads the discussion about what happens as you add 1 cube (one) to the ones place.

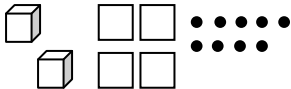
What happens to the digit 9 in the ones place? (Discuss as a class how you start with 9 ones; add one which makes a ten so you have to regroup in the different place values. Then you end up with one thousand. Students should have been manipulating the cubes beginning with regrouping 10 ones for a ten, ten tens for a hundred and 10 hundreds for a thousand.)

Ask: What do you notice about the relationship between the places in our place value system? (Each place is 10 times greater than the previous place.)

Show the students a thousand cube. Talk about the relationship between each place value while showing the cubes.

Now let's practice a 4 digit number. Write 2,409 on the board and in row 3 on the 3 & 4 digit practice sheet or journal and repeat the questions?

- How would you build this number with base ten blocks? How many thousands, hundreds, tens, and ones? Explain that 2,409 is the sum of 2 thousands, 4 hundreds, and 9 ones. Draw the number in row 3 on the practice sheet or in your journal.
- Since there aren't any tens, why do we even have to have a number in the tens place?
- How do you write this number in expanded form? ( $2000 + 400 + 9$ )
- How do you write this number in words? (two thousand, four hundred nine)

2,409		$2,000 + 400 + 9$	Two thousand, four hundred nine
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Ask the following questions. Have students discuss in their groups and then have the groups share their responses.

- The value of 2,409 would change by how much if the digit 4 was replaced by a 1? (300)
- If 2,409 increases by 300, what would be the new number? (2,709)
- If 2,409 decreased by one thousand, what would be the new number? (1,409)
- The value of 2,409 would change by how much if the digit 0 was replaced by a 5? (50)

## Part 2

The teacher draws the number 5,312 in the picture column of row 4. Students work with a group or partner to build the number with base ten blocks. On the recording sheet or journal students fill in the number, picture, standard form and word form. While students are writing the all forms of the number, the teacher monitors students and selects a few students to go to the board or Dukane to fill in the number, standard form and word form.

Repeat the same process with row 5 with the teacher writing  $3,000 + 60 + 7$  in the expanded column. Have students build the number, write the numeral and write the number in words on the recording sheet or journal.

Row 6 - Write the number seven thousand, five hundred nineteen in the words column. Have student fill in all the remaining forms.

**Part 3**

Pose the following problem:

**How does the value of the digit 3 change in each of the numbers listed below?**

**2743**

**2734**

**2374**

**3274**

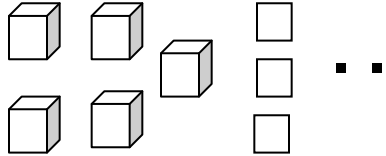
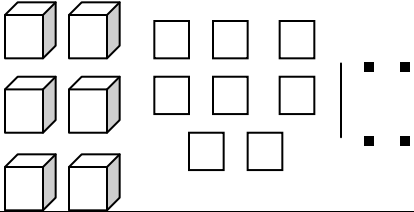
Discuss observations as a class. Discussion should include that the digit 3 does not always have a value of 3. The place of the digit changes the value of the digit.

**Part 4**

Students will work the 3 & 4 digit Place Value Independent practice sheet with a partner or independently. The teacher walks around and monitors or pulls a small group if needed.

Students who finish early can turn the sheet over and make four to six more 4 digit numbers filling in a different form. Early finishers can share their form with another student and complete each other's paper.

	<b>Numeral</b>	<b>Picture</b>	<b>Expanded Form</b>	<b>Written Form</b>
1.				
2.				
3.				
4.				
5.				
6.				

	<b>Numeral</b>	<b>Picture</b>	<b>Expanded Form</b>	<b>Written Form</b>
1.	785			
2.				
3.			3,000 + 40 + 6	
4.				Four thousand, five hundred sixty
5.				
6.				Two thousand, three hundred twenty-five

## Comparing to 9,999

### TEKS FOCUS – (plus aligned new standards)

Use place value to compare and order whole numbers through 9,999. (3.1B)

Compare and order whole numbers up to 100,000 and represent comparisons using the symbols  $>$ ,  $<$ , or  $=$ . (N3.2D)

#### Materials

For group

- Number cards p 4 (pre-cut)
- Base ten blocks

For teacher

- Copy of p 5

#### Vocabulary

- Greater than,  $>$
- Less than,  $<$
- Equal to,  $=$
- Comparison

**Activity:** Today we are going to compare numbers to 9,999 and use the greater than and less than symbol to write number sentences. Often we have to recognize if one of two numbers is greater than or less than the other number. For example, if we could choose to buy something at one store for \$1,544 or at another store for \$1,572, we compare the numbers so that we can be wise consumers. Can you think of other times when it would be necessary to compare two numbers?

**Teacher Note:** It is important for the group to be seated so that the greater than and less than symbols are seen right side up by every student.

**Preparation (to be used during Part 2):** The teacher cuts apart the four-digit number cards. Each group needs a set of the ten cards and the symbols.

### Part 1 – Comparing four-digit numbers

1. The teacher then writes two, four-digit numbers with the same digits in the thousands and hundreds places inside the place value frames. Students build and draw the two numbers.

Thousands	Hundreds	Tens	Ones
2	4	1	9

Thousands	Hundreds	Tens	Ones
2	4	3	4

- Ask: How many thousands are in 2,419? In 2,434? Can we compare these numbers just by looking in the thousands place? (have students compare the base 10's as well as their drawings)
- We need to look in the place with the next largest value. What place is that? (hundreds)
- Ask: How many hundreds are in 2,419? In 2,434? Can we compare these numbers by looking in the hundreds place? (have students compare the base 10's as well as their drawings) (students should respond that the values are the same in the hundreds place as well)
- Ask: What should we do next in order to compare these two numbers? (look at the next largest place value or tens place)
- How many tens are in 2,419? In 2,434? Can we compare these numbers by comparing the tens? Which number is greater? Less? How can you tell? (have students compare the base 10's as well as their drawings) (Students should see that there is 1 ten in 2,419 and 3 tens in 2,434 so 2,434 is greater than 2,419)

## Comparing to 9,999

- Record statements in multiple ways.

Example: 2,419 is less than 2,434

2,434 is greater than 2,419

$2,419 < 2,434$

$2,434 > 2,419$

2 thousands, 4 hundreds 3 tens and 4 ones  $>$  2 thousands, 4 hundreds 1 ten and 9 ones

2 thousands, 4 hundreds 1 ten and 9 ones  $<$  2 thousands, 4 hundreds 3 tens and 4 ones

two thousand, four hundred nineteen is less than two thousand, four hundred thirty-four

two thousand, four hundred thirty-four is greater than two thousand, four hundred nineteen

- Say to students: When looking at the number 2,419, explain why the number 2 has a greater value than the 9 when comparing the size of the number since the digit 9 alone represents a greater value than the digit 2 alone.

2. Continue comparing 4-digit numbers in a variety of ways:

- Given two numbers in numeral form and must compare using symbols.
- Given two numbers in base 10 representations and must compare using symbols.

### Part 2 – Comparing numbers in two ways

1. Groups take all the pre-cut number cards (p 4), mixes them together, and puts them in a stack.

2. Students take turns to:

- draw two numbers from the stack,
- make a number sentence comparing them using one of the symbol cards, and reads the number sentence.

Each time, the comparison is justified to answer the question, for example, “How do you know 3,157 is less than 3,253?” (Base ten blocks, drawings of base ten blocks or explanations based on the meanings of the digits in each place can be used to support the number comparisons or place value understanding.)

3,157	$<$ less than	3,253
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3,157 is less than 3,253.

## Comparing to 9,999

The student then changes the order of the cards, uses the other symbol to compare the numbers, and reads the new number sentence.

3,253	> greater than	3,157
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3,253 is greater than 3,157.

