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MISSISSIPPI
EXEMPLAR
Units & Lessons
MATHEMATICS

Grade 2

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MISSISSIPPI DEPARTMENT OF EDUCATION

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Introduction

Mission Statement

The Mississippi Department of Education (MDE) is dedicated to student success, including the improvement of student achievement in English Language Arts (ELA) and mathematics in order to produce citizens who are capable of making complex decisions, solving complex problems, and communicating fluently in a global society. The Mississippi College- and Career-Readiness Standards (MS CCRS) provide a consistent, clear understanding of what students are expected to know and be able to do by the end of each grade level or course. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that students need for success in college and careers and to compete in the global economy. The goal of the MDE is to provide educators with the training and resources to understand and implement the MS CCRS effectively.

Purpose

In efforts to facilitate implementation and promote understanding of the MS CCRS for ELA and mathematics, the W. K. Kellogg Foundation generously awarded the MDE a grant to secure a cadre of effective educators to develop the MS CCRS Exemplar Units for teachers. Specifically, a group of highly-effective Mississippi educators developed exemplar instructional units and lessons aligned to the MS CCRS for ELA and mathematics. The MS CCRS Exemplar Units address difficult-to-teach standards as determined by teachers and are designed to serve as exemplar models for instructional units, lessons, and resources. The MS CCRS Exemplar Units have been vetted through nationally renowned vendors to ensure exemplar quality.

Design Overview

The MS CCRS Exemplar Units for ELA and mathematics address grade-level specific standards for Pre-Kindergarten-8th grade, as well as for Algebra, English I, and English II. The overall unit plan is described in the first section of the ELA and math units. This section includes the unit title, a suggested time frame, the grade level MS CCRS addressed and assessed, a unit overview with essential questions and a summary of lesson tasks, and the culminating/performance task description and rubric.

Though the math and ELA overall unit plan designs are very similar, some design aspects differ in order to accommodate the respective requirements of each content area. For mathematics, the first section also provides a segment designated for the Standards for Mathematical Practices (SMPs) addressed in the unit. For ELA, the first section also includes a text set with links to texts (if in the public domain) and a fresh/cold-read task.

The second section of each unit includes lesson plans. Within the lesson plans, provided are lesson-specific MS CCRS, suggested time frames, learning targets, guiding questions, required resources and materials, vocabulary terms and instructional strategies, teacher directions, instructional supports for students, enrichment activities, student handouts, assessments (formative, summative, pre-, and self-), and additional resources to aid in the implementation of the lessons.

Implementation

The intention of the MS CCRS Exemplar Units for ELA and mathematics is to provide educators with resources to understand and implement the MS CCRS effectively. The implementation of the MS CCRS Exemplar Units for ELA and mathematics is voluntary. Additionally, the MDE will provide ongoing support for implementation of the MS CCRS Exemplar Units with initial regional trainings followed by site-specific support through our regional service delivery model. For regional and site-specific training, please contact the MDE Office of Professional Development.

Grade Level	Unit Title	Duration
2	I Know Place Value… What's Your Super Power?	14 days

Mississippi College- and Career-Readiness Standards for Mathematics	Standards for Mathematical Practice
Focus: **2.NBT.1** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: **a.** 100 can be thought of as a bundle of ten tens — called a "hundred." **b.** The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones). **2.NBT.3** Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. **Additional:** **2.NBT.2** Count within 1000; skip-count by 5s starting at any number ending in 5 or 0. Skip-count by 10s and 100s starting at any number. **2.NBT.4** Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons. **2.NBT.7** Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones;	**SMP.1** Make sense of problems and persevere in solving them. **SMP.3** Construct viable arguments and critique the reasoning of others. **SMP.4** Model with mathematics. **SMP.5** Use appropriate tools strategically. **SMP.6** Attend to precision. **SMP.7** Look for and make use of structure.

and sometimes it is necessary to compose or decompose tens or hundreds. **2.NBT.8** Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900. **2.NBT.9** Explain why addition and subtraction strategies work, using place value and the properties of operations.	

Unit Overview

In this unit, students will further expand their prior knowledge of modeling the place value of ones, tens, and hundreds and recognizing the value of a digit. Using models and drawings, students will develop an understanding of three-digit place value, in order to master the addition and subtraction of three-digit numbers. Through their thorough understanding of place value, students will justify how they arrived at their solution, an important second grade skill. The end of the unit will transition students into applying this procedural and conceptual understanding to addition with regrouping and subtraction of three-digit numbers. In this unit, students will:

1. Discover place value to 1,000. (2.NBT.1)
2. Understand place value to 1,000. (2.NBT.1)
3. Read and write numbers to 1,000 in multiple ways (base ten blocks, expanded notation, standard form, place value form, word form, and on an open number line). (2.NBT.3)
4. Compare three-digit numbers. (2.NBT.4)
5. Apply place value strategies to add three-digit numbers. (2.NBT.7)
6. Apply place value strategies to solve one- and two-step word problems. (2.OA.1)

Upon the completion of this unit, students will be able to read a three-digit number, understand the values of a digit in each place of the three-digit number, create a three-digit number using place-value models, and exchange equal amounts across places (ten tens for one hundred, ten ones for a ten, etc.).

Essential Questions:

- How does the value of a digit change when its position in a number changes?
- How does understanding place value and using properties of operations help us add and subtract?
- How does place value help us solve problems?

Lesson Tasks

Lesson 1: To Hundreds and Beyond
Students will utilize modeling strategies to discover how the hundreds place value is formed from 100 ones and 10 tens.
Lesson 2: Marvel Manipulations
Students will use place value blocks to gain an understanding of 3-digit place value and the value of each digit in a 3-digit number.
Lesson 3: Secret Six
Students will create an individual flip chart modeling each of the various place value strategies. Students will be able to refer to these charts during group, peer, and independent work.
Lesson 4: Secret Six II
Students will create a place value flip book in which they explain each strategy. Students will use these flipbooks for reference during subsequent lessons.
Lesson 5: Superhero Hideouts and Headquarters
Students will practice problem solving by participating in center activities which include: online place value games, Place Value Yahtzee, Playing Card Comparisons, and Place Value Reading Literature.
Lesson 6: Mission Addition…Mental Preparations
Students will learn how to mentally add/subtract 10 to/from a number. Students will relay race for fluency.
Lesson 7: Mission Addition…Mission Expanded
Students will use the expanded notation strategy to add 3-digits without regrouping.
Lesson 8: Mission Addition…Mission Modeled
Students will use place value modeling to add 3-digit numbers without regrouping.
Lesson 9: Mission A-Lined
Students will use a number line to add 3-digit numbers without regrouping and recognize the structure of addition.
Lesson 10: Superheroes Get Prepared
Students will rotate through centers to practice 3-digit addition, including: Tic-Tac-Toe, Khan Academy videos, 3-digit puzzles, and remediation with the teacher.
Lesson 11: Superheroes Save the Day
Students will complete their performance assessment and exhibit mastery of the standards taught throughout the unit.

Performance/Culminating Task

Superheroes Save the Day

Students will show mastery of skills by creating a comic strip, with a superhero who must calculate the addition of two 3-digit numbers to defeat a villain. The comic strip will have a hero, a villain, and something or someone to be rescued or saved. It will show numbers modeled with base ten blocks and a place value mat. The numbers will be written in standard form, expanded form, and number word form. The addition in the comic strip will be demonstrated using base ten blocks, using a number line, and with expanded notation. Students will be provided a rubric for grading purposes.

Standards Assessed: 2.NBT.1, 2.NBT.3

Rubric for Performance/Culminating Task

Level	Mastery Level	Math Computation	Modeling Numbers	Math Vocabulary	Comic Strip Elements	Neatness and Organization
4	Exemplifying Mastery	The student modeled addition with expanded form, base-10 blocks, and a num. line correctly.	The comic strip shows the number modeled in word form, expanded form, and standard form.	5 math vocabulary words were used correctly.	The comic strip has a hero, a villain, and something to be rescued or saved.	The work is presented in a neat, clear, organized fashion that is very easy to read.
3	Approaching Mastery	The student correctly modeled addition two ways: expanded form, base-10 blocks, and/or a num. line.	The comic strip shows the number modeled two ways: word form, expanded form, and/or standard form.	4 math vocabulary words were used correctly.	The comic strip has two of the elements: hero, a villain, and something to be rescued or saved.	The work is presented in a neat and organized fashion that is somewhat easy to read.
2	Developing Mastery	The student correctly modeled addition in one way: expanded form, base-10 blocks, or num. line.	The comic strip shows the number modeled one way: word form, expanded form, or standard form.	3 math vocabulary words were used correctly.	The comic strip has one of the elements: a hero, a villain, or something to be rescued or saved.	The work is presented in an organized fashion but may be hard to read at times.
1	Not Representing Mastery	The student did not correctly model the addition.	The student did not model the number correctly.	1-2 math vocabulary words were used correctly.	The comic strip's elements are missing or unclear to the reader.	The work appears sloppy and unorganized. It is hard to know what information goes together.
0	No Understanding	No attempt at addition was made.	No attempt at modeling the number was made.	No math vocabulary was used.	No task submitted.	No task submitted or task is illegible.

Lesson 1: Hundreds and Beyond

Focus Standard: 2.NBT.1

Additional Standard: 2.NBT.3

Standards for Mathematical Practice: SMP.3, SMP.5, SMP.7

Estimated Time: 75 minutes

Resources and Materials:

- Magnificent Math (a stuffed animal superhero used during the lesson as a motivational tool)
- Handout 1.1: Bubble Gum House Learning Accountability Page
- Hundreds chart
- A set of 1,000 small items (paperclips, beans, straws, popsicle sticks, centimeter cubes, inch tiles, etc.). Must be the same item for the entire class.
- Various containers for students to choose from, preferably disposable (mouthwash cups, plastic cups, pie tins, cupcake papers, various sizes of plastic food containers, Zip-lock bags, bowls, etc.)
- Markers
- White boards or dry erase surface
- Dry erase markers
- Handout 1.2: How Many Do We Have?
- Bubble Gum House Video: http://www.101qs.com/3338
- 100 Hungry Ants by Elinor J. Pinczes Reading: https://www.youtube.com/watch?v=kmdSUHPwJtc
- Parent Guide: https://mdek12.org/sites/default/files/documents/OAE/OEER/Exemplar%20Units/Resources/fgss_2ndgrade_web-view.pdf

Lesson Targets:

- Students will accurately skip count by tens.
- Students will understand that 10 tens equal 100.
- Students will be able to read a 3-digit number.

Guiding Questions:

- What is the relationship between numbers?

- How many ones equal one ten?
- Why is 100 a special number?

Vocabulary

Academic Vocabulary:	Instructional Strategies for Academic Vocabulary:
● Base Ten ● Digits ● Hundreds ● Ones ● Place Value ● Tens ● Value	☐ Introduce words with student-friendly definition and pictures ☐ Model how to use the words in discussion ☐ Read and discuss the meanings of words in a mathematical context

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

Instructional Plan

Understanding Lesson Purpose and Student Outcomes:
Students will be able to model place value of ones, tens, and hundreds, while recognizing the value of a digit. Students will understand that ten ones equal 1 ten (and the reverse) and that a bundle of 10 tens equals one hundred (and the reverse).

Anticipatory Set/Introduction to the Lesson: Bubble Gum House (10 minutes)
Introduce Magnificent Math to the students and explain to them that Magnificent Math is a superhero who is trapped and needs the students' help. Motivate the students to do their absolute best and inform them that every day the teacher will choose one student who will get to free Magnificent Math and have the very important job of protecting the superhero until the next math lesson!

Tell students they will be watching a video showing how to create a house using bubble gum and then answer questions about the video. Remind students to watch attentively because there will be some hidden clues that will help them answer the questions.
Present the video Bubble Gum House to students.
Use the following questions to guide a whole class discussion about the video moving them to the understanding of bundling 10 ones to make 1 ten.
Prompting Questions:

- How many packs of gum did it take to build the house without the roof?
- If we know how many pieces of gum are in one pack and how many packs she used to make the house part, can we determine how many pieces of gum are in the house part? (8 packs with 10 pieces per pack = 80 pieces of gum)
- Can we use skip counting to count the number of pieces of gum to build the house part?
- Why were some of the pieces of gum in packs and others single?
- How many pieces of bubble gum did it take to build the roof? (1+2+3+4+5+6+7+8=36)
- If it took 36 pieces of gum to build the roof, how many packs of gum will it take to build the roof? (3 plus 6 more)
- Do these two items (the pack of ten and the single pieces) remind you of a mathematical tool you have used before (SMP.7)?

Note: If necessary, show the sequel video and the images that can be found on the same website.

For students who are EL, have disabilities, or perform well below grade-level:

- Distribute **Handout 1.1: Bubble Gum House** to provide a visual aid for reference purposes and questions to help guide the student to elicit specific previous learning.

Extensions for students with high interest or working above grade level:

- Students will determine how many bubble gum houses will fit on top of their desk.

Activity 1: Superheroes Discover Hundreds (15-20 minutes)
Collect 1,000 of one item (paperclips are very economical for this). Divide the items by the number of groups you have (e.g., 5 groups - Group A = 153, Group B = 248, Group C = 109, Group D = 347, and Group E = 143) making sure each group's items total more than 100. Distribute **Handout 1.2: How Many Do We Have?** to each group**.** Instruct students to count the items given to them and provide their answer on the handout. Direct students to the counting containers and explain that they may choose any of the containers provided to help them count the items. They may also use or develop other items or strategies they deem appropriate (SMP.5).

Tell students they may use paper, a dry erase board, or desk as a dry erase surface if necessary. (Do not tell the students to use a hundred chart or direct them in that manner as this is a discovery activity based on prerequisite skills.) You may see students trying to use a place value chart with tens and ones and some may ask if there is another place value. Challenge these students to try to justify why they feel there is another place value and what the place value may be. Circulate during group work to monitor student discussions and engagement. After about 10 minutes begin asking student groups questions based on their counting strategy and container strategy (SMP. 3). Guide objective learning as needed through direction and discussion:
Prompting Questions:

- What could you do with these ten groups of ten?
- What is another way that you can show your answer?
- What other container might you use to help represent tens and ones appropriately?
- Explain why you chose the containers you did.
- What is something you have previously learned that could help you count a greater number of objects?
- How can you group these items to help counting become easier?
- How do we use tens and ones when counting?
- What is another method that we can use that would be more efficient?
- If that doesn't work, what might you do?

After students complete their counting, have student groups record their answers on **Handout 1.2: How Many Do We Have?** Make sure students recorded the correct answer. If they did not, direct the students to recount their items. Save their work to use later in the unit.

For students who are EL, have disabilities, or perform well below grade-level:

- Group students strategically to place students that need extra support with a peer coach.

Extensions for students with high interest or working above grade level:

- Before they count the objects, have students predict how many objects they have and justify their prediction.
- After their group counts the objects, have them compare their predictions to the actual count and explain the differences.

Activity 2: Superhero Math Talk (10 minutes)

- ✓ Have a class discussion about the students' essential understandings from today's lesson and how students can build upon this learning.