### Part 3 – Posing problems (problems are larger on p 5 if needed to project to students)

1. Pose the following problem to students. When students have had time to investigate a solution, discuss results and explanations as a class.

Bethany's number had 9 hundreds, but Fran's number had only 6 hundreds. Fran's number was greater. Explain how this was possible.

2. Pose the following problem to students. When students have had time to investigate a solution, discuss results and explanations as a class.

Patrick chose 6 base ten blocks. The value of these blocks is more than 4,000 and less than 4,804. Which blocks might Patrick have chosen? Model and explain your thinking.



Comparing to 9,999

7,640

7,604

7,460

7,406

6,407

6,470

6,047

6,074

4,607

4,760

<

less than

>

greater than

Bethany's number had 9 hundreds, but Fran's number had only 6 hundreds. Fran's number was greater. Explain how this was possible.

Patrick chose 6 base ten blocks. The value of these blocks is more than 4,000 and less than 4,804. Which blocks might Patrick have chosen? Model and explain your thinking.

## Comparing Whole Numbers: Information Packet

### TEKS FOCUS – (plus aligned new standards)

Use place value to read, write (in symbols and words), and describe the value of whole numbers through 999,999. (3.1A)

Use place value to compare and order whole numbers through 9,999. (3.1B)

Describe the mathematical relationships found in the base-10 place value system through the 100,000s place. (N3.2B)

Compare and order whole numbers up to 100,000 and represent comparisons using the symbols  $>$ ,  $<$ , or  $=$ . (N3.2D)

### Materials

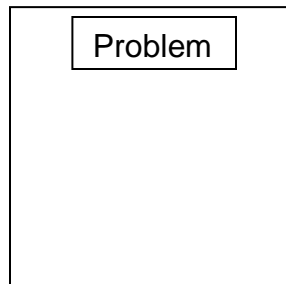
For teacher

- Information Packet: 1 teacher model problem, 5 student problems
- 6 pieces of chart paper
- markers

Per student

- Copy of pp 9-11

**Before the lesson:** Teacher posts each of the 6 Information Packet problems on a separate piece of chart paper. Post problems around the classroom.



**Activity:** Today we will look at different sets of numbers and generate true statements about the information.

1. The teacher models how to generate **true** statements about the information using the Teacher Model problem from the Information Packet. The teacher will think aloud and generate two or three true statements.

Examples:

All the numbers in Group A are even.

All of the numbers in Group B have an odd number in the tens place.

All the numbers in group A are more than 7,000.

The value of the digit 5 in 8,584 is ten times greater than the value of the digit 5 in 8,456.

Then ask students to help you generate more true statements. Record all of these true statements on the chart paper.

Facilitating Questions:

- What do all of the numbers in Group A have in common?
- What do all of the numbers in Group B have in common?
- Can you generate a statement that is true for all of the numbers in both groups?
- How do you know these statements are true? Explain.

## Comparing Whole Numbers: Information Packet

2. The teacher then says the following:

All of the numbers in Group B are less than 6,000.

Ask students: Is this a true statement? (discuss student's responses)

Tell students:

- Sometimes we are asked to identify statements that are NOT true. Can anyone generate a statement that is false, or NOT true, about these groups of numbers?
- How do you know the statement is NOT true? Explain.

3. In groups, have students rotate around the classroom to each of the other 5 problems. Set a timer and allow groups an appropriate amount of time to generate and record as many **true** statements as possible about each problem. When it is time to rotate and visit another problem, groups need to first read the statements already generated on the chart, agree if it is true, and generate more true statements. If the group does not believe that a statement is true, label the statement with an "NT" so that it can be challenged later. The teacher should continually move around the room monitoring student understanding. The teacher will ask facilitating questions.
4. Once the groups have visited all 5 problems, assign each group to a problem. Have the group share at least one true statement from their problem with the class. Allow other students to agree, disagree, and ask questions. If any of the statements were challenged as Not True, NT, ask the group that disagreed to explain their explanation.
5. Students will independently complete pp 9-11.

Teacher Model:

Look at the two groups of numbers shown below.

<b>Group A</b>
8,456
7,590
9,032
8,584

<b>Group B</b>
3,079
4,412
5,537
6,853

Ashton wants to compare the number of students at 3 different schools. The table below shows the number of children at each school.

<b>School</b>	<b>Number of Students</b>
Aikin	569
Audelia Creek	642
Arapaho Classical	540

The Busby family went to the fair. The table below shows a list of the Busby family members and their heights in inches.

Family Member	Height in Inches
Mr. Busby	74
Mrs. Busby	65
Jasmine	61
Lucas	49
William	33
Monica	29

Mr. Busby, Mrs. Busby, Jasmine, and Lucas were all tall enough to ride the roller coaster. William and Monica were not tall enough to ride the roller coaster.

Look at the two groups of numbers shown below.

<b>Group K</b>
2,750
3,155
2,953
4,352

<b>Group L</b>
6,783
5,641
5,799
7,845



You are given the digits 2, 4, 5, 8, and 9. You may only use each digit once.

Create numbers using the digits, then generate true statements about your numbers.

## Clues:

I am a 4-digit number.

I am an odd number.

I have a 6 in the tens place.

If you add all my digits together, you get a sum greater than 17.

Generate a number based on the clues and write true statements about your number.

1. Chase, Alan, Kara, Tressa, and Jeff are in line in the cafeteria. Alan is third in line. Chase is not standing beside Alan. Jeff is not the last person in line. Tressa and Chase are in line ahead of Alan. What is the order of the children from first to last?

2. Sarah wants to compare the ages of the children in her family. The table below shows the children's ages.

Child	Age
Sarah	12
Anne	8
Ross	10

Which of the following compares the children's ages correctly?

- A.  $10 > 8 > 12$
- B.  $8 > 12 < 10$
- C.  $12 > 10 > 8$
- D. Not here

3. Shirt Barn sells T-shirts of different sizes. Most of the shirts are labeled small, medium, large, or extra large, but some are labeled with numbers. The table below shows how the size labels compare to each other.

T-Shirt Sizes

Small	6-8
Medium	9-11
Large	?-?
Extra Large	15-17

Which of the following could be the size of a large T-shirt? Mark your answer.

- A. 16
- B. 13
- C. 10
- D. 7

4. Look at the two groups of numbers shown below.

Group R	Group S
343	412
125	456
334	625
215	514

Which statement about the numbers in these groups is true?

- A. All the numbers in Group S are greater than 400.
- B. All the numbers in Group R are odd.
- C. All the numbers in Group R are less than 300.
- D. All the numbers in Group S are even.

## Comparing Whole Numbers: Information Packet

5. Look at the two groups of numbers shown below.

Group X	Group Y
278	412
214	620
195	514
346	456

Which statement about the numbers in these groups is true?

- A. All the numbers in Group X are greater than 200.
- B. All the numbers in Group Y are even.
- C. All the numbers in Group Y are less than 600.
- D. All of the numbers in Group X are odd.

6. The Lopez family went to a restaurant that had a special offer according to age. The table below shows a list of the Lopez family members and their ages.

Family Member	Age
Mr. Lopez	48
Mrs. Lopez	44
Ramon	16
Betsy	10
Luis	7
Laura	5

Betsy, Luis, and Laura got free dinners because of their ages. Which of the following answers best describes the restaurant's special offer?

- A. People 16 and over eat free.
- B. People 12 and under eat free.
- C. People 16 and under eat free.
- D. People 5 and over eat free.

7. Look at the two groups of numbers below.

Group K	Group L
327	657
198	401
486	522
375	344

Which statement about the numbers in these groups is **NOT** true?

- A. All the numbers in Group K have a digit greater than 4 in the ones place.
- B. All the numbers in Group L are greater than 340.
- C. All the numbers in Group K are less than 500.
- D. All the numbers in Group L are odd.

8. Which of these best describes all three of these numbers?

**3,214            3,716            3,567**

- A. The numbers are all even.
- B. The numbers are all greater than 3,515.
- C. The numbers are all odd.
- D. The numbers are all less than 3,718.

## Comparing Whole Numbers: Information Packet

9. The Juarez family went to a movie theater that had a special offer according to age. The following table has a list of the members of the Juarez family and their ages.

<b>Family Member</b>	<b>Age</b>
Mr. Juarez	45
Mrs. Juarez	39
Connie	14
Rob	12
Katia	10
Chris	9
Mario	8

Rob, Katia, Chris, and Mario got in free because of their ages. Which of the following answers best describes the theater's special offer?

- A. People who are 21 years old or younger get in free.
- B. People who are 17 years old or younger get in free.
- C. People who are 12 years old or younger get in free.
- D. People who are 8 years old or younger get in free.

## More Than One Way

### TEKS FOCUS – (plus aligned new standards)

Compose and decompose numbers up to 100,000 in more than one way as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate. (N3.2A)

#### Materials

- Post 7 pieces of butcher paper with a different 4-digit numbers in the middle around the room
- Base Ten Blocks (cubes, flats, rods, and units)
- Place value mat labeled with Thousands, Hundreds, Tens and Ones
- Large manila paper
- Independent Practice Worksheet

#### Vocabulary

- Decomposing
- Expanded form

**Focus Activity:** Value of a Digit Journal Prompt:

**The digit 7 does not always have a value of 7. Write an explanation using examples.**

Examples:  $2\underline{7}4,563$      $108,\underline{7}00$      $\underline{7}44,901$

Values:     $70,000$          $700$      $700,000$

*The value of a digit is determined by where it falls in the place value chart.*

**Main Activity:** Today we will be representing numbers in a variety of ways. (*This is a precursor to regrouping. This will give the teacher a good idea about who remembers this from last year.*)

1. The teacher poses this problem: What do these have in common?

11 tens, 27 ones

$130 + 7$

1 hundred, 2 tens, 17 ones



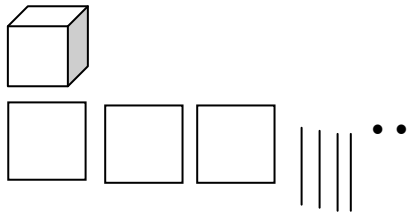
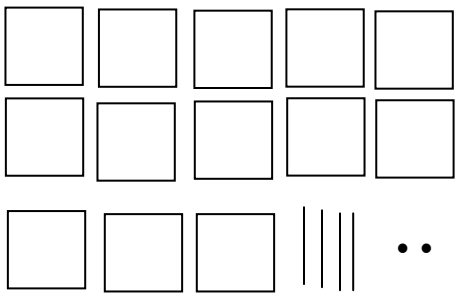
*Discuss how all of them equal 137. There are actually 18 different ways to decompose, or break down, the number 137. If students don't remember from 2<sup>nd</sup> grade, model how each of these represents 137 with base ten blocks.*

Does decomposing a number change the value of the number?

*(Many students believe that when you decompose a number you are changing its value. This is a misconception. Give them a real world example of a dollar bill and 4 quarters. You still have a dollar, but made in a different way. Same misconception happens when you regroup for subtraction. They think it's a new number.)*

## More Than One Way

2. Start an anchor chart on butcher paper to show the ways to make 1,342.

Picture	Thousands, Hundreds Tens, Ones	Expanded Form
	1 thousand 3 hundreds 4 tens 2 ones	$1,342 = 1,000 + 300 + 40 + 2$
	0 thousands 13 hundreds 4 tens 2 ones	$1,300 + 40 + 2 = 1,342$

Write this equation on the board:  $1,342 = 1,300 + 40 + 2$  Do you agree or disagree with this equation? Why?

*(Briefly discuss the meaning of the equal sign – whatever is on one side is equivalent to whatever is on the other side. Throughout this lesson, record students' thinking using a variety of equations, so that they learn that an equation can have one number or several numbers and operation signs on either side. They will be more familiar with  $1,000 + 300 + 40 + 2 = 1,342$ .)*

3. In groups of 4, have students decompose the number 1,342 in many ways on their place value mat using their base ten blocks. Assign each person to be responsible for building with a specific block. Have them record these ways on Manila paper in a chart like above.
4. Call students together to discuss their work on finding combinations that make 1,342. Choose a combination to add to the anchor chart that includes no thousands and record it under the first combination, such as 13 hundreds, 4 tens, 2 ones.
5. Say to students: "Here's another way to decompose 1,342. The first combination has 1 thousand, but the second combination has no thousands. What happened to the thousand?"
6. Continue discussion with student examples and questions.
7. The teacher asks:  
 What patterns do you notice in the anchor chart? Is there a systematic way to find all the different ways?

### More Than One Way

8. Write this equation on the board:  $1,000 + 300 + 40 + 2 = 1,300 + 40 + 2$  Do you agree or disagree with this equation? Why?

*(Cover up the right side of the equation and figure out what the left side equals. Write that sum above the left side. Then cover the left side while figuring out what the right side equals. Write that sum above the right side. Are both sides equal to each other?)*

9. Divide your students into 7 groups of 3. Send each group to a different poster. The groups rotate to each poster decomposing the number in the middle in a different way shown on the butcher paper. Rotate back to their original poster to check the other groups' work.

10. Pose this problem: Write the number that can be expressed as 4 thousands, 15 hundreds, 5 tens.

*Provide base ten blocks for student use or to check their work.*

11. Students work on Independent Practice.



## More Than One Way

Name \_\_\_\_\_

Independent Practice

1. Write the number that can be expressed as 83 hundreds, 4 tens, 7 ones. \_\_\_\_\_
2. Write the number that can be expressed as 9 thousands, 1 hundred, 15 tens, 6 ones. \_\_\_\_\_

**Sketch three different ways to make 1,653. Write an equation for each combination.**

3.

number sentence:

4.

number sentence:

5.

number sentence:

6. Which equation is NOT true?

- A.  $1,000 + 200 + 30 + 4 = 1,000 + 234$
- B.  $1,000 + 200 + 34 = 1,000 + 200 + 20 + 4$
- C.  $1,200 + 30 + 4 = 1,200 + 20 + 14$
- D.  $1,200 + 10 + 24 = 1,000 + 200 + 34$

## Number Line

### TEKS Focus

Locate and name points on a number line using whole numbers and fractions, including halves and fourths. (3.10)

### Materials

For teacher

- butcher paper
- numbers written on sticky notes – see step 4

Per student

- Practice worksheet

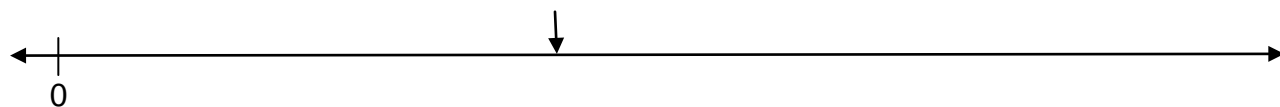
### Vocabulary

- interval

**Activity:** Students will be able to figure out the intervals on a number line in order to locate and name points on a number line.

1. Start the class by posing this problem.

**Draw this number line onto a sheet of paper or in your math journal.**

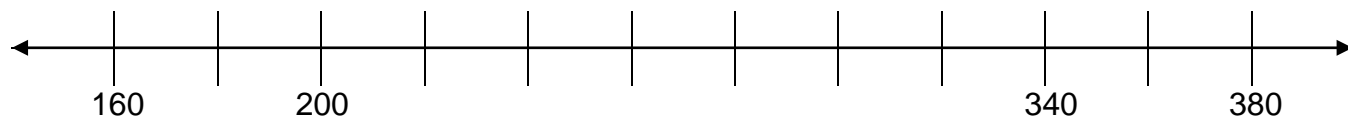


**If the arrow is pointing to 50, mark where you think these numbers are located. Explain your thinking.**

**65, 100, 10, 45, 110**

The teacher has the students share where they would place the numbers on the number line and explain why.