Prompting Questions:

- What did you discover today?
- What place value did you learn today?
- What is the value of this place value?
- Which containers did you choose and why?
- Did you have to change counting, containers, or strategy during the lesson? If so, why?
- What kinds of items might we have to count in this way?
- What can you relate today's learning gains to?
- What prerequisite skill(s) did you build upon to help you in today's lesson?
- How can you build upon what you learned today?
- What did you learn today that surprised you?

Activity 3: 100 Angry Ants (30 minutes)

Show the video 100 Angry Ants to student and read the story to the class. Tell students they will work in their group to create a poster for a graffiti wall. Assign each group one way to group the 100 ants as indicated in the story. After the posters are completed, have each group present their poster to the class.

For students who are EL, have disabilities, or perform well below grade-level:

- Review important concepts from the video and provide students the opportunity to answer questions using manipulatives.

Reflection and Closing (5 minutes)

- ✓ Students explain the 5 most important new learning gains they made during today's lesson. When students finish explaining the 5 learning gains, all at once they will raise their hands in the air and lead them into shouting, "High five for learning!"

Note: Choose the student you think should get to release Magnificent Math to protect. Magnificent Math may sit on his/her desk, and the student may take the superhero to recess, lunch, specials, etc. He/she may also take the superhero home for the night. Be sure to discuss the rules of receiving Magnificent Math. The stuffed animal may not become a distraction to others, and it must be returned the following day.

Homework

Encourage students to list the ways 100 is used outside of the school building. Contact parents about utilizing the Parent Guide: to reinforce the day's lesson.

Handout 1.1: Bubble Gum House

Name:_____ **Date:** _____

Think:

1) What do you NOTICE or WONDER?
    a. One thing I notice is…

    b. One thing I wonder is…

2) How many pieces of gum are in the pack? What does how they look remind you of what you have learned before?

3) What did the video show that was used to make the roof? What does this remind you of that you have learned before?

Handout 1.2: How Many Do We Have?

Group Member Names:_____ Date: _____

_____

_____

_____

_____

How many items did your group have? Show your number below using numbers, words, and pictures.

Standards:	2.NBT.1			2.NBT.3						2.NBT. 1, 3		2.NBT2, 8			2.NBT. 7,9		2.NBT.1, 3	
o not progressing toward mastery, remediate before proceeding. + progressing toward mastery, may some remediation demonstrating mastery of this lesson	Day 1			Day 2-4						Day 5		Day 6			Day 7-9		Day 10	Day 11-12
Students:	S can skip count by 10s	S understands 10 tens = 1 hundred, 10 ones = 1 ten	S can read a 3-digit number	S can use correct math vocabulary to discuss place value	S can read/write #0-1000 in standard form	S can read/write #0-1000 in word form	S can read/write #0-1000 in expanded form	S can read/model #0-1000 in base-10 blocks	S can read/model #0-1000 on an open number line	S can compare 3-digit # w/ <, >, =	S can order 3-digit # from least to greatest and greatest to least	S can find patterns in skip counting by 5, 10, and 100	S can mentally +/- by 10 and 100	S understands the role of PV in + (+ ones to ones, tens to tens…)	S can add using expanded form	S can add w/in 1,000 using an open number line	S will choose the best method for adding w/o regrouping	Performance Task Rubric Score

Lesson 2: I Use Place Value…What's Your Super Power?

Focus Standard: 2.NBT.3

Additional Standard: 2.NBT.1

Standards for Mathematical Practice: SMP.3, SMP.4, SMP.6

Estimated Time: 45-55 minutes

Resources and Materials:

- Magnificent Math (a stuffed animal superhero used during the lesson as a motivational tool)
- Handout 2.1: Master of Manipulations Learning Accountability Pages for Partners
- Handout 2.2: Master of Manipulations Homework Page
- Base-Ten Blocks
- Place value mats
- Dry erase markers
- Math Antics – Place Value Video: https://www.youtube.com/watch?v=T5Qf0qSSJFI&t=304s
- Kagan Structure Rally Coach http://ija.mpesd.org/UserFiles/Servers/Server_5886211/File/Fliers/Rally_Coach-CL%20strategy%20selected.pdf

Lesson Targets:

- Students will use correct mathematical vocabulary to explain place value.
- Students will be able to manipulate base-ten blocks to show numbers to 1000 and represent numbers in place value and expanded form.

Guiding Questions:

- How does the placement of a number change its value?
- How are number patterns essential to our understanding of numbers?

Vocabulary

Academic Vocabulary:	**Instructional Strategies for Academic Vocabulary:**
● Base Ten ● Digits ● Hundreds	☐ Introduce words with student-friendly definition and pictures ☐ Model how to use the words in discussion

• Ones • Place Value • Tens • Value	☐ Read and discuss the meanings of words in a mathematical context

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

Instructional Plan

Understanding Lesson Purpose and Student Outcomes:
Students will be able to read and write number words for numbers 0–1000 and identify and record three-digit numbers in expanded form, standard form, and number word form. Students will model three-digit numbers using Base-Ten blocks.

Anticipatory Set/Introduction to the Lesson: Understand the Value of a Number
Ask students to share their lists of ways that 100 is used outside of the school building from the previous night's homework assignment.

Display Magnificent Math where students can see him/her. Remind students that their mission today is to achieve today's learning goals in order to free Magnificent Math from captivity.

Activity 1: Understand the Value of a Number (Learnzillion) (8 minutes)
Show the first 4 min 50 seconds of the video Math Antics – Place Value Video:
Review the video using the following questions:

- What are the names of the ten digits? (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)
- What are the names of the three places referred to in the video? (ones, tens, hundreds)
- Which place has the greatest value? (hundreds)
- Which place has the least value? (ones)
- What is the greatest digit you can have in each place? (9)
- How many ones equal one ten? (10)

- How many tens equal one hundred? (10)

For students who are EL, have disabilities, or perform well below grade-level:

- Sit students strategically near you so you can quietly prompt them throughout the video (As the video asks question, you may want to have these students quietly say the answer aloud so you can monitor their thinking and learning) and monitor their participation.

Extensions for students with high interest or working above grade level:

- Ask students to show the process of forming 1,000 using pictures, words, models, etc.

Activity 2: Super Modeling (30 minutes)

Assign students to heterogeneous groups based on ability (if possible include a high, low and two mediums). Distribute place value mats and base ten blocks to each group member. Allow 2 to 3 minutes of manipulative exploration ("math play"). Students may play with the manipulatives by using them in any way they choose. When the time is up, ask students to describe the attributes of the base ten blocks and the place value mat (color, shape, texture, etc.). Use **Handout 2.1: Master of Manipulations-Learning Accountability Pages for Partners.** Using an interactive whiteboard, overhead, document camera, or other large display method, display one unit, one rod, and one flat. Tell students we will assign a value for each base ten block based on what we know about ones, tens, and hundreds. Display a unit and ask students what value they think it has and where we would place it on the place value mat (ones) and repeat with the rod and flat. Have students do the same thing with their manipulatives. Use the following questions to prompt their thinking.

Prompting Questions:

- How many units make a rod? (10)
- Can you demonstrate that with your base ten blocks?
- So, if it takes 10 units to make a rod, and each unit is worth 1, what can we say about ones? (ten ones =oneten)
- How many rods make a flat? (10)
- Can you demonstrate the with your base ten blocks?
- So, if it takes 10 rods to make a flat, and each rod is worth 10, what can we say about tens? (ten tens =one hundred)

Using base ten blocks and a place value mat, model the number 100, one place at a time. Begin counting from one to nine adding units to the place value mat. When you place the tenth unit on the chart, trade them for a rod (one 10). Model with rods skip counting by tens from ten to ninety. When you place the tenth rod on the chart, trade them for a flat. Show that 100 is one hundred and no tens or ones by asking, "If we have 100, how many tens and ones do we have?" (zero) (SMP.6).

Note: Point out to students that the word "and" is often used inappropriately when naming numbers. The word “and” denotes a decimal when representing numbers. Be sure to name numbers without using the word “and” (e.g., do not say “one hundred and thirty-six” but “one hundred thirty-six” (SMP.6).

For students who are EL, have disabilities, or perform well below grade-level:

- Provide students with a place value mat for reference.
- Sit students strategically near you so you can quietly prompt them (you may use sentence starters to help them think about each question or you may prompt them by reminding them of how they used the prerequisite skill to help jog their thinking) and monitor their participation.

Extensions for students with high interest or working above grade level:

- Ask students to record today’s learning gains, problems they encountered, or concepts they didn’t understand in a math journal. Review the journals to address these issues or enrich students who have a clear understanding of the concept.

Model the number 136 using one flat, 3 rods, and 6 units. Identify and record on a place value mat for students to see that 136 is 6 ones, 3 tens, and 1 hundred. Show and explain how 1 hundred = 100, 3 tens = 30, and 6 ones = 6. Make sure to always line up units as they would be in a ten frame. Reverse the order of the numbers to make 631 and model it with base ten blocks. Ask the students to what is different about the number of base ten blocks we used for the two numbers. (136 has 1 flat, 3 rods, and 6 units but 631 has 6 flats, 3 rods, and 1 unit – they both have 3 rods) Repeat with other 3-digit numbers such as 478, 429, 201, 909, etc. Assign partners and use the Kagan structure Rally Coach (Partners take turns, one solving a problem while the other coaches. Then partners switch roles.) to model numbers with base ten blocks and place value mats identifying how many hundreds, tens and ones are in the number. Tell students they will record their answers on **Handout 2.1: Master of Manipulations- Learning Accountability Pages for Partners A and B**. (SMP.3, SMP.4, SMP.6)

For students who are EL, have disabilities, or perform well below grade-level:

- Cover the hundreds digit of the 3-digit number and allow students to build the tens and ones, then uncover the hundreds digit guiding students to build the hundreds digit with base ten blocks. As you discuss each digit and its value, encourage students to count by ones, tens, and hundreds.

Extensions for students with high interest or working above grade level:

- Give students numbers in the 1,000s to model or use models of thousands to determine the value of the number.

Formative Assessment

✓ Use **Handout 1.3: Daily Mastery Tracker** throughout the week to record observations of students' understandings and abilities for each day. As you observe, record a o if the student needs extensive help with a goal, a + if the student can perform the task with support, and a ✓ if the student accomplish a goal independently, showing mastery. Enter your observations in pencil, so that as the student grows, you can amend your mark.

Activity 3: Superhero Math Talk/Reflection and Closing (10 minutes)

Lead a classroom discussion about the students' essential understanding from today's lesson and how students can build upon this learning.

✓ Prompting Questions:

- What did you discover today?
- What is the value of 2 in the hundreds place?
- Did you discover anything that we didn't discuss today?
- How many tens are there in 729?
- What is the value of 6 in 356?
- What patterns do we recognize within place value?
- What did you learn today that surprised you?

Note: Choose the student you think should get to release Magnificent Math to protect. Magnificent Math may sit on his/her desk, and the student may take the superhero to recess, lunch, specials, etc. He/she may also take the superhero home for the night. Be sure to discuss the rules of receiving Magnificent Math. The stuffed animal may not become a distraction to others, and it must be returned the following day.

Homework

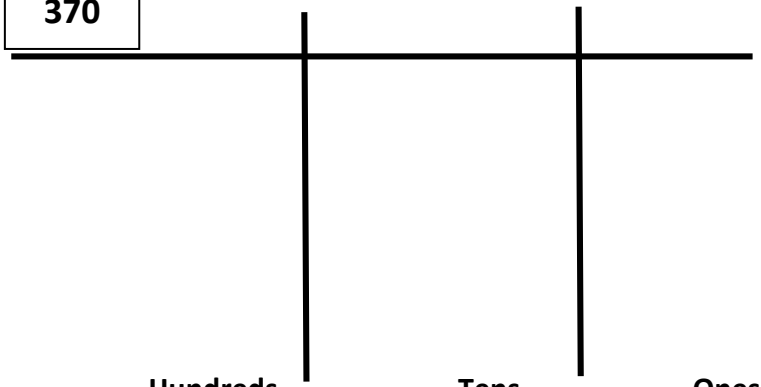
Distribute **Handout 2.2: Master of Manipulations Homework Page** and instruct students to complete overnight.

Handout 2.1: Master of Manipulations Learning Accountability Pages for Partners

Name:_____ **Date:** _____

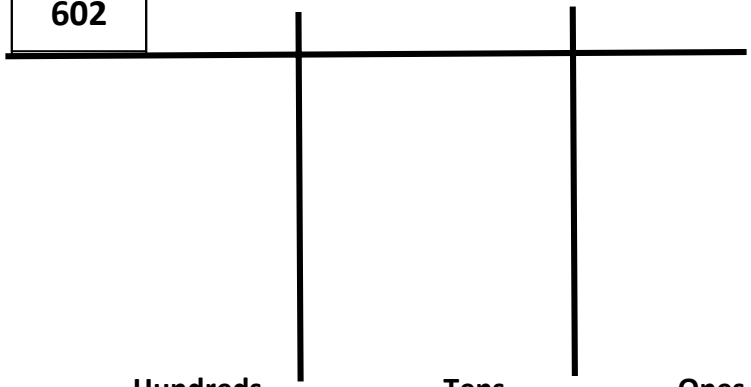
Directions: Model the number using your place value manipulatives and represent your model below. Show the place value and value of each digit in the number.