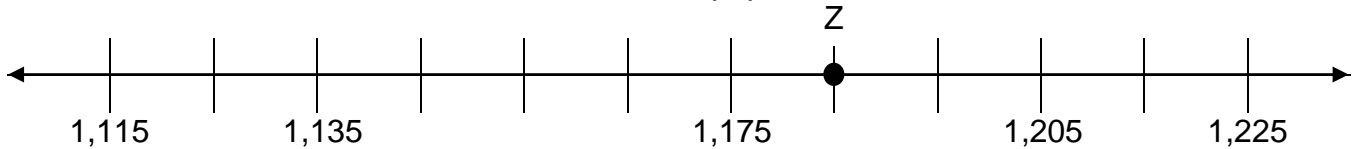
2. Draw this number line on the board or on butcher paper.



- Tell the students you want to be able to label each tick mark with a number. Ask the following question: What do you think the interval of our number line is? How can we find out?
- In order to determine the interval of our number line we will have to look at 2 numbers which are close together to find their difference. What operation do we do if we are finding the difference?  
(subtraction  $200 - 160 = 40$  or  $380 - 340 = 40$ )
- Since there is one tick mark in the middle of these two numbers, we will have to cut the difference in half or divide by 2. ( $40 \div 2 = 20$ ) That means that the interval is 20. We can add 20 each time to label our tick marks. (label the tick marks)

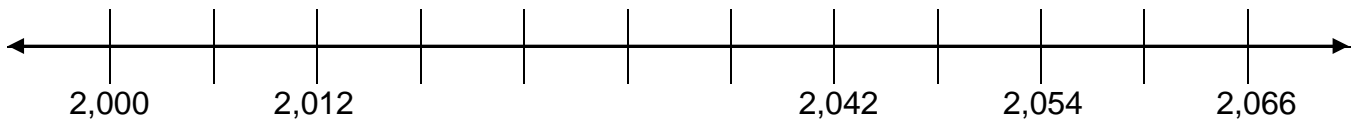
## Number Line

3. Draw this number line on the board or on butcher paper.



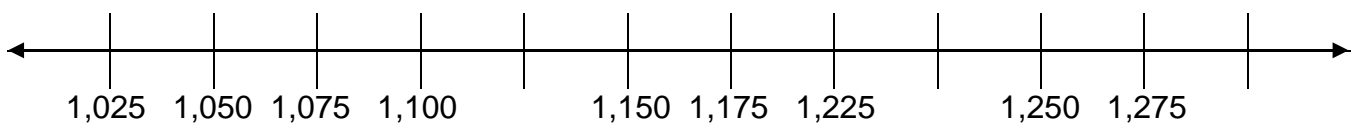
- Ask the students to write a number sentence which shows how to find the number represented by point Z on the number line. Let the students work with a partner or small group. Then share strategies on how they found the number for point Z. (The interval is 10 so  $1,175 + 10 = 1,185$ )

4. The teacher draws this number line on the board or on butcher paper.



- The teacher writes the following numbers on large sticky notes and passes out a number to each group. (2,006 2,018 2,024 2,030 2,036 2,048 2,078)
- Each group sketches the number line and determines the interval for the number line.
- Then the group decides where on the number line their number should be placed and justifies their answer. (One of the numbers will not belong, but it is important for the groups to justify why it does not.)
- The teacher calls on each group to come up and place their number on the number line and explain their reasoning for doing so.
- One of the numbers is missing from the number line, what number is missing and how do you know?
- The teacher closes this part of the lesson by asking the students the procedure for finding the interval for a number line.

5. Draw this number line on the board or on butcher paper.



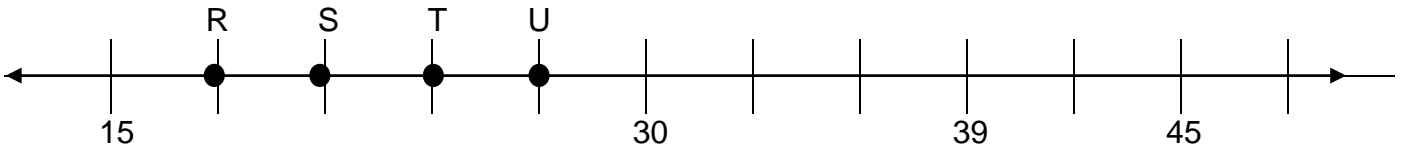
- Have students make observations about the number line on a piece of paper or in their journal.
- After a few minutes, let students share their observations with other students in their group.
- Teacher calls on students to share their observations, and records them on the board or butcher paper. (Some possible observations are: interval is 25, 1,225 is in the wrong spot, 1,125 and 1,200 are missing.)

6. Pass out the Number Line Practice Worksheet to the students. This can be completed independently or with a partner.

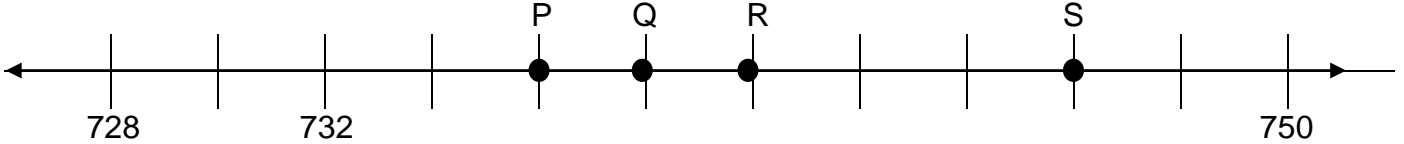
## Number Line

### Practice Worksheet

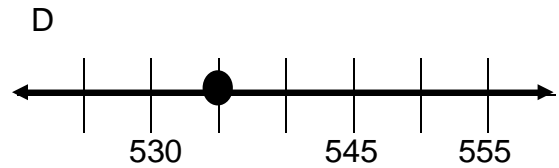
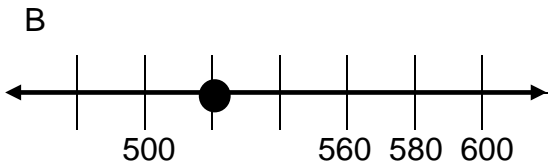
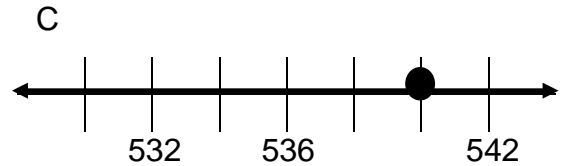
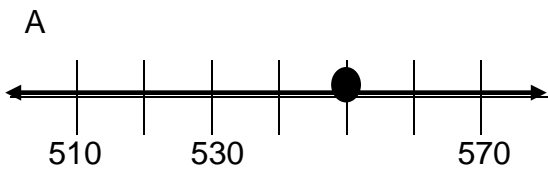
1. What point on the number line represents 27?



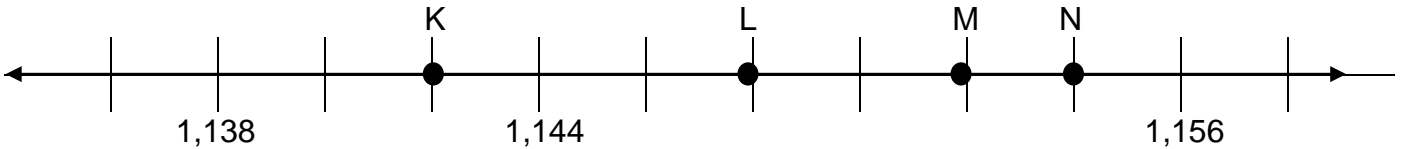
2. What point on the number line represents 738?



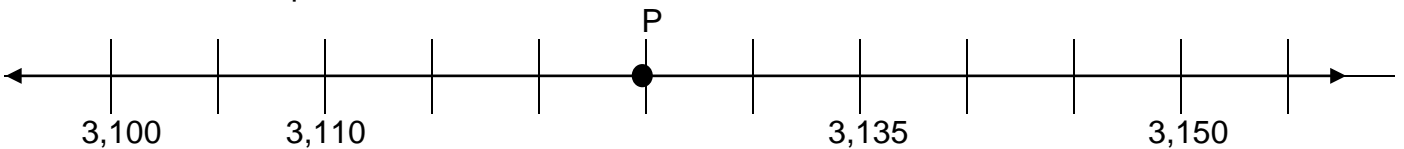
3. On which number line would the point best represent number 540?



4. Which point best represents 1,152 on the number line?

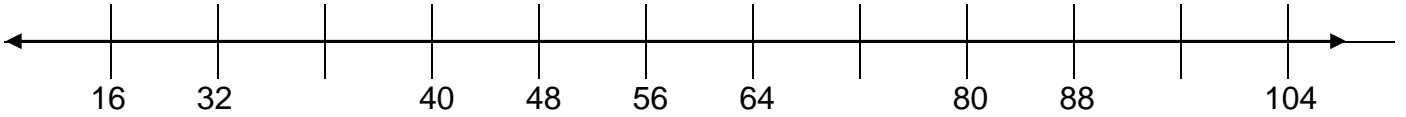


5. The letter P best represents which number?



### Number Line

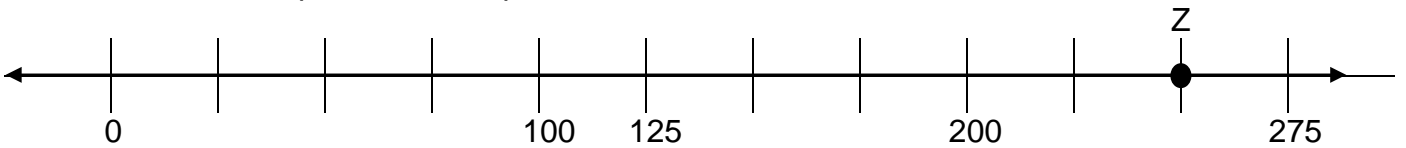
6. Which number is not located correctly on the number line?



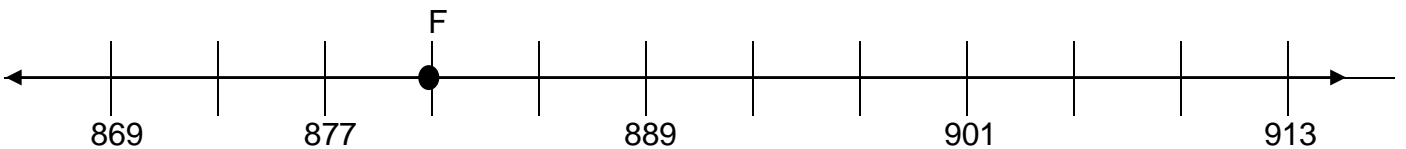
Record your answer in the boxes below. Then fill in the bubbles. Be sure to use the correct place value.

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

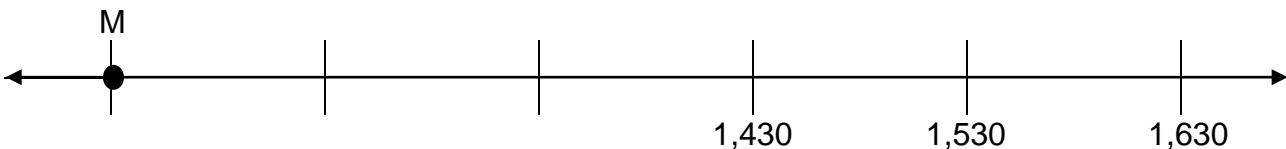
7. What number does point Z best represent on the number line?



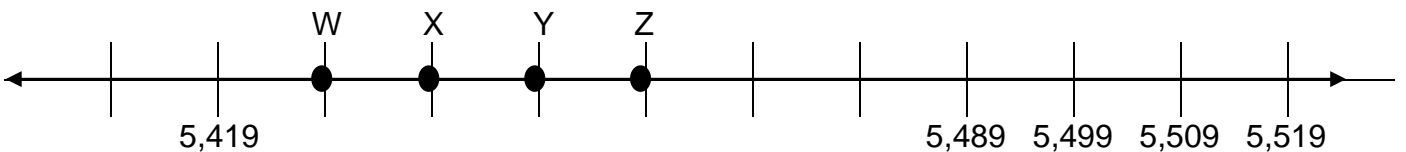
8. Write a number sentence which can be used to find the number represented by point F on the number line.



9. What number does point M best represent on the number line?



10. Which point best represents 5,439 on the number line?



## Numbers Between Lesson

Teacher poses the following problems listed below, one at a time.

Use the number line strategy, explain comparisons based on meanings of the digits in each place, and check work by lining numbers up vertically.

Discussions of results should be taking place as a whole class.

### Problem 1:

The table below shows the number of each kind of book in the library.

Kind of Book	# of Books
Mystery	1,237
Travel	1,223
Animal	1,232
Sports	1,241

The library had more than 1,233 but less than 1,239 of which kind of book?

A.) Mystery

B.) Travel

C.) Animal

D.) Sports

Example of number line:

Students place numbers on a number line to determine which is greater than and less than the given numbers.



Students should be having discussions of which place values assisted them in ordering the numbers on the number line.

### Problem 2:

Which number belongs in the blank  $7,588 < \underline{\hspace{2cm}} < 9,538$ ?

A.) 7,499

B.) 9,539

C.) 9,499

D.) 7,585

**Problem 3:**

Which number is NOT between 7,853 and 8,976?

A.) 8,967

B.) 8,909

C.) 7,851

D.) 7,863

**Problem 4:**

A store sells books.

- In January, the store sold 2,812 books.
- In February, the store sold 2,845 books.
- In March, the store sold more books than in January but fewer books than in February.

Which of these could be the number of books the store sold in March?

A.) 2,834

B.) 2,857

C.) 2,810

D.) 2,848

**Problem 5:**

Find 3 ways to fill in the blanks to make the following statement true.

$$\underline{\hspace{1cm}},245 > 4,\underline{\hspace{1cm}}09 > 4,3\underline{\hspace{1cm}}8$$

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

**Find the number that is between the two given numbers.**

5,128		5,215
-------	--	-------

- A 5,189
- B 5,216
- C 5,228
- D 5,127

$$7,641 < \underline{\hspace{2cm}} < 7,789$$

- A 7,640
- B 7,790
- C 7,689
- D 7,799

**Find the number that is NOT between the two given numbers.**

$$4,993 > \underline{\hspace{2cm}} > 4,880$$

- A 4,949
- B 4,879
- C 4,992
- D 4,890

2,415		2,553
-------	--	-------

- A 2,504
- B 2,404
- C 2,418
- D 2,550

**Read each of the following problems and write the correct answer.**

The table below shows the number of students at four different elementary schools.

<i>School</i>	<i>Number of Students</i>
Aiken	4,267
Arapaho	4,508
Dover	4,491
Bowie	4,613

Which school had more than 4,390 but less than 4,505?

The table below shows the number of pennies collected during the *Save Your Pennies* contest.

<i>Grade Level</i>	<i>Number of Pennies</i>
Third	1,987
Fourth	1,789
Fifth	1,879
Sixth	1,897

Which grade level had more than 1,880 and less than 1,979?