370



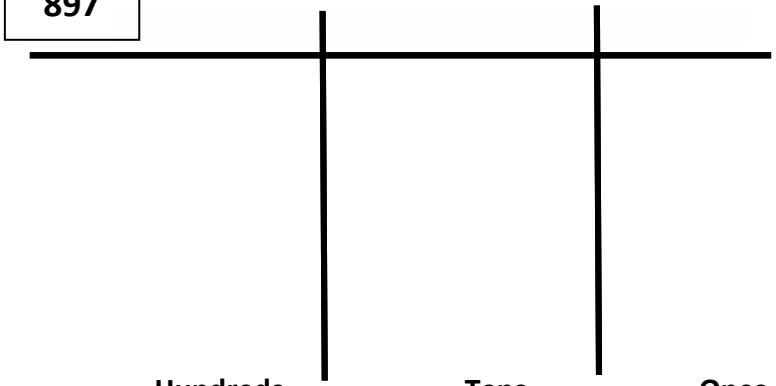
_____**Hundreds** _____**Tens** ____**Ones**

602



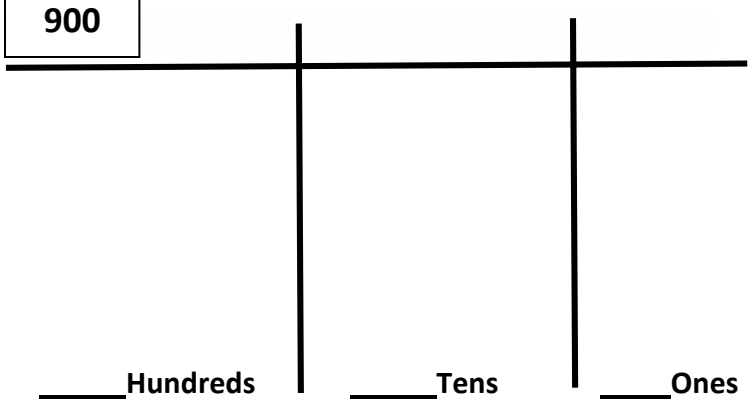
_____**Hundreds** _____**Tens** ____**Ones**

897



_____**Hundreds** _____**Tens** ____**Ones**

900



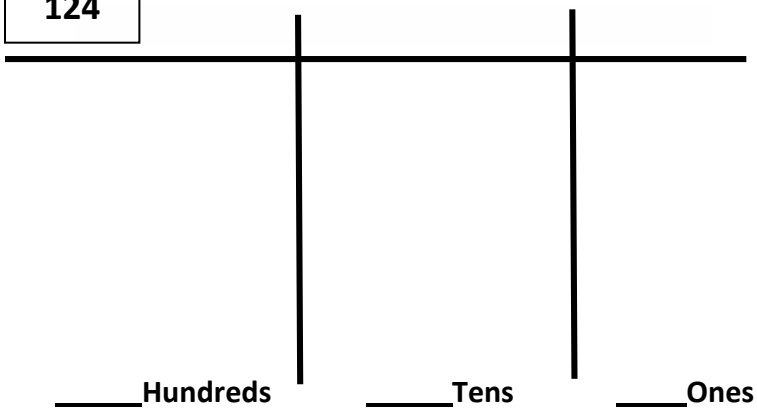
_____**Hundreds** _____**Tens** ____**Ones**

Handout 2.1: Master of Manipulations Learning Accountability Pages for Partners

Name:_____ **Date:** _____

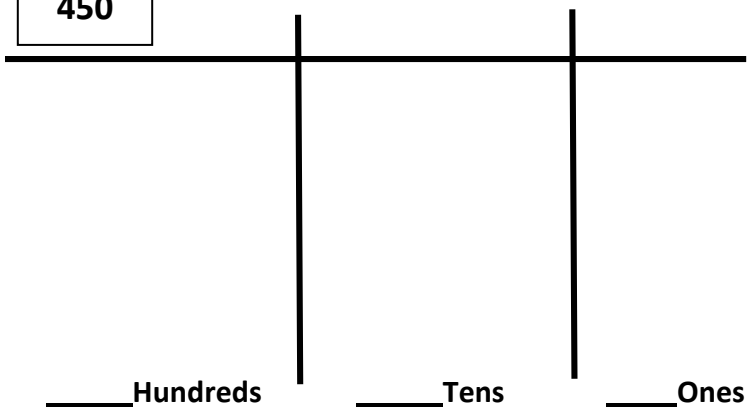
Directions: Model the number using your place value manipulatives and represent your model below. Show the place value and value of each digit in the number.

124



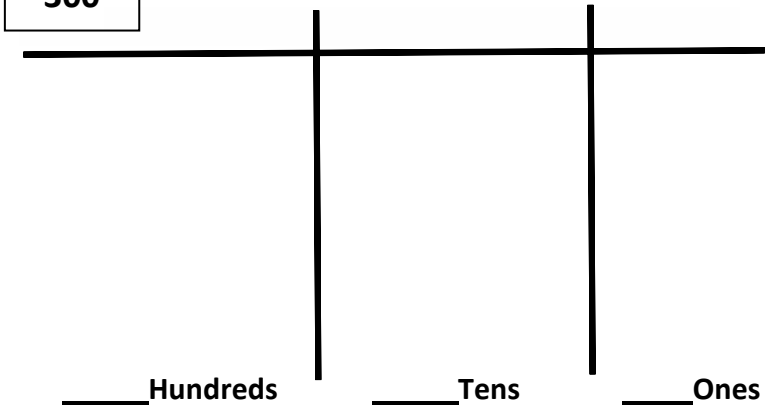
_____**Hundreds** _____**Tens** ____**Ones**

450



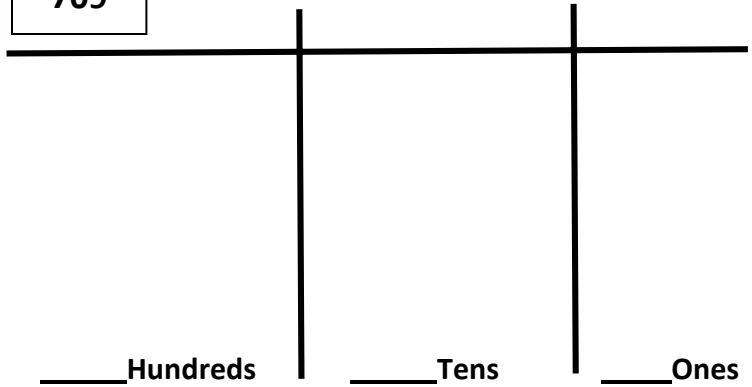
_____**Hundreds** _____**Tens** ____**Ones**

300



_____**Hundreds** _____**Tens** ____**Ones**

709



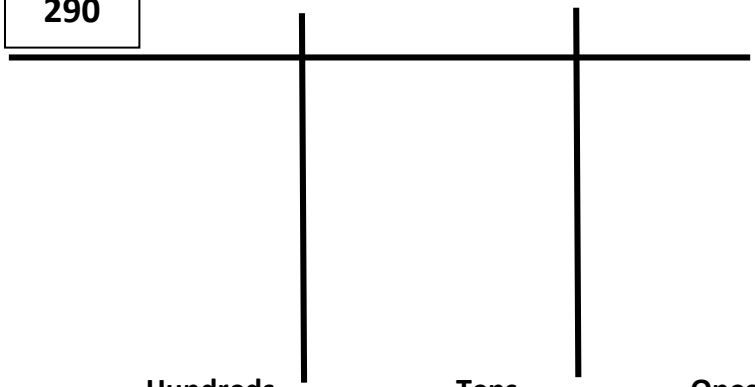
_____**Hundreds** _____**Tens** ____**Ones**

Handout 2.2: Master of Manipulations Homework Page

Name:_____ **Date:** _____

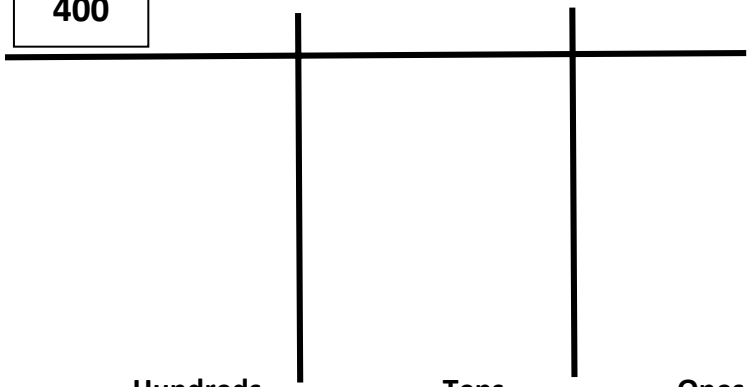
Directions: Model the number using your place value manipulatives and represent your model below. Show the place value and value of each digit in the number.

290



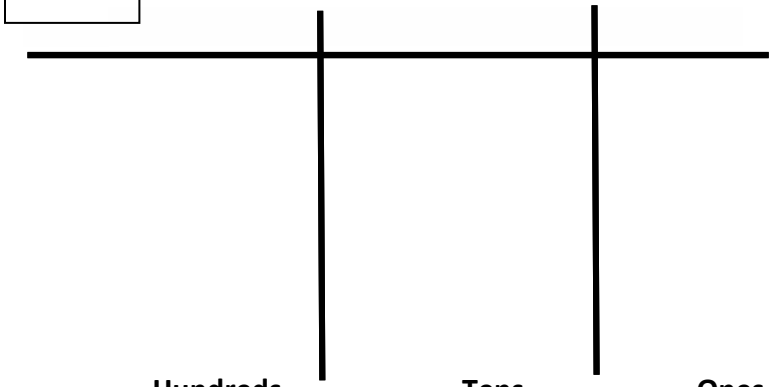
_____**Hundreds** _____**Tens** ____**Ones**

400



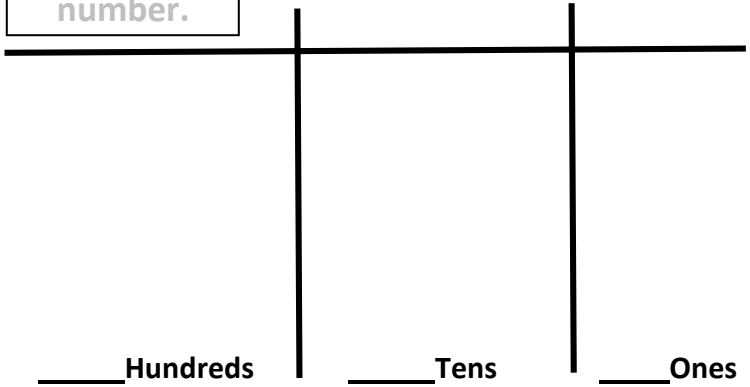
_____**Hundreds** _____**Tens** ____**Ones**

309



_____**Hundreds** _____**Tens** ____**Ones**

Choose your own number.



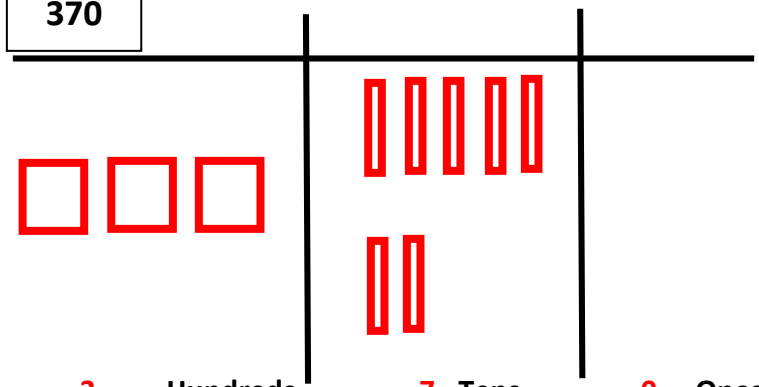
_____**Hundreds** _____**Tens** ____**Ones**

Handout 2.1: Master of Manipulations Learning Accountability Pages for Partners KEY

Name:_____ **Date:** _____

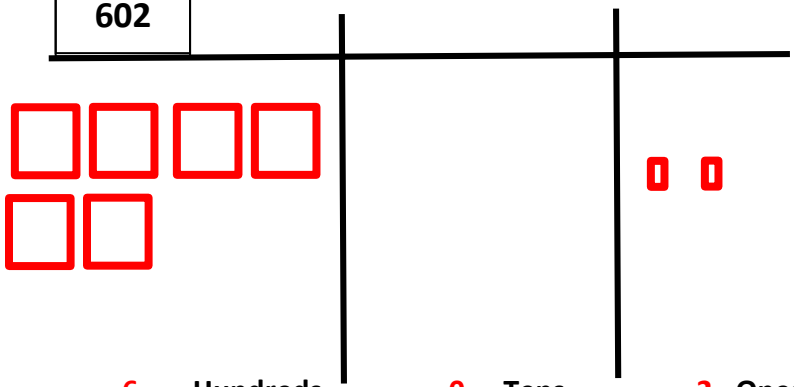
Directions: Model the number using your place value manipulatives and represent your model below. Show the place value and value of each digit in the number.

370



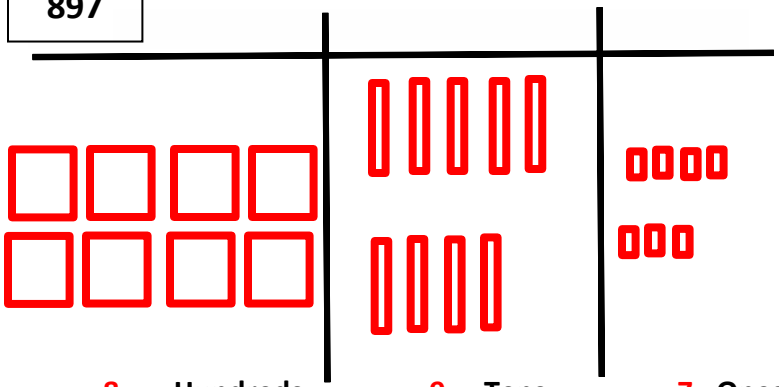
_3____Hundreds __7_ Tens _0___Ones

602



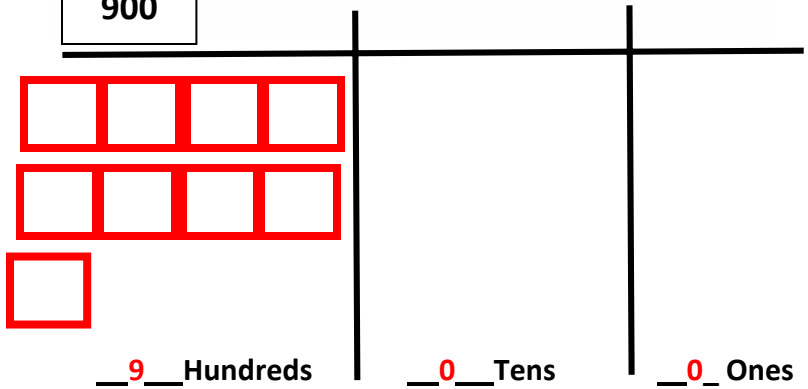
__6___Hundreds __0___Tens __2_ Ones

897



__8___Hundreds __9___Tens __7_ Ones

900



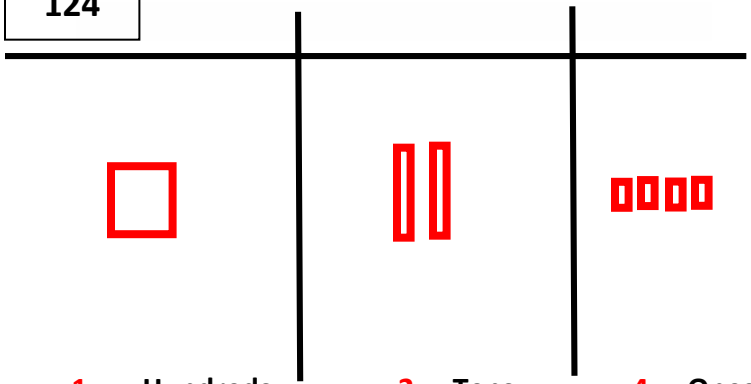
__9___Hundreds __0___Tens __0_ Ones

Handout 2.1: Master of Manipulations Learning Accountability Pages for Partners KEY

Name:_____ **Date:** _____

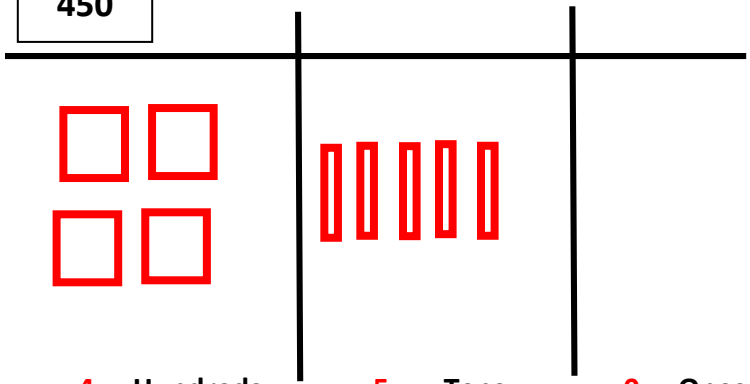
Directions: Model the number using your place value manipulatives and represent your model below. Show the place value and value of each digit in the number.