## Three Way Match

### TEKS FOCUS

Use place value to read, write (in symbols and words) and describe the value of whole numbers through 999,999. (3.1A)

#### Materials

Per Student

- 6 Digit Place Value All Forms Grid

Per student group

- 1 set of 3 Way Match Cards

#### Vocabulary

- standard form
- word form
- expanded form

**Activity:** This activity allows students to review all 3 forms of numbers.

1. Pose the following problem to the class. Have students work on the problem individually, and then share with their group. Have groups share their responses with the whole class.

**Place two zeros anywhere in the number 2,583 to form a new six digit number. Write the new number and explain how the value of each digit has changed.**

Example: 258,300

The value of the 2 changed from 2,000 to 200,000.

The value of the 5 changed from 500 to 50,000.

The value of the 8 changed from 80 to 8,000.

The value of the 3 changed from 3 to 300.

2. In groups of 2 to 4 have students look through The Guinness Book of World Records or research on the computer to find 4 to 6-five or six digit numbers. Have the students create a chart on a large piece of construction paper of their findings. For example: Mountain Heights, City Populations, Favorite Guinness Book of World Records facts, Attendance at the Rangers Games...
  - Each student then picks 1 or 2 numbers from their chart and writes them in expanded and word form.
  - Members of the group check each other's work to make sure it is correct.
3. The teacher presents the class with the following problem. The students answer the questions on a piece of paper or in their math journal.

**The populations of five different Texas Cities according to the U.S. 2010 Census are listed in the chart below.**

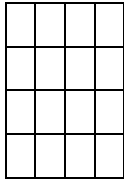
City	Population
Plano	259,841
Carrollton	119,097
Mesquite	139,824
Richardson	99,223
Fort Worth	741,206

1. What is the population of Fort Worth in word form?
2. Which city has the population of  $100,000 + 30,000 + 9,000 + 800 + 20 + 4$ ?
3. Which city has the population of one hundred nineteen thousand, ninety-seven?

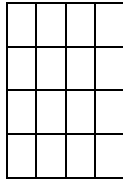
4. Teacher checks for understanding and pulls those students who still need help into a small group. Then the students play the game, Three Way Match.

**Directions for Three Way Match activity:**

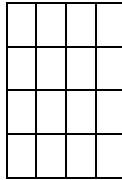
1. Put students into groups of 4.
2. Give each group of students one set of the “Three Way Match” cards. Students separate the cards into 3 different piles (standard, word and expanded form). Students shuffle each group of cards and places them face down in four rows of four. The student whose birth date that is the largest number goes first.



Standard



Word



Expanded

3. *Student A* turns over one card from each group and reads each card aloud. If the cards match (numeral form to word form to standard form) then *Student A* keeps the cards. If they do not match, *Student A* turns the cards back over. *Student B* now turns over any three cards and reads them aloud. If *Student B* has a 3 way match (numeral form to word form to standard form) then *Student B* keeps the cards. If *Student B* does not have a 3 way match, then *Student B* turns the cards back over. The game continues until all cards (numeral form to word form to standard form) have a match.
4. The student with the most number of cards is the winner.

Variation: Instead of turning the cards face down, groups can leave the cards face up and the students take turns finding matches, or groups can use fewer cards when playing the matching game.

5. Assign 6 Digit Place Value All Forms Grid for Independent Practice.

53,313

fifty-three thousand,  
three hundred thirteen

50,000+3,000  
+300+10+3

53,013

fifty-three thousand,  
thirteen

50,000+3,000  
+10+3

Three Way Match

50,313

fifty thousand, three  
hundred thirteen

$$50,000+300+10+3$$

50,303

fifty thousand, three  
hundred three

Three Way Match

$$50,000+300+3$$

810,163

Eight hundred ten  
thousand, one hundred  
sixty-three

800,000+10,000  
+100+60+3



Three Way Match

801,163

Eight hundred one  
thousand, one hundred  
sixty-three

$800,000 + 1,000 +$   
 $100 + 60 + 3$

800,163

Eight hundred thousand,  
one hundred sixty-three

$800,000 + 100 + 60 + 3$

Three Way Match

800,063

Eight hundred thousand,  
sixty-three

$800,000 + 60 + 3$

620,504

Six hundred twenty  
thousand, five hundred  
four

$600,000 + 20,000 +$   
 $500 + 4$

Three Way Match

62,504

Sixty-two thousand,  
five hundred four

$$60,000 + 2,000 + \\ 500 + 4$$

620,540

Six hundred twenty  
thousand,  
five hundred forty

$600,000 + 20,000 +$   
 $500 + 40$

Three Way Match

6,254

Six thousand, two  
hundred fifty-four

$6,000 + 200 + 50 + 4$

60,592

Sixty thousand, five  
hundred ninety-two

$60,000 + 5,000 + 90 + 2$



Three Way Match

65,920

Sixty-five thousand,  
nine hundred twenty

$60,000 + 5,000 + 900 + 20$

60,952

Sixty thousand, nine  
hundred fifty-two

$60,000 + 900 + 50 + 2$

Three Way Match

65,902

Sixty-five thousand,  
nine hundred two

$$60,000 + 5,000 + 900 + 2$$

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

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

## 6 Digit Place Value All Forms Grid

Complete the chart.

	<b>Standard Form</b>	<b>Expanded Form</b>	<b>Word Form</b>
<i>Ex.</i>	<i>450,871</i>	<i>400,000 + 50,000 + 800 + 70 + 1</i>	<i>Four hundred fifty thousand, eight hundred seventy-one</i>
1.	63,780		
2.		700,000 + 10,000 + 2,000 + 90 + 8	
3.			Nine hundred thirty-one thousand, six hundred four
4.	800,025		
5.		200,000 + 7,000 + 900 + 40 + 6	
6.			Forty-five thousand, sixty- seven
7.	Make your own 6 digit number		

## Counting Money

### TEKS FOCUS – (plus aligned new standards)

The student is expected to determine the value of a collection of coins and bills. (3.1C)  
Determine the value of a collection of coins and bills. (N3.4C)

#### Materials

For teacher

- Coins and bills
- Counting Money cards, cut apart, laminated\*

Per student

- Coins and bills

Per pair of students

- Counting Money cards, cut apart, laminated\*

#### Vocabulary

- Coin(s)
- Penny
- Nickel
- Dime
- Quarter
- Value
- Skip count
- Dollar bill(s)
- Dollar sign \$
- Decimal point

\*optional

**Activity:** Today we are going to practice counting groups of coins and dollar bills, and then we will match the groups of coins and bills to their values.

#### Part 1 – Reviewing and counting groups of coins

1. The teacher holds up a dime and asks:

- What is this coin called?
- What is its value?

2. The teacher then pulls out a group of dimes and asks:

- If I am going to count this group of dimes, how do I skip count?

3. The teacher models how to write the value of the coins two ways, using the cents sign and the dollar sign/decimal. (Example: 80¢ and \$0.80) The teacher says:

- You have seen the cents sign before. What does it show?
- You have seen the dollar sign before. What does it show?
- This is the decimal point. What two things does the decimal point separate?

4. The teacher repeats steps 1-3 with pennies, nickels, and quarters.

5. The teacher reaches into a bag for a small handful of coins, and asks:

- What is an easy way to count these coins? (Answers will vary: separate the coins by how much they are worth, group the coins to form multiples of 10, etc.)

## Counting Money

6. The teacher models how to count the coins, touching each coin and moving it over to keep track of what has been counted.
  - One example, to count 1 quarter, 3 dimes, 1 nickel, and 3 pennies, would be to place the nickel beside the quarter and say: I am going to add the nickel to the quarter first to make 30 cents, so that I can count using multiples of ten, 25-30-40-50-60. Now I am going to count on, 61-62-63. Model how to record this amount both ways: 63¢ and \$0.63, discussing again the use of the dollar sign and decimal point, which separates the dollars and cents.
7. The students take out the same coins on their desks and count the coins again with the teacher. The students record the amount two ways: 63¢ and \$0.63.
8. The teacher models again how to count coins, this time using coins with a value of more than \$1.00. Remind students that coins can add up to more than a dollar.
  - One example, to count 3 quarters, 2 dimes, 2 nickels, and 4 pennies, would be to count the 3 quarters first (75¢) and then add them to one of the nickels to make 80 cents. Now I can count using multiples of ten until I get to one whole dollar, 75-80-90-100. I know that 100 cents = \$1.00. Then I can start with my other nickel and count on, 5-6-7-8-9. Model how to record this amount as \$1.09, discussing again the use of the dollar sign and the decimal point, which separates the dollars and cents.
9. The students take out the same coins on their desks and count the coins again with the teacher. The students record the amount: \$1.09.
10. The teacher models how to count a group of dollar bills and coins. Model how to record this amount using a dollar sign and a decimal.
11. The students take out the same dollar bills and coins on their desks and count the money again with the teacher. The students record the amount using a dollar sign and a decimal.
12. This time the teacher shows the students a group of coins or dollars and coins. In small groups, the students create the same amount. They count the amount and the teacher calls on students to share their answers. Then at their desks they use bills and coins to create the same amount in a different way. The teacher calls on groups to come up to the Dukaine to share the way they have created the amount. (Have students continue to practice this as needed. It is important to have them create different money amounts using coins and bills, just coins, and coins that add up to more than one dollar.)

## Counting Money

### Part 2 - Matching groups of coins to their values

1. The teacher:

- Places the Counting Money coin cards on one side of the table and the Counting Money value cards on the other side and tells the students they will match groups of bills and coins to their correct values.
- Holds up a coin card, touches each coin, and counts out loud. (You may want to laminate the bill/coin cards so students can mark off the bills/coins as they count.)
- Finds the matching value card, holds it up, and says: This card says one dollar and thirty two cents and the value of my coins is one dollar and thirty two cents. These cards are a match.



\$1.32



2. The teacher gives each pair of students a set of Counting Money cards to match.
3. Taking turns, students take a bill/coin card, count the bills and coins, and then locate the value card that matches it.
4. On a piece of notebook paper or in their math journal the students write the amount of money and then they draw a different way to create the money amount than what is shown on the matching card.

**Journal Prompt:** Draw a picture of something you would like to buy for more than \$1.00. Tell what bills and coins you will use to purchase that item.

Counting Money



91¢



\$1.01



\$0.48



Counting Money



\$4.35



\$4.06



43¢

Counting Money



\$6.47



\$7.31



\$1.32

Counting Money



\$20.43



\$21.12



\$1.14

## Dollars and Cents

### **TEKS FOCUS** – (plus aligned new standards)

The student is expected to determine the value of a collection of coins and bills. (3.1C)

Determine the value of a collection of coins and bills. (N3.4C)

### **Materials**

For teacher:

- Copy of p 2

For groups:

- Variety of coins and bills

For each student:

- Copy of pp 3-4

**Activity:** Today we are going to practice counting groups of dollars and cents in real-life situations.

1. The teacher projects on the ELMO 4 one-dollar bills, 2 quarters, 1 dime, and 3 pennies and says:
  - How much money do I have? (\$4.63)
  - My friend just gave me 2 quarters and one nickel. How much money do I have now? (Add the coins to the teacher's stack and have students count the amount of money.) Ask students to share their strategy of counting. Example: Did students count up from \$4.63? Did students recount so that they could make a dollar from the 4 quarters?
2. The teacher projects on the ELMO 12 dollars (any kind of bills), 4 dimes, and 1 nickel and says:
  - How much money do I have? (\$12.45)
  - I spent \$1.10 on candy. How much money do I have left? (Take the coins away from the teacher's stack and have students count the amount of money left.) Ask student to share their strategy of counting.
3. Each group of students should have a variety of coins and bills. Ask groups to create a specific dollar amount in two ways. Have groups share what coins and bills they used to make their amounts.  
Example:  
Show two ways to make \$4.72.  
  
Continue with other examples.
4. Ask students: Could you show \$6.63 without using pennies? Have groups discuss and share their explanations as a class.
5. Ask students to show \$7.86 using the least number of bills and coins. Discuss results as a class and have students explain how they decided. Continue with other examples, if needed.
6. Pose the problem on p 2 for students to solve. Discuss solutions as a class. Students need to be justifying their reasoning.
7. Students independently complete pp 3-4.

## Dollars and Cents

Corbin wants to buy a remote control car that costs \$13.59.



He has saved the following amount of money.



Felicia says that Corbin needs only 4 more coins to have enough money to buy the remote control car. Tyron says he needs 5 more coins to have enough money. Explain who is correct.

## Dollars and Cents

(Use coins and dollars to help solve the following problems or draw pictures.)

1. Jerry earns 50¢ each time he feeds his neighbor's cat. If he feeds the cat 2 times a day, how many days will it take Jerry to earn \$10?
2. Colby has 3 stacks of nickels. There are 6 nickels in each stack. What is the total value of Colby's nickels?
3. I have 4 quarters, 3 dimes, 2 nickels and 1 penny in my piggy bank. If I shake out 4 coins, what is the least amount of money I will get?
4. I have \$1.76 cents in quarters, dimes and pennies. I have more than 1 of each coin. What coins do I have?

## Dollars and Cents

5. Hani put his coins in 7 rows. The top and bottom rows each have just 4 quarters. The middle row has just 6 dimes. The other rows each have just 5 nickels. What is the total value of Hani's coins?
6. I have \$1.38 in coins. What is the fewest number of coins I could have? What are the coins? What is the greatest number of coins I could have? What are the coins?
7. Isaac has 4 rolls of pennies. Sara has 1 roll of dimes. How many dimes should Sara give to Isaac so they have the same amount of money? List the steps you used to find the answer.

**50 pennies in 1 roll**



**40 dimes in 1 roll**



8. Show two ways to make \$8.37.

Grade 3 Base Ten Unit Test

Name \_\_\_\_\_

Date \_\_\_\_\_

1. What is the place value of the 5 in the number 958,027?
2. Lisa and Anna were playing a video game. Lisa scored 3,822 points.  
Anna scored 3,865 points.

**Lisa said  $3,822 > 3,865$**

**Anna said  $3,865 > 3,822$**

Who is correct, explain why?

3. Which number is **NOT** between 6,395 and 8,345?

$$6,395 < \underline{\hspace{1cm}} < 8,345$$

**A** 6,637

**B** 8,340

**C** 6,245

**D** 8,299

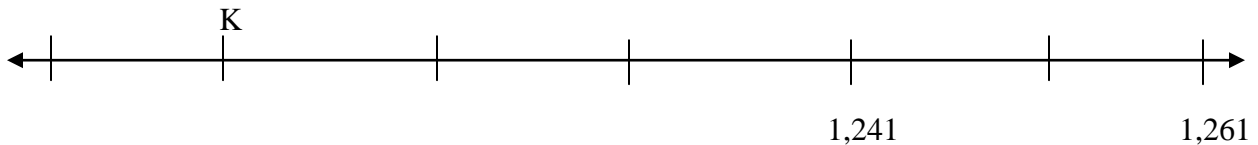
4. Write the numeral 740,306 in word form.



5. There were 247,032 people at the Winter Olympic Games. Which answer choice has the same value as 247,032?
- A**  $20,000 + 4,000 + 700 + 30 + 2$   
**B**  $200,000 + 40,000 + 7,000 + 30 + 2$   
**C**  $200,000 + 40,000 + 7,000 + 300 + 2$   
**D**  $20,000 + 40,000 + 700 + 30 + 2$
6. There were thirty-six thousand, six hundred nine students in the Richardson school district last year. How is this number written as a numeral?
7. What are the three largest numbers that can be made using the digits 5, 6, 8, and 9? Each digit must be used only once in each number.