124



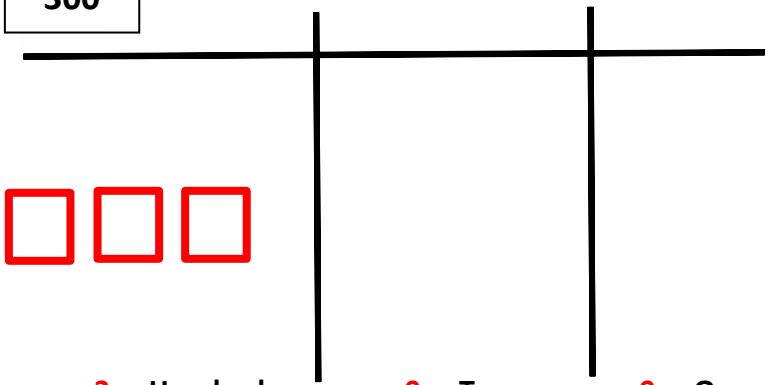
_1___Hundreds **__2__Tens** **_4__Ones**

450



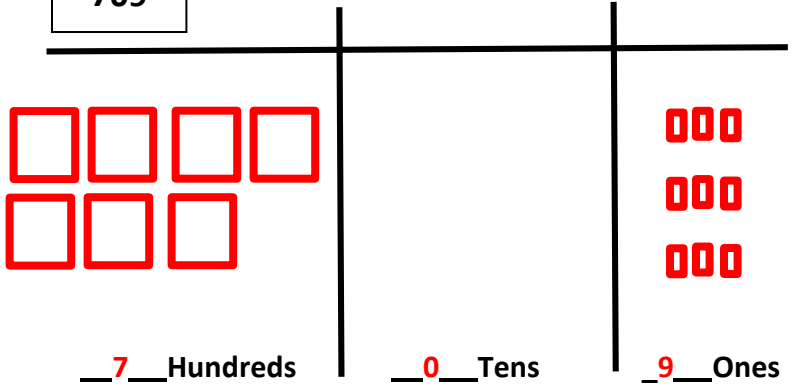
__4__Hundreds **_5___Tens** **_0__Ones**

300



__3__Hundreds **__0__Tens** **_0__Ones**

709



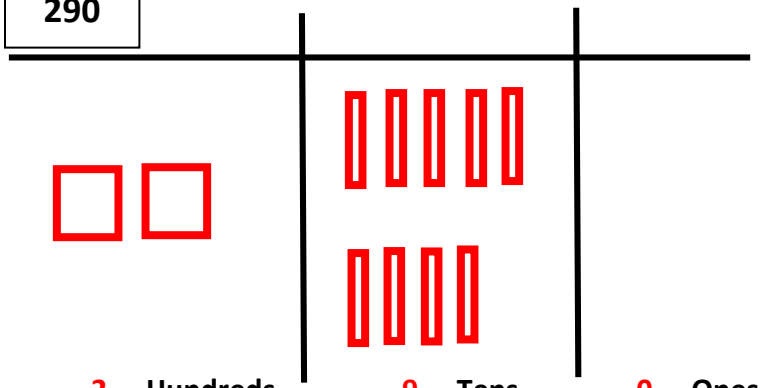
__7__Hundreds **__0__Tens** **_9__Ones**

Handout 2.2: Master of Manipulations Homework Page KEY

Name:_____ **Date:** _____

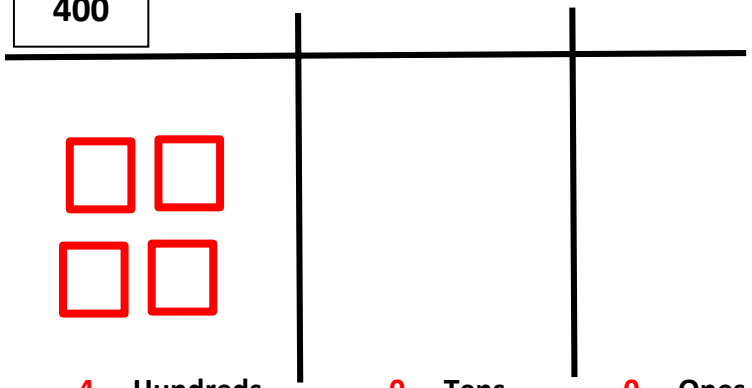
Directions: Model the number using your place value manipulatives and represent your model below. Show the place value and value of each digit in the number.

290



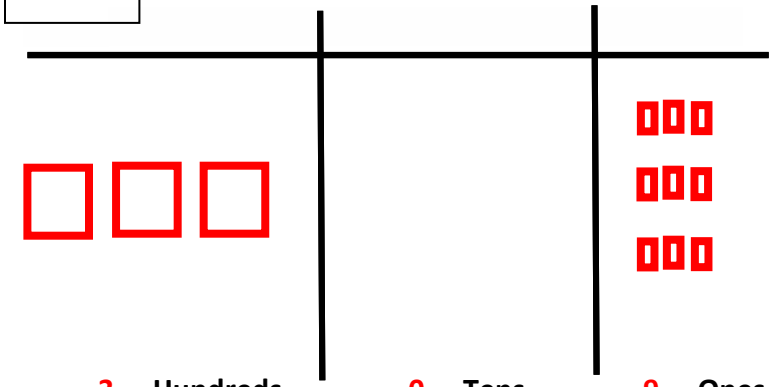
__2___Hundreds __9___Tens _0___Ones

400



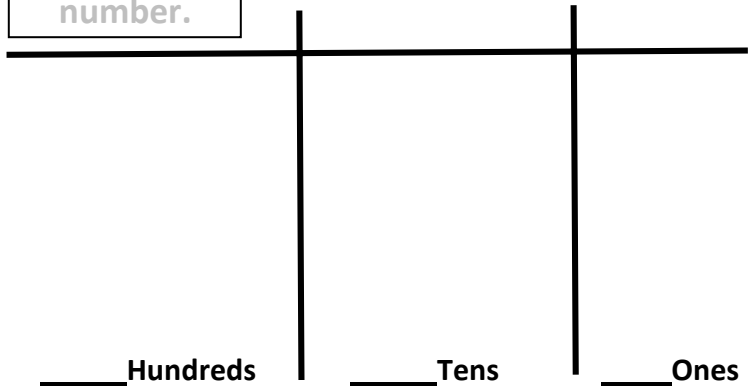
__4___Hundreds __0___Tens _0___Ones

309



__3___Hundreds __0___Tens _9___Ones

Choose your own number.



_____Hundreds _____Tens ____Ones

Lesson 3: I Use Place Value… What's Your Super Power?

Focus Standard: 2.NBT.3

Additional Standards: 2.NBT.1, 2.NBT.2

Standards for Mathematical Practice: SMP.3, SMP.4, SMP.7

Estimated Time: 60 minutes

Resources and Materials:

- Magnificent Math (a stuffed animal superhero used during the lesson as a motivational tool)
- Chart paper
- Markers
- Handout 3.1: Maze of Wonder Learning Accountability Page
- Handout 3.2: Secret Four Learning Accountability Page

Lesson Targets:

- Students will be able to identify a 3-digit written number in relationship to the number of objects it represents as well as its place value and vice versa.
- Students will be able to identify a 3-digit written number in relationship to its expanded notation as well as the words that form the number and vice versa.

Guiding Questions:

- Why is it important to represent numbers in different ways?
- Where do you find numbers represented in the real world? What form are they represented in?

Vocabulary

Academic Vocabulary:	**Instructional Strategies for Academic Vocabulary:**
● Base Ten ● Digits ● Hundreds ● Ones	☐ Introduce words with student-friendly definition and pictures ☐ Model how to use the words in discussion ☐ Read and discuss the meanings of words in a mathematical context

• Place Value • Tens • Value	

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

Instructional Plan

Understanding Lesson Purpose and Student Outcomes:
Students will be able to read and write number words for numbers 0–1000. Furthermore, students will gain the skill of identifying and recording three-digit numbers in expanded form, standard form, and number word form. Additionally, students will model three-digit numbers using base ten.

Anticipatory Set/Introduction to the Lesson: (10 minutes)
Distribute **Handout 3.1: Maze of Wonder Learning Accountability Page**. Tell students to use a crayon or colored pencil to start at the square marked "In" and find their way out of the maze coming out at the square marked "out." Allow 3 minutes to complete individually. Display the maze that's illustrated on Handout 3.1 on an interactive whiteboard, document camera, overhead projector, or other large display. Allow various students (using different colors) to record their path on the large display for the class to see. Discuss that there are many ways to exit the maze just as there are many ways to represent a number. Use the following questions to guide discussion.

Prompting Questions:

- What could this maze have in common with what we have been learning in this unit?
- What else can we represent in many ways?

Activity 1: Chart Challengers – Ways to Show a Number (10-15 minutes)
Using one problem from the previous night's homework, demonstrate how to write standard form numbers in expanded form using base ten blocks and place value mats. Extend this understanding to writing the numbers in number name form. Create an anchor

chart showing how to write numbers in standard, expanded, and number name form. Practice a variety of numbers on the board using various strategies (SMP.4, SMP.7).

For students who are EL, have disabilities, or perform well below grade-level:

- Provide students with a fact sheet displaying the various ways that numbers can be represented.

Extensions for students with high interest or working above grade level:

- Encourage students to lead the classroom conversation and challenge students to represent all numbers in expanded form.

Activity 2: Secret Four - Four Ways Superheroes Know to Represent Numbers (30-35 minutes)
Distribute **Handout 3.2: Secret Four Learning Accountability Page** (Print double-sided so there are 2 templates on each sheet). Display **Handout 3.2: Secret Four Learning Activity Accountability Page** using an interactive whiteboard, document camera, overhead projector, or in another large format. Elicit student help in filling out each section of the chart. Write the number 897 in the center of the page and then fill in each of the four sections. Repeat with the number 124. Have students fill in their own chart. Group students into 6 groups for a jigsaw activity (groups may be uneven based on student numbers). Assign each home group member a different section of the form. Students will meet with other students who are completing the same part of the form. Students return to their home group and each person presents their work. Repeat the activity 3 times so each member of a home group will do all the sections of the form.

- ✓ Instruct students to work individually to complete all parts of a new form for the number 962. Use the following questions to review their work and tell students to write their answers on their individual white board.

  Prompting Questions:

  - How do you show 962 using base ten blocks and a place value mat?
  - How do you write the number 962 in standard form?
  - How do you write the number 962 in expanded form?
  - How do you write the number 962 in number word form?

Activity 3: Superhero Math Talk/Reflection and Closing (10 minutes)
Lead a classroom discussion about the students' essential understanding from today's lesson and how students can build upon this learning.

- ✓ Prompting Questions:

- What did you discover today?
- Explain the process of using a number line as a place value strategy.
- Which strategy uses numbers broken down into each place value?
- How would you write the number 226 in standard from?
- Did you explain your strategy to others in a way they were able to understand?
- How can you build upon what you learned today?
- Can you relate what you learned today to something else?
- What did you learn today that surprised you? (SMP.3)

For students who are EL, have disabilities, or perform well below grade-level:

- Sit students strategically near you so you can quietly prompt them (you may use sentence starters to help them think about each question or you may prompt them by reminding them of how they used the prerequisite skill to help jog their thinking) and monitor their participation.

Extensions for students with high interest or working above grade level:

- Ask students to record today's learning gains in a math journal or problems they encountered or concepts they didn't understand. Review the journals to address these issues or enrich students who have a clear understanding of the concept.

Note: Choose the student you think should get to release Magnificent Math to protect. Magnificent Math may sit on his/her desk, and the student may take the superhero to recess, lunch, specials, etc. He/she may also take the superhero home for the night. Be sure to discuss the rules of receiving Magnificent Math. The stuffed animal may not become a distraction to others, and it must be returned the following day.

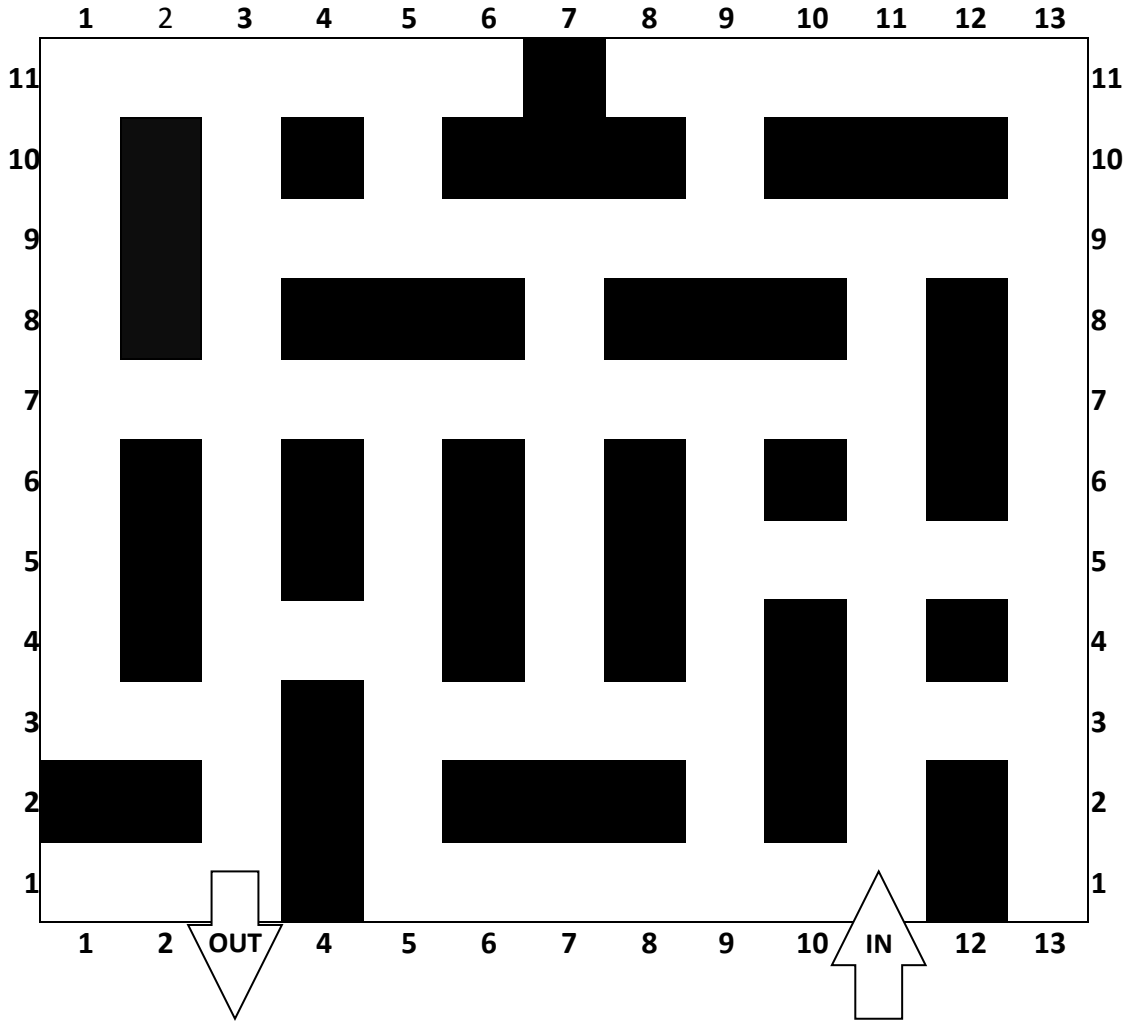
Homework

No homework.

Handout 3.1: Maze of Wonder Learning Accountability Page

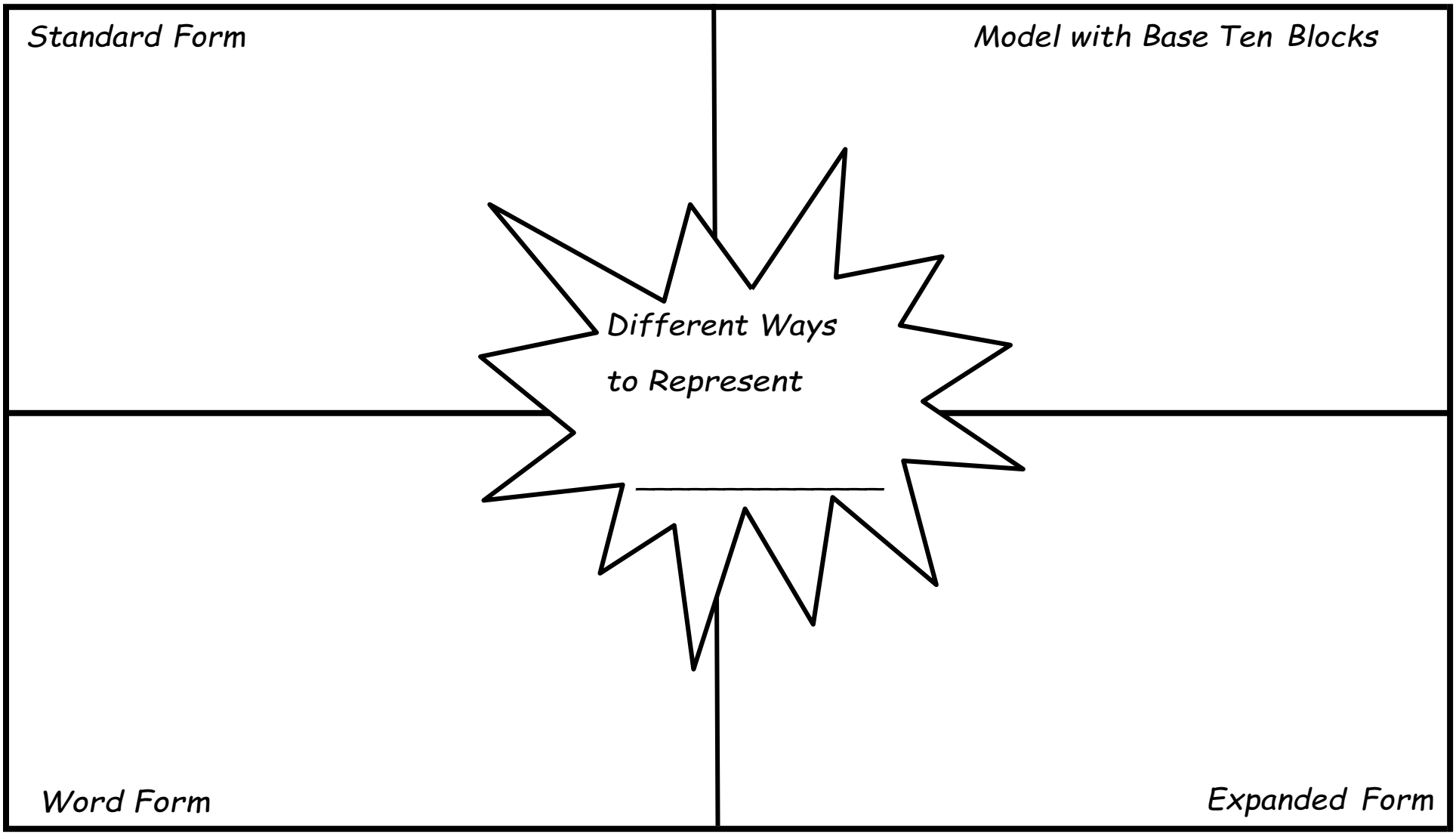
Name:_____ **Date:** _____

Directions: Starting at the IN arrow, find as many possible ways to get to the exit marked with the OUT arrow.



Handout 3.2: Secret Six Learning Accountability Page

Name:_____ **Date:** _____



Lesson 4: Secret Six II

Focus Standard: 2.NBT.3

Additional Standard: 2.NBT.1

Standards for Mathematical Practice: SMP.4, SMP.6, SMP.7

Estimated Time: 60 minutes

Resources and Materials:

- Magnificent Math (a stuffed animal superhero used during the lesson as a motivational tool)
- Place value flipbook created with 6 different colors paper per student
- Handout 4.1: Hidden Numbers
- Handout 4.2: Number Portrait
- Handout 4.3: Number Portrait Task Cards
- Number Portrait: http://www.firstpalette.com/Craft_themes/Alphabet_and_Numbers/Number_Portrait/Number_Portrait.html

Lesson Targets:

- Students will be able to identify a 3-digit written number in relationship to the number of objects it represents as well as its place value and vice versa.
- Students will be able to identify a 3-digit written number in relationship to its expanded notation as well as the words that form the number and vice versa.

Guiding Questions:

- Why is it important to represent numbers in different ways?
- Where do you find numbers represented in the real world? What form are they represented in?

Vocabulary

Academic Vocabulary:	**Instructional Strategies for Academic Vocabulary:**
• Base Ten • Expanded Form	☐ Introduce words with student-friendly definition and pictures ☐ Model how to use the words in discussion

• Place Value • Place Value Form • Value • Written Form	☐ Read and discuss the meanings of words in a mathematical context

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

Instructional Plan

Understanding Lesson Purpose and Student Outcomes:
Students will be able to read and write number words for numbers 0–1000. Furthermore, students will gain the skill of identifying, modeling, and recording three-digit numbers in expanded form, standard form, and number word form.

Anticipatory Set/Introduction to the Lesson: Hidden Numbers (10 minutes)
Display Magnificent Math in students' view. Remind students that their mission today is to achieve today's learning goals in order to free Magnificent Math from captivity. Display **Handout 4.1: Hidden Numbers** and call on students to come to the board and circle a number between 1 and 50. Ask students if there were any differences in the numbers. (size, font, color, etc.)

Activity 1: Number Portrait (15 minutes)
Display the image from **Handout 4.2: Number Portrait** or use the website First Palette.
Distribute copies of **Handout 4.2: Number Portrait**. Group students and explain that they will find the hidden numbers in the portrait to match the Hidden Number task cards. Explain that they will place the task cards face side down, in the center of their group. Students turn over one card at a time. Each student will find and circle the digits on their Number Portrait that will make the number displayed on the card. They may use each digit only once. If they do not have the digits to make the number, they pass on that number. Play ends when no group member can circle a complete number (SMP.7).

Activity 2: Place Value Flipbook (30 minutes)
Note: Prior to the activity, create a Place Value Flipbook as an example for your students.

Allow the students to create their own Place Value Flipbooks using their own creativity. Closely monitor the student efforts.
Allow the students to choose their own number or assign them a number, if necessary. Instruct students that they must have the title, Place Value, on the front of their flipbook and their number in standard form.
The other pages must include a representation of their number in the following forms (they may choose any order they would like): expanded form, word form, place value form, number line, and modeling (SMP.4, SMP.6).

For students who are EL, have disabilities, or perform well below grade-level:

- Students will be paired with a student for peer coaching.
- Provide base ten blocks to model before drawing in the flipbook.

Extensions for students with high interest or working above grade level:

- Encourage students to quiz one another to see if they recognize the number based on a form other than standard form.

Note: Samples for the flipbook can be found here.

Reflection and Closing (5-10 minutes)

- ✓ Students will complete an Emoji Exit Ticket indicating how the student feels they did on the lesson. Students will draw the emoji that best describes their feelings about their learning gains.
- ✓ Choose a number for students to represent in two ways.

Note: If today's learning goals were successfully met, release the Magnificent Math. The MVP of today's learning goals is given Magnificent Math to protect. Magnificent Math may sit on his/her desk, and he/she may take the superhero to recess, lunch, specials, etc. He/she may also take the superhero home for the night. Be sure to discuss the rules of receiving Magnificent Math. The stuffed animal may not become a distraction to others, and it must be returned the following day.

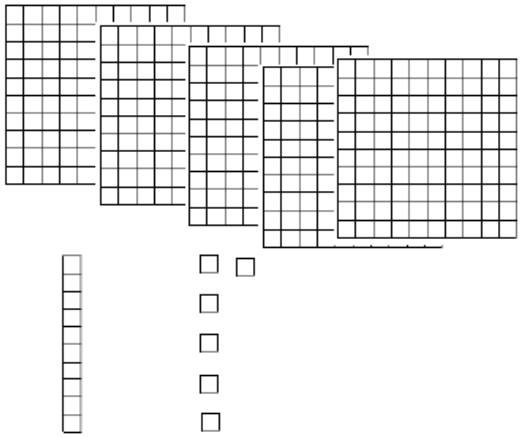
Homework

No homework given.

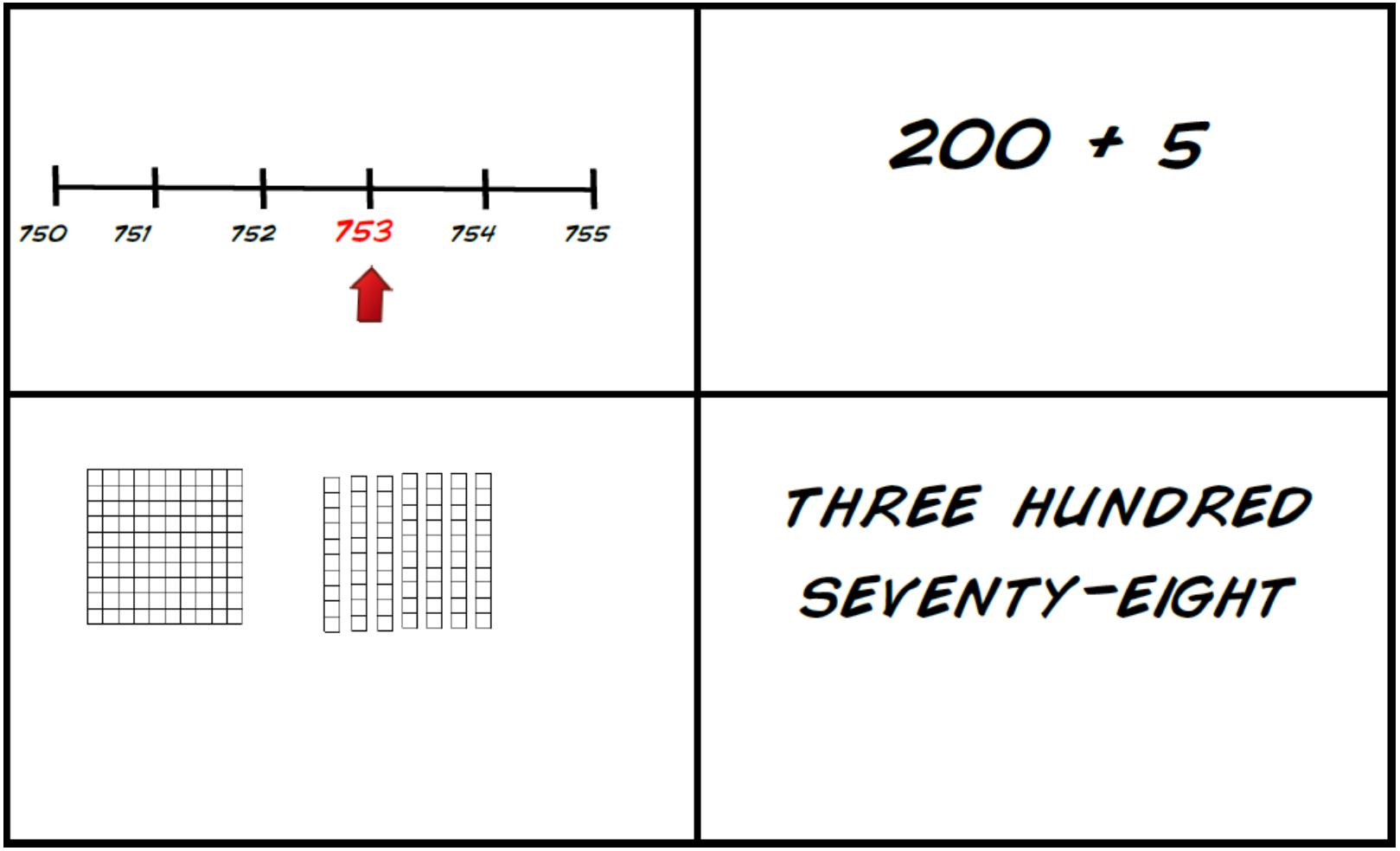
Handout 4.1: Hidden Numbers

Handout 4.2: Number Portrait

Handout 4.3: Number Portrait Task Cards

NINE HUNDRED NINETY-NINE	400 + 20 + 9
	2 HUNDREDS, 9 TENS, 1 ONE

Handout 4.3: Number Portrait Task Cards



Lesson 5: Superhero Hideouts and Headquarters

Focus Standards: 2.NBT.1, 2.NBT.3

Additional Standards: 2.NBT.4, 2.RI.2

Standards for Mathematical Practice: SMP.5, SMP.7

Estimated Time: 60 minutes

Resources and Materials:

- Magnificent Math (a stuffed animal superhero used during the lesson as a motivational tool)
- Place Value Yahtzee score sheets
- 3 dice per pair of students
- Yahtzee score card https://cdn.shopify.com/s/files/1/0955/2452/files/Place_Value_Yahtzee_Score_Cards.pdf
- Playing cards
- Ones, tens, hundreds place value chart
- *Sir Cumference and the All the King's Tens* by Cindy Neuschwander
- *Earth Day Hooray!* (MathStart) by Stuart Murphy
- *Math Fables: Lessons That Count* by Greg Tang
- *Big Numbers --and-- Little Numbers* by Edward Packard
- *Zero the Hero* by Joan Holub
- *How Much How Many How Far How Heavy How Long How Tall Is 1000?* by Helen Nolan
- *Math Talk: Mathematical Ideas in Poems for Two Voices* by Theoni Pappas
- My Place: Learn why the position of a number is important: http://www.beaconlearningcenter.com/Weblessons/MyPlace/default.htm#page1
- IXL Place Value. Identify numbers using models: https://www.ixl.com/math/grade-2/place-value-models-up-to-hundreds
- Internet2Classrooms- Place Value games: http://www.internet4classrooms.com/skill_builders/place_value_math_third_3rd_grade.htm

Lesson Targets:

- Students will use correct mathematical vocabulary to explain place value.
- Students will gain hands-on practice of modeling place value in centers.

Guiding Questions:

- How are different strategies helpful when solving problems?
- How does collaboration expand the learning process?

Vocabulary

Academic Vocabulary:	Instructional Strategies for Academic Vocabulary:
● Base Ten ● Equal ● Expanded Form ● Greater Than ● Less Than ● Place Value ● Place Value Form ● Written Form	☐ Introduce words with student-friendly definition and pictures ☐ Model how to use the words in discussion ☐ Read and discuss the meanings of words in a mathematical context

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

Instructional Plan

Understanding Lesson Purpose and Student Outcomes:

Students will be able to use place value to compare numbers with the symbols <,>, or =, as well as order numbers from least to greatest and greatest to least.

Anticipatory Set/Introduction to the Lesson (3 minutes)
Display Magnificent Math in students' view. Remind students that their mission today is to achieve today's learning goals in order to free Magnificent Math from captivity.

Activity 1: Super Heroes Centers (50 minutes)

- ✓ Explain to students that they will rotate through center to practice place value skills already learned in this unit. Tell the students to follow these center instructions:
    - They will have approximately 10 minutes at each center.
    - Give students jobs such as leader, questioner, supply manager, and organizer. Jobs are assigned based on reading groups; which students switch between often based on their learning. The leader is usually a student in the highest reading group. This student is responsible for reading the directions and explaining the directions to the other students. They are also the student you can go to for help if needed. The questioner is the only student from the group that is allowed to ask the teacher a group question. Only if the group cannot figure the answer out on their own may the questioner come ask the teacher. The supply manager is in charge of all the supplies and distributing and handling the supplies. The organizer is in charge of group clean up, telling the group when to clean up and how the supplies, trash, etc. are to be placed. All students are to participate in cleanup that is directed by the organizer.
    - Group students and rotate centers in a way that is conducive to the most learning gains. Use heterogenous grouping with a high, low, and 2 medium ability students in each group.

Centers will include:

- Computer Center- Online Place Value games (if your district has a mandatory online math program, you can use that during this time).
- Place Value Yahtzee- The value of a digit according to its placement.
- Playing Cards Comparisons- Comparing 3-digit numbers
- Place Value Reading- Books about place value

Activity 1: Computer Center

Allow students to complete activities found on the following websites:

- My Place Math Games
- Any online math program your school/district may use, focusing on place value

Activity 2: The Value of a Digit

Students take turns rolling 3 dice and try to fill in the Yahtzee Score Card. The first to fill in all the blanks correctly on the score card wins. Yahtzee Score Cards can be found here.

Activity 3: Place Value Battle

A student draws the first 3 cards in the deck and creates the greatest number possible using all three of the cards. The next student draws three cards to create the greatest 3-digit number possible. This pattern continues until all students playing draw three cards and create the greatest number they can. The student with the greatest 3-digit number wins everybody's cards that were played that round. The student with the most cards at the end of the game wins.

Note: Remove face cards and tens from each deck. You may use 1 or 2 decks depending on the number of students in each group.

Activity 4: Place Value Literature

Provide students with a variety of literature that addresses place value. You may want to have several below level books for students who are still struggling with place value prerequisites and for students who struggle reading. Have several books for students that have already mastered place value and beyond.

Reflection and Closing (5 minutes)

- ✓ Students explain the 5 most important new learning gains they made during today's lesson. When students finish explaining the 5 learning gains, all at once they will raise their hands in the air and lead them into shouting, "High five for learning!"

Note: If today's learning goals were successfully met, release the Magnificent Math. The MVP of today's learning goals is given Magnificent Math to protect. Magnificent Math may sit on his/her desk, and he/she may take the superhero to recess, lunch, specials, etc. He/she may also take the superhero home for the night. Be sure to discuss the rules of receiving Magnificent Math. The stuffed animal may not become a distraction to others, and it must be returned the following day.

Homework

Instruct students to reflect on the lesson and write about something someone in their group taught them today.

Lesson 6: Mission Addition… Mental Preparations

Focus Standards: 2.NBT.2, 2.NBT.8

Additional Standards: 2.NBT.1, 2.NBT.3, 2.NBT.4, 2.NBT.5

Standards for Mathematical Practice: SMP.7

Estimated Time: 60-65 minutes

Resources and Materials:

- Large Thousands Chart (can be made using bulletin board paper or use: http://rpdp.net/admin/images/uploads/resource_8360.pdf
- Task Card Materials depending upon chosen option (sidewalk chalk, poster board, dowel rods, paper, markers, etc.)
- Mentally Add or Subtract: https://learnzillion.com/lesson_plans/5237-mentally-add-or-subtract-10-or-100-using-expanded-form

Lesson Targets:

- Students will mentally add and subtract 100s and 10s to/from a 3-digit number by skip counting.
- Students will recognize the structure of addition- adding hundreds with hundreds, tens with tens, and ones with ones.

Guiding Questions:

- In what kind of situations might we need to mentally add or subtract 10s or 100s to or from a 3-digit numbers?
- How can place value help me add 10 and 100 to large numbers?

Vocabulary

Academic Vocabulary:	**Instructional Strategies for Academic Vocabulary:**
• Addend • Addition • Difference • Mental Math • Subtraction	☐ Introduce words with student-friendly definition and pictures ☐ Model how to use the words in discussion ☐ Read and discuss the meanings of words in a mathematical context

• Subtrahend • Sum	

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

Instructional Plan

Understanding Lesson Purpose and Student Outcomes:
Students will be able to solve problems by finding number patterns and skip counting. Furthermore, students will be able to add and subtract 10 and 100 to and from two- and three-digit numbers using mental math.

Anticipatory Set/Introduction to the Lesson: Mentally Add or Subtract (15 minutes)
Display Magnificent Math in students' view. Remind students that their mission today is to achieve today's learning goals in order to free Magnificent Math from captivity.

Show the video Mentally Add or Subtract to students. Allow students the opportunity to interact with the video.
Note: Oftentimes I split the class into teams to add a competition component. Conduct a Math Talk following the video to assess student learning and redirect misconceptions.

Prompting Questions:

- What was one thing that stood out to you in the video?
- How can you use what you learned today to enhance your knowledge?
- What was one thing that surprised you in the video?
- What prerequisite skills did the lesson build upon?

Actively monitor students and provide scaffolding support through questioning.

Activity 1: Mental Preparations (10-15 minutes)
Display a large thousands chart for students to interact with preferably near a white board for place value work space. Ask students questions pertaining to the structure of a thousand's chart using these questions.

Prompting Questions:

- What do you notice about the thousands chart?
- What patterns do you see in the thousands chart?
- How is a thousands chart similar/different that a hundreds chart?
- How can you mentally visualize a thousands chart to help you mentally solve addition problems? (SMP. 7)

Give students a 3-digit number, such as 657, asking students to either find 10 more/less or 100 more/less. Repeat with other numbers.

For students who are EL, have disabilities, or perform well below grade-level:

- Provide a set of hundreds (charts can be placed on a ring and each chart only includes a set hundreds- the first chart will have 1-100, the second chart 101-200, the third chart 201- 300, etc.) charts for the student's reference.

Extensions for students with high interest or working above grade level:

- Encourage students to attempt adding 1000s to 3- and 4-digit numbers.

Activity 2: Mental Math Path (30 minutes)

Prior to the lesson, be sure to do the following:

- Set up a mental math path in a long area. The hallway outside of your classroom could work well. You may want to set up two parallel mental math paths to add an element of competition.
- Hang task cards on the wall. Each poster will have a different problem using the mental math strategy of adding 10s and 100s.
- Students who are fluent in adding 10s and 100s can be "coaches" preparing others for the path ahead.
- Encourage students to have good sportsmanship, explaining that we are a superhero team and must work together for a common goal.

Divide the class into two teams. Students start at the beginning of the Mental Math Path.

Select a student to answer the problem at the first check point. If the student answers correctly, he/she can "tag" in a teammate to advance to the second checkpoint on the Mental Math Path. However, if the student answers incorrectly, the student can receive

assistance from one of the team's "coaches." Continue until both teams correctly answer all the problems along the Mental Math Path.

For students who are EL, have disabilities, or perform well below grade-level:

- Refer students to anchor charts or handouts used previously for assistance.

Extensions for students with high interest or working above grade level:

- Allow students to help "coach" students who are struggling along the Mental Math Path.

Reflection and Closing (5 minutes)

- ✓ Students explain the 5 most important new learning gains they made during today's lesson. When students finish explaining the 5 learning gains, all at once they will raise their hands in the air and lead them into shouting, "High five for learning!"

Note: If today's learning goals were successfully met, release the Magnificent Math. The MVP of today's learning goals is given Magnificent Math to protect. Magnificent Math may sit on his/her desk, He/She may take the superhero to recess, lunch, specials, etc. He/She may also take the superhero home for the night. Be sure to discuss the rules of receiving Magnificent Math. The stuffed animal may not become a distraction to others, and it must be returned the following day.

Homework

Instruct students to create 5 skip counting problems and to solve them independently.

Handout 6.1 Mental Math Task Cards

120+10	467+10
100+10	222+10

211+100	872+100
567+100	476+100

372-10	**830-10**
658-10	**479-10**

420-100	563-100
701-100	100-100

Lesson 7: Mission Addition… Mission Expanded

Focus Standards: 2.NBT.7 2.NBT.9

Additional Standards: 2.NBT.1, 2.NBT.2, 2.NBT.3, 2.NBT.4, 2.NBT.5, 2.OA.1

Standards for Mathematical Practice: SMP.2, SMP.6, SMP.7

Estimated Time: 55-65 minutes

Resources and Materials:

- Chart paper
- Markers
- Handout 7.1: Mission Expanded
- Handout 7.2: Mission Expanded II

Lesson Targets:

- Students will use expanded notation to add two 3-digit numbers without regrouping.
- Students will recognize the structure of addition- adding hundreds with hundreds, tens with tens, and ones with ones.

Guiding Questions:

- In what kinds of situations might we add 3-digit numbers?
- How can place value help me add large numbers?

Vocabulary

Academic Vocabulary:	**Instructional Strategies for Academic Vocabulary:**
• Addend • Addition • Mental Math • Sum	☐ Introduce words with student-friendly definition and pictures ☐ Model how to use the words in discussion ☐ Read and discuss the meanings of words in a mathematical context

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

Instructional Plan

Understanding Lesson Purpose and Student Outcomes:
Students will be able to add three-digit numbers by using a procedure that is connected to a model or other strategy. Likewise, students will use procedures to add using place value and explain the process of composing and decomposing numbers with and without regrouping.

Anticipatory Set/Introduction to the Lesson: Gathering of the Super Minds (10-15 minutes)
Display Magnificent Math in students' view. Remind students that their mission today is to achieve today's learning goals in order to free Magnificent Math from captivity.

Distribute 3 sticky notes to each student. Tell each student to list something they have learned about place value on each of the 3 sticky notes. Each of their notes will have a different listing. Students will report their learning to the whole class and post their sticky notes on a graffiti wall in the hallway.

Activity 1: Expand the Search – Anchor Chart (10-15 minutes)
Gather students in a Math Talk setting and elicit the students' help in creating an anchor chart detailing the steps in 3-digit addition using expanded notation (SMP.7).

For students who are EL, have disabilities, or perform well below grade-level:

- Provide students with a memory aid that details exactly how to solve 3-digit addition problems using expanded notation.

Activity 2: Mission Expanded (20-25 minutes)
Divide students into groups of four. Distribute **Handout 7.1: Mission Expanded**, and discuss each step with the students.

Note: Be sure to be animated as you explain "Poof", "Bam", and "Tada".

- Poof -expanding to individual place values
- Bam - adding each place value
- Tada - compressing the number back together

Work the first problem as the students listen (SMP.7).

Students work the next problem and discuss with the teacher which steps to follow.

Distribute **Handout 7.2: Mission Expanded II**.

Students work in Kagan structure Numbered Heads Together to work addition problems using the **Handout 7.2: Mission Expanded II.** Students number off and form groups according to their number. Give students pre-selected teacher-made addition problems and give students the appropriate amount of "think time". Students write their own answers independently.

Allow students to stand up, put their heads together [huddle up], show answers, discuss, and coach if necessary.

- ✓ Tell students to sit down when everyone knows the answer or has something they can share. Call a number; that numbered student from each group stands and simultaneously answers the teacher's question.

Encourage teammates to praise and cheer for their group mates whenever they respond correctly (SMP.6).

For students who are EL, have disabilities, or perform well below grade-level:

- Allow students to use base ten blocks and place value charts as they solve the problems.

Extensions for students with high interest or working above grade level:

- Encourage students to create their own additional problems to solve.
- List any new information learned in a math journal.

Activity 3: Superhero Math Talk/Reflection and Closing (10 minutes)
Have a class discussion about the students' essential understandings from today's lesson and how students can build upon this learning.

- ✓ Prompting Questions:
  - What did you discover today?

- How did you use expanded notation to add place value?
- What can you relate today's learning gains to?
- What prerequisite skill(s) did you build upon to help you in today's lesson?
- How can you build upon what you learned today?
- What did you learn today that surprised you?

Note: If today's learning goals were successfully met, release the Magnificent Math. The MVP of today's learning goals is given Magnificent Math to protect. Magnificent Math may sit on his/her desk, and he/she may take the superhero to recess, lunch, specials, etc. He/she may also take the superhero home for the night. Be sure to discuss the rules of receiving Magnificent Math. The stuffed animal may not become a distraction to others, and it must be returned the following day.

Homework

Instruct students to create and solve 5 problems like today's lesson using the same steps taught in class. Encourage students to use **Handout 7.1: Mission Expanded** as a guide.

Handout 7.1: Mission Expanded

Name:_____ **Date:** _____

524 + 313 = _____

POOF!

500 + 300 = 800

POOF!

20 + 10= 30

POOF!

4 + 4= 8

TA DA!

838

MISSION:

Step 1: Expand each number.

POOF!

hundreds

tens

ones

POOF! POOF!

Step 2: Add each place value.

BAM!

Step 3: Add the place values together to shrink it back to one number.

TA DA!

316 + 173 = _____

POOF!

300 + 100 = _____

POOF!

10 + 70= _____

POOF!

6 + 3= _____

TA DA!

_____

BAM!

____ + ____ = ____

POOF!

____ + ____ = ____

POOF!

____ + ____ = ____

POOF!

____ + ____ = ____

TA DA!

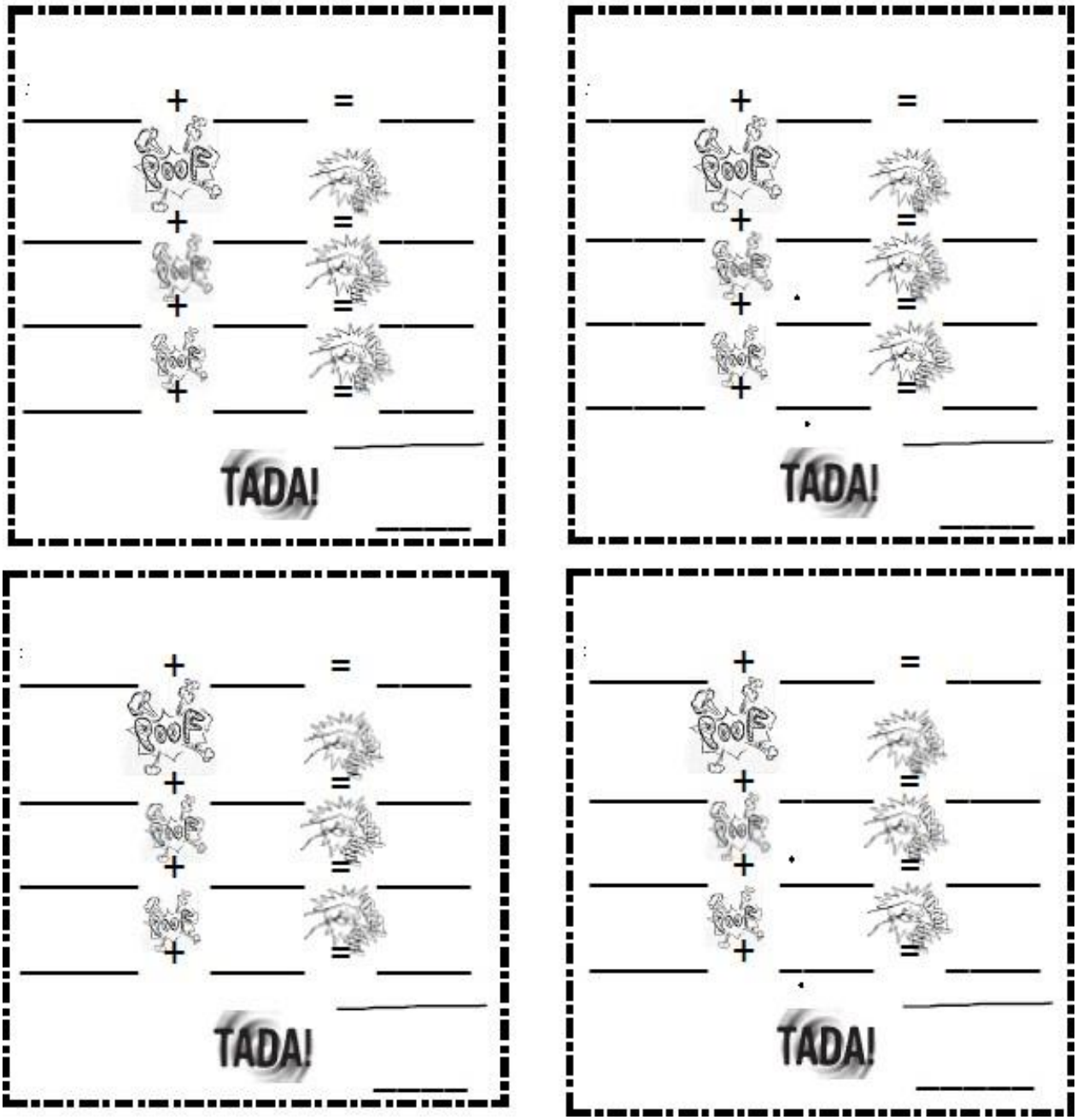
_____

BAM!

Handout 7.2: Mission Expanded II

Name:_____ **Date:** _____

Your mission: Solve 3-digit addition with expanded notation.



Lesson 8: Mission Addition… Mission Modeled

Focus Standards: 2.NBT.7, 2.NBT.9

Additional Standards: 2.NBT.1, 2.NBT.2, 2.NBT.3, 2.NBT.4, 2.NBT.5

Standards for Mathematical Practice: SMP.2, SMP.6, SMP.7

Estimated Time: 65-70 minutes

Resources and Materials:

- Magnificent Math (a stuffed animal superhero used during the lesson as a motivational tool)
- Handout 8.1: Mission Modeled Guided Practice
- Handout 8.2: Mission Modeled Independent Practice
- Chart paper
- Markers

Lesson Targets:

- Students will use place value modeling to add two 3-digit numbers without regrouping.
- Students will recognize the structure of addition- adding hundreds with hundreds, tens with tens, and ones with ones.

Guiding Questions:

- In what kinds of situations might we add 3-digit numbers?
- How can place value help me add large numbers?
- How does modeling a problem help me understand the structure of addition?

Vocabulary

Academic Vocabulary:	Instructional Strategies for Academic Vocabulary:
• Addend • Addition • Mental Math • Sum	☐ Introduce words with student-friendly definition and pictures ☐ Model how to use the words in discussion ☐ Read and discuss the meanings of words in a mathematical context

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

Instructional Plan

Understanding Lesson Purpose and Student Outcomes:
Students will be able to add and subtract three-digit numbers by using an algorithm that is connected to a model or other strategy. Likewise, students will use algorithms to add and subtract using place value and explain the process of composing and decomposing numbers with and without regrouping.

Anticipatory Set/Introduction to the Lesson: Mission Expanded Control (10-15 minutes)
Display Magnificent Math in students' view. Remind students that their mission today is to achieve today's learning goals in order to free Magnificent Math from captivity.

Review the previous night's homework assignment. Randomly select students to share one of the problems that they created. Write these problems on the board and model how to solve them.

Activity 1: A Model Addition – Anchor Chart (15 minutes)
Gather students in a Math Talk setting and elicit the students' help in creating an anchor chart detailing the steps in 3-digit addition using place value modeling.

Activity 2: Mission Modeled (30 minutes)
Divide students into groups of four.

Distribute **Handout 8.1: Mission Modeled Guided Practice**

Discuss each step with the students, modeling and then checking by expanded notation. Place a smiley face in the "Check" column if both categories are worked correctly and the answers are the same. Work the first problem as the students listen.

Distribute **Handout 8.2: Mission Modeled Independent Practice** and display it in a large format. Students will work in pairs to complete the handout.

Note: First, student completes the modeling with place value column. Second, student completes the expanded notation column. Students compare their answers. If they both worked the problems correctly and achieved the same answer they get to add a smiley to the "Check" column. For the next problem, students trade the column they were working on.

For students who are EL, have disabilities, or perform well below grade-level:

- Allow students to use manipulatives to show the 3-digit numbers and combine the models together for the answer.

Activity 3: Superhero Math Talk/Reflection and Closing (10 minutes)
Have a class discussion about the students' essential understandings from today's lesson and how students can build upon this learning.

- ✓ Prompting Questions:
  - What did you discover today?
  - Did you and/or your partner have trouble arriving at the same answer?
  - What can you relate today's learning gains to?
  - What prerequisite skill(s) did you build upon to help you in today's lesson?
  - How can you build upon what you learned today?
  - What did you learn today that surprised you?

Note: If today's learning goals were successfully met, release the Magnificent Math. The MVP of today's learning goals is given Magnificent Math to protect. Magnificent Math may sit on his/her desk, and he/she may take the superhero to recess, lunch, specials, etc. He/she may also take the superhero home for the night. Be sure to discuss the rules of receiving Magnificent Math. The stuffed animal may not become a distraction to others, and it must be returned the following day.

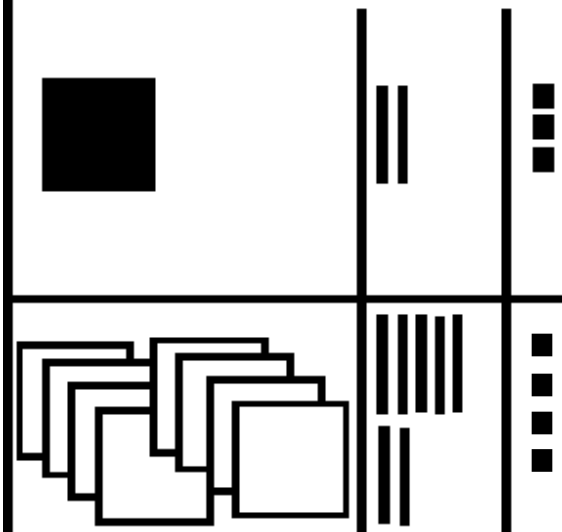
Homework

Instruct students to create and solve two problems like today's lesson using the same steps taught in class. Encourage students to use **Handout 8.1: Mission Modeled Guided Practice** as a guide.

Handout 8.1: Mission Modeled Guided Practice

Name:_____ **Date:** _____

Your Mission: Solve 3-digit addition using place value modeling.

Place Value Modeling	Expanded Notation	Check
123 + 874 = _____ 	123 + 874 = _____ 100 + 800 = 900 20 + 70 = 90 3 + 4 = 7 997	
Place Value Modeling	Expanded Notation	Check
614 + 271 = _____	614 + 271 = _____	

Handout 8.2: Mission Modeled Independent Practice

Name:_____ **Date:** _____

Your Mission: Solve 3-digit addition using place value modeling.

Place Value Modeling	Expanded Notation	Check
_____ + _____ = _____	_____ + _____ = _____	

Place Value Modeling	Expanded Notation	Check
_____ + _____ = _____	_____ + _____ = _____	

Lesson 9: Mission Addition… Mission A-Lined

Focus Standards: 2.NBT.7, 2.NBT.9

Additional Standards: 2.NBT.1, 2.NBT.2, 2.NBT.3, 2.NBT.4, 2.NBT.5

Standards for Mathematical Practice: SMP.2, SMP.6

Estimated Time: 50 minutes

Resources and Materials:

- Magnificent Math (a stuffed animal superhero used during the lesson as a motivational tool)
- Handout 9.1: Mission A-Lined
- Handout 9.2 Mission A-Lined
- Handout 9.3 Mission A-Lined Homework
- Chart paper
- Personal white boards
- Markers
- Learnzillion - Add Within a 1000 Using a Number Line: https://learnzillion.com/lesson_plans/3982-8-decomposing-to-add-on-a-number-line-fp

Lesson Targets:

- Students will use a number line to add two 3-digit numbers without regrouping.
- Recognize the structure of addition- adding hundreds with hundreds, tens with tens, and ones with ones.

Guiding Questions:

- In what kind of situations might we add 3-digit numbers?
- How can place value help me add large numbers?
- How does modeling a problem help me understand the structure of addition?

Vocabulary

Academic Vocabulary:	**Instructional Strategies for Academic Vocabulary:**
• Addend	☐ Introduce words with student-friendly definition and pictures

• Addition • Mental Math • Sum	☐ Model how to use the words in discussion ☐ Read and discuss the meanings of words in a mathematical context

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

Instructional Plan

Understanding Lesson Purpose and Student Outcomes:
Students will be able to add and subtract three-digit numbers by using an algorithm that is connected to a model or other strategy. Likewise, students will use algorithms to add and subtract using place value and explain the process of composing and decomposing numbers with and without regrouping.

Anticipatory Set/Introduction to the Lesson: Adding with a Number Line (20 minutes)
Display Magnificent Math in students' view. Remind students that their mission today is to achieve today's learning goals in order to free Magnificent Math from captivity.

- Show the Learnzillion video Add Within 1000 Using a Number Line.

Pause the video and discuss the answers to the narrator's questions and allow students to make comments and ask questions. After the video finishes discuss which student decomposed the numbers in a way that made adding easier. Create an anchor chart with the students to show how to add 3-digit numbers on a number line. Show both students' work on the anchor chart (SMP.4, SMP.7).

✓ Check for understanding using the following questions.
Prompting Questions:
- What was one thing that stood out to you in the video?
- How can you use what you learned today to enhance your knowledge?
- What was one thing that surprised you in the video?

Activity 1: Mission Super A-Lined (15-20 minutes)
Display a large number line on the classroom floor to add 271 + 328=_____. Divide the class into two groups: demonstrators and audience. Arrange demonstrators into three groups- tall, medium, and short (based on height and how many you will need for the problem, in this example will need 3 talls, 2 mediums, and 8 shorts). The taller students are the hundreds, the medium students are the tens, and the shorter students are the ones. Ask students which number should be placed at the beginning of the number line. Students determine the number that the number line should begin with. Then each student will place themselves on the number line to add the 328, which means 3 students will need to be 100s, 2 students are tens, and 8 students are ones. Instruct students to write the number they represent on their white boards displaying them facing the rest of the class. The audience will work the problem on their individual white boards as the demonstrators align themselves on the number line.

Switch groups and repeat with 371 + 623 =.

Activity 2: Mission A-Lined
Divide students into groups of four. Distribute **Handout 9.1: Mission A-Lined Guided Practice** and discuss each step with the students. Work the first problem as the students listen and instruct students to work the next problem and discuss with the teacher which steps to follow.

Distribute **Handout 9.2: Mission A-Lined Independent Practice** and instruct students to work independently on addition problems. When all students have finished working, groups will be formed to discuss the process and to correct any problems that students worked incorrectly.

For students who are EL, have disabilities, or perform well below grade-level:

- Allow student to use manipulatives to solve problems.

Extensions for students with high interest or working above grade level:

- Encourage students to add multiple (3 or 4) 3-digit numbers together using a number line.

Activity 3: Superhero Math Talk/Reflection and Closing (10 minutes)
Have a class discussion about the students' essential understandings from today's lesson and how students can build upon this learning.

✓ Prompting Questions:
- What did you discover today?

- Did you and/or your partner have trouble arriving at the same answer?
- What can you relate today's learning gains to?
- What prerequisite skill(s) did you build upon to help you in today's lesson?
- How can you build upon what you learned today?
- What did you learn today that surprised you?

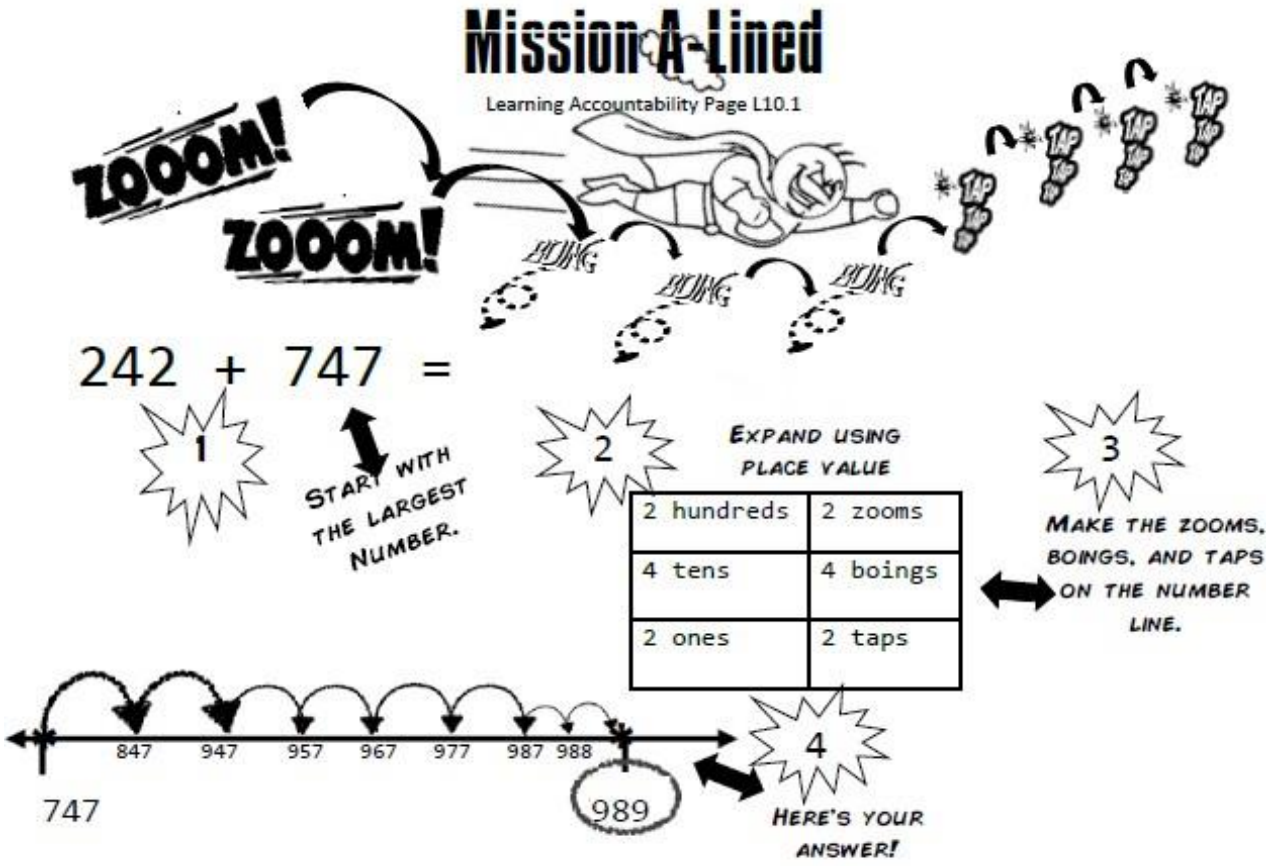
Note: If today's learning goals were successfully met, release the Magnificent Math. The MVP of today's learning goals is given Magnificent Math to protect. Magnificent Math may sit on his/her desk, and he/she may take the superhero to recess, lunch, specials, etc. He/she may also take the superhero home for the night. Be sure to discuss the rules of receiving Magnificent Math. The stuffed animal may not become a distraction to others, and it must be returned the following day.

Homework

Instruct students to complete **Handout 9.3: Mission A-Lined Homework.**

Handout 9.1 Mission A-Lined Guided Practice

Name:_____ **Date:** _____



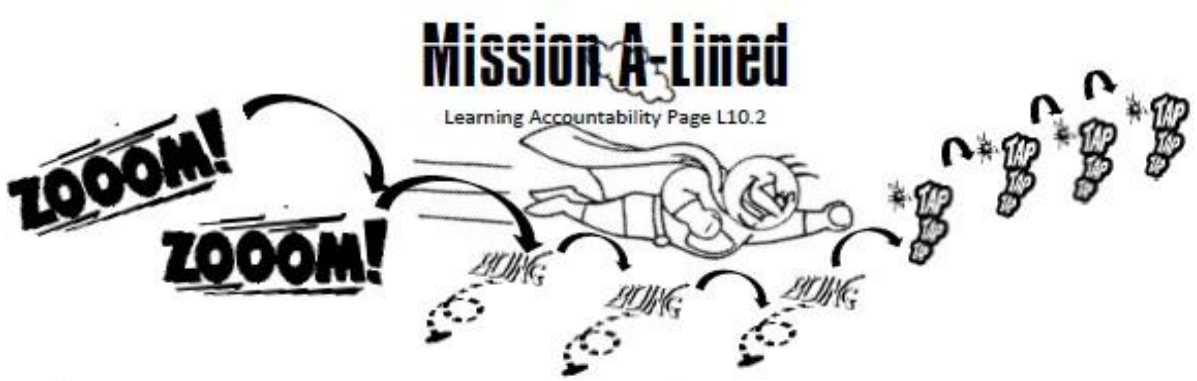
381 + 512 = _____

761 + 203 = _____

307 + 430 = _____

Handout 9.2 Mission A-Lined Independent Practice

Name:_____ **Date:** _____



1. 481 + 517 = _____

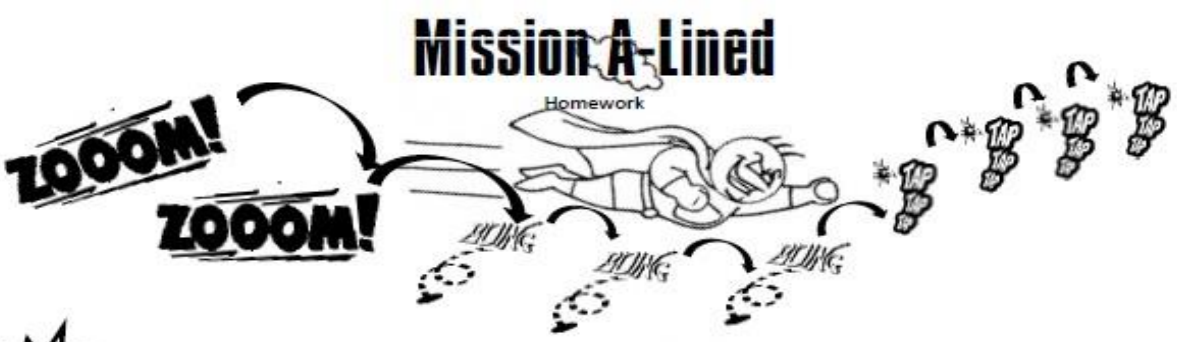
2. 161 + 306 = _____

3. 392 + 406 = _____

4. 642 + 285 = _____

Handout 9.3 Mission A-Lined Homework

Name:_____ **Date:** _____



1. 642 + 285 = _____

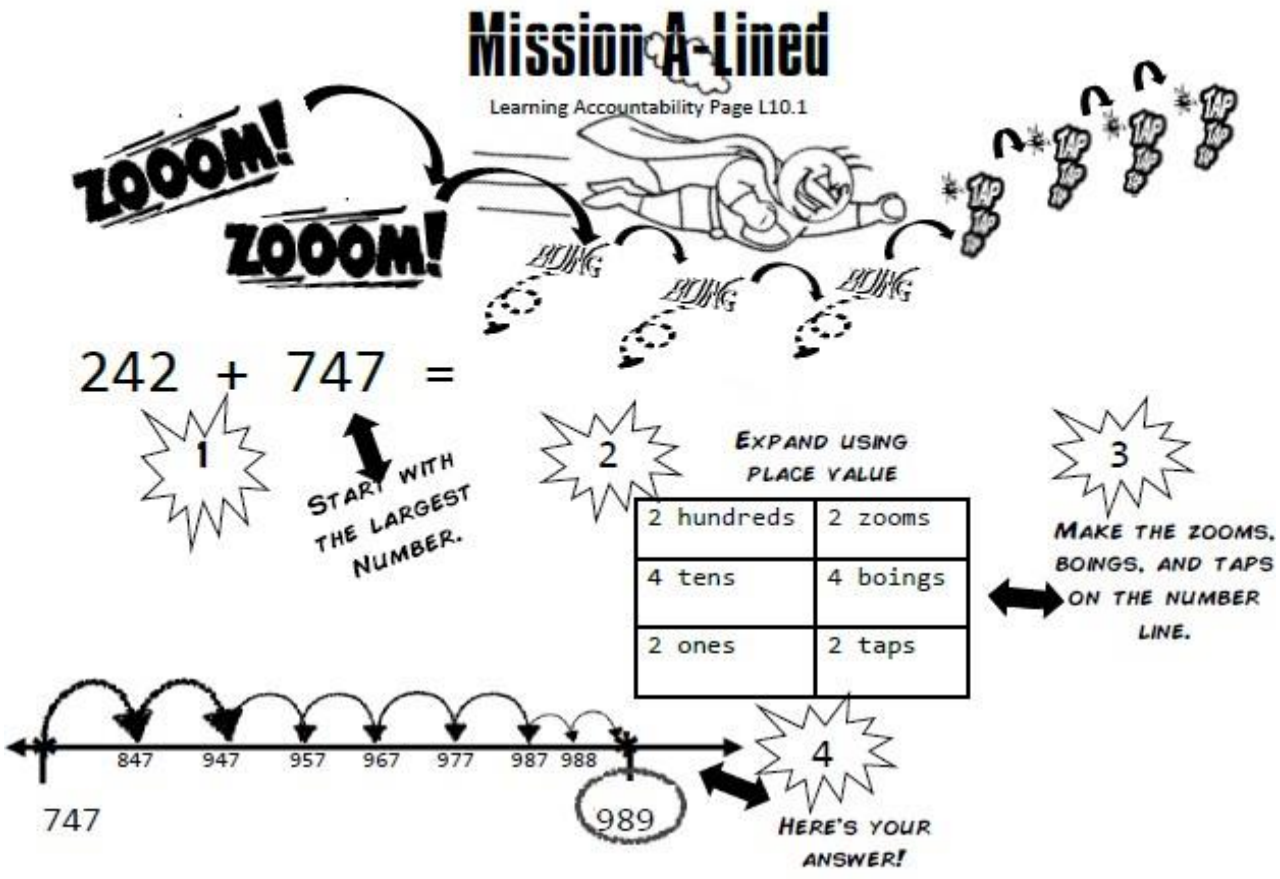
2. 356 + 534 = _____

3. 585 + 414 = _____

4. 856 + 131 = _____

Handout 9.1 Mission A-Lined Guided Practice KEY

Name:_____ **Date:**_____



381 + 512 = **893**

481 581 681 781 881 891 892 893

761 + 203 = **964**

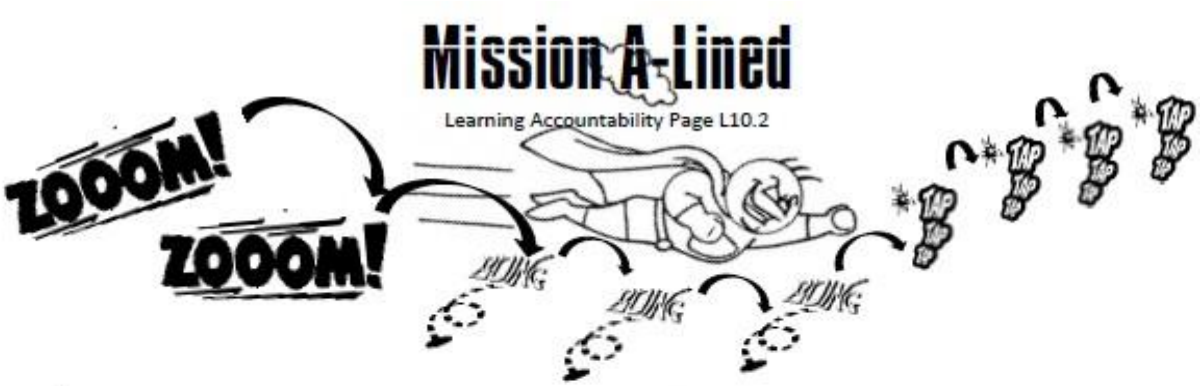
861 961 962 963 964

307 + 430 = **737**

407 507 607 707 717 727 737

Handout 9.2 Mission A-Lined Independent Practice KEY

Name:_____ **Date:** _____



1. 481 + 517 = **998**

581 681 781 881 981 991 992 993 994 995 996 997 998

2. 161 + 306 = **467**

261 361 461 462 463 464 465 466 467

3. 392 + 406 = **798**

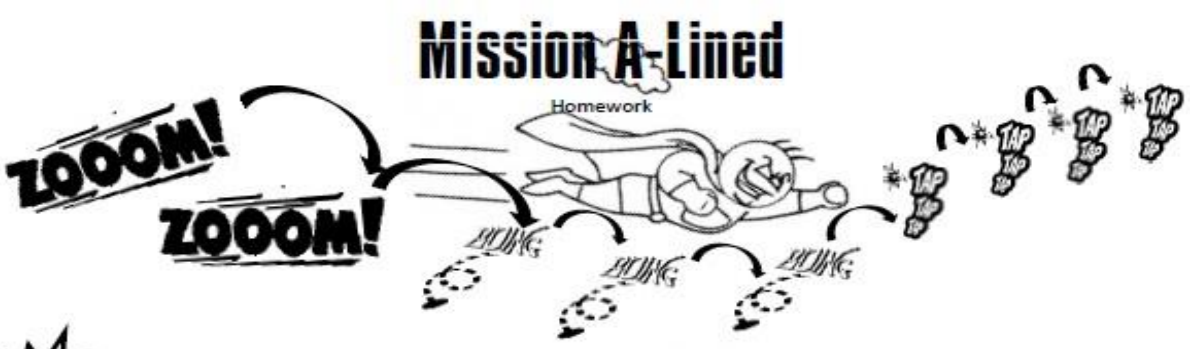
492 592 692 792 793 794 795 796 797 798

4. 642 + 285 = **927**

742 842 852 862 872 882 892 902 912 922 923 924 925 926 927

Handout 9.3 Mission A-Lined Homework KEY

Name:_____ **Date:** _____



1. 642 + 285 = **927**

742 842 852 862 872 882 892 902 912 922 923 924 925 926 927

2. 356 + 534 = **890**

456 556 656 756 856 866 876 886 887 888 889 890

3. 585 + 414 = **999**

685 785 885 985 995 996 997 998 999

4. 856 + 131 = **987**

956 966 976 986 987

Lesson 10: Superheroes Get Prepared

Focus Standards: 2.NBT.1, 2.NBT.3

Additional Standards: 2.NBT.2, 2.NBT.4, 2.NBT.5, 2.NBT.7, 2.NBT.9

Standards for Mathematical Practice: SMP.1, SMP.5, SMP.6

Estimated Time: 65 minutes

Resources and Materials:

- Magnificent Math (a stuffed animal superhero used during the lesson as a motivational tool)
- Dry erase boards
- Dry erase markers
- 4 number cubes (dice)
- *Sir Cumference and the All the King's Tens* by Cindy Neuschwander
- *Earth Day Hooray! (MathStart)* by Stuart Murphy
- *Math Fables: Lessons That Count* by Greg Tang
- *Big Numbers --and-- Little Numbers* by Edward Packard
- *Zero the Hero* by Joan Holub
- *How Much How Many How Far How Heavy How Long How Tall Is 1000?* by Helen Nolan
- *Math Talk: Mathematical Ideas in Poems for Two Voices* by Theoni Pappas

Lesson Target:

- Students will use their knowledge of place value and place value strategies to add 3-digit numbers without regrouping.

Guiding Questions:

- When do I add 3-digit numbers together?
- How do I choose the best strategy for adding 3-digit numbers?

Vocabulary

Academic Vocabulary:

- Addend
- Addition
- Difference
- Mental Math
- Subtraction
- Subtrahend
- Sum

Instructional Strategies for Academic Vocabulary:

- ☐ Introduce words with student-friendly definition and pictures
- ☐ Model how to use the words in discussion
- ☐ Read and discuss the meanings of words in a mathematical context

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

Instructional Plan

Understanding Lesson Purpose and Student Outcomes:
Students will be able to add three-digit numbers by using a procedure that is connected to a model or other strategy. Likewise, students will use procedures to add without regrouping using place value and explain the process of composing and decomposing numbers.

Anticipatory Set/Introduction to the Lesson (10 minutes)
Display Magnificent Math in students' view. Remind students that their mission today is to achieve today's learning goals in order to free Magnificent Math from captivity. Review the previous night's homework assignment. Randomly select students to share one of the problems that they created. Write these problems on the board and model how to solve them.

Activity 1: Superhero Centers (50 minutes)

- ✓ Explain to students that they will rotate through centers to practice place value skills