- |                |       |       |
|----------------|-------|-------|
| <b>A</b> 9,586 | 9,685 | 9,865 |
| <b>B</b> 9,865 | 8,965 | 6,895 |
| <b>C</b> 9,986 | 9,985 | 9,865 |
| <b>D</b> 9,865 | 9,856 | 9,685 |

8. What number does letter K represent on this number line?



9. Sophie paid for a movie, drink and popcorn using the money shown below.



What is the value of the money Sophie used to pay for everything?

\$ \_\_\_\_\_

10. The numbers below are arranged from least to greatest. Which of the following numbers belongs in the empty box? Mark your answer.

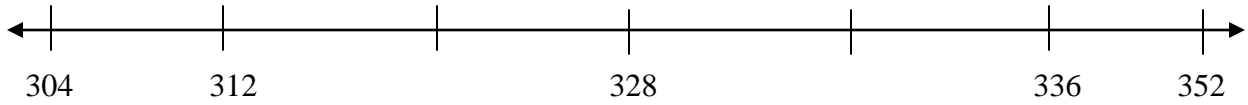
8,074	8,562	8,821		9,107
-------	-------	-------	--	-------

- A 8,812  
B 9,026  
C 8,065  
D 9,248
11. Use the clues to find the secret number.

Clues:  
I am a 3-digit number.  
My digits are not the same.  
I am an even number  
If you add my digits together, you get a sum of 14.

- A 284  
B 620  
C 347  
D 445

12. Circle the number that is NOT located correctly on the number line.



13. The table below shows the number of students in grades 3–6 in Richardson.

Third Grade	2,663
Fourth Grade	2,523
Fifth Grade	2,636
Sixth Grade	2,465

Which grade has more than two thousand, five hundred fifty students but less than two thousand, six hundred fifty students?

14. Look at the two groups of numbers shown below.

Group A	Group B
325	238
290	216
187	364
211	543

Which statement about the numbers in these groups is true?

- A All the numbers in Group A are odd.
  - B All the numbers in Group A are greater than 100.
  - C All the numbers in Group B are even.
  - D All the numbers in Group B are less than 500.
15. I have \$1.87 in coins. What is the fewest number of coins I could have without using dollar bills? Explain your process.

16. Maria has a 5 dollar bill, 1 quarter, 1 dime and 1 nickel to buy a ticket at the State Fair. Which group of money has the same value?

A



B



C

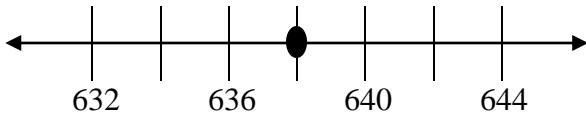


D

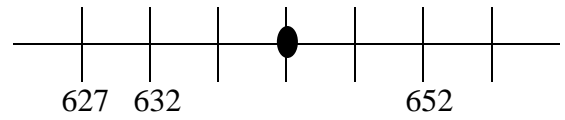


17. On which number line would the point best represent number 642?

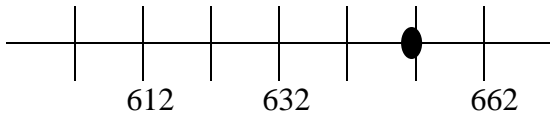
A



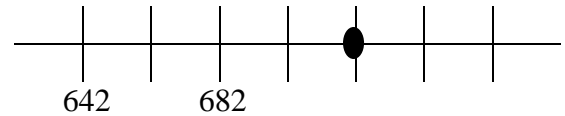
C



B



D



18. Which table below correctly shows the numbers of pages each student read, from least to greatest?

A.

Name	Number of Pages
Lee	5,607
Bob	5,846
Jill	5,623
Kim	5,442

C.

Name	Number of Pages
Kim	5,442
Lee	5,607
Jill	5,623
Bob	5,846

B.

Name	Number of Pages
Kim	5,442
Jill	5,623
Bob	5,846
Lee	5,607

D.

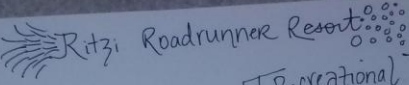
Name	Number of Pages
Lee	5,607
Kim	5,442
Jill	5,623
Bob	5,846

## Answer Key

<b>Question</b>	<b>Answer</b>	<b>TEKS</b>
1	Ten thousand	3.1A
2	Anna, because 6 tens is larger than 2 tens	3.1B, 3.15A
3	C	3.1B, 3.15B
4	Seven hundred forty thousand, three hundred six	3.1A
5	B	3.1A
6	36,609	3.1A
7	D	3.1B, 3.14C
8	1,211	3.10
9	\$20.08	3.1C
10	B	3.1B
11	A	3.1A, 3.14C
12	336	3.10, 3.14D
13	Fifth grade	3.1B, 3.14A
14	B	3.1B, 3.16A
15	10 coins	3.1C, 3.16B
16	D	3.1C, 3.14A
17	C	3.10
18	C	3.1B

# SAMPLE BROCHURES FOR PERFORMANCE ACTIVITY:

## RITZI ROADRUNNER RESORT

 Ritzi Roadrunner Resort

COST/NIGHT

1 night stay... \$   
room

2 night stay... \$   
room

Rooms... 4 occupants  
 \*if party exceeds 4, must get additional room

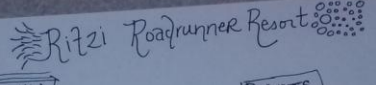
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SPA Services

Facials . . . . \$100 + 50 + 5  
 Medi Spa . . . . \$ 200 + 20 + 3  
 Nail Care . . . . \$ 300 + 30 + 5  
 Desert Hot Stone Massage (50 min) . . . two hundred seventy-nine  
 Deep tissue Massage (50 min) . . . \$525  
 Swedish Massage (50 min) . . . \$420  
 Reflexology (30 min) . . . . \$300 + 70 + 5

Recreational ACTIVITIES

Water Park . . . . \$600 + 60 + 9  
 Rollercoaster . . . \$400 + 50 + 9  
FUN-O-RAMA  
 Dolphin Play . . . \$400 + 90 + 8  
 Speed Boat Racing . . . \$ six hundred eighty-three  
 Shopping Mall . . . \$300 + 50 + 2  
 Beaches . . . . \$400 + 5  
 Marine Habitat . . . \$200 + 60 + 5  
 Sports arena . . . \$ one hundred twenty  
 Movie Theater . . . \$90 + 5  
 Rock Climbing . . . \$200 + 80 + 8

 Ritzi Roadrunner Resort

RESTAURANT RAD-ULA

Appetizers

Shrimp Scampi . . . . \$   
 King crab . . . . \$   
 Cocktail Meatballs . . . \$   
 Jalapeno Poppers . . . \$100 + 20  
 Baked Buffalo Wings . . \$100 + 10 + 5  
 Baie Cheese Appetizer . . \$90 + 5

Entrées

Stuffed Chicken Breast w/ Prosciotto + Gruyere Cheese . . . \$   
 Pepper Steak . . . . \$   
 Fish Baked Italian Syle . . . \$200 + 70 + 5  
 Chicken Cordon Bleu . . . two hundred sixty-two  
 Pork chops stuffed with pesto . . . \$ three hundred eighty  
 Beef Burgandy . . . . \$300 + 90 + 5  
 Grilled Salmon . . . . \$

DESSERTS

Creme Brulee . . . . \$   
 Chocolate Mousse . . . \$ one hundred seventy five  
 Chocolate dipped Strawberries with Vanilla bean ice cream . . . \$200 + 20 + 5  
 Pound cake . . . . \$100 + 80 + 2

DRINKS

Coke . . . . \$20 + 2  
 Sprite . . . . \$10 + 5  
 Lemonade . . . . \$10 + 8  
 Chocolate Milk . . . . \$20 + 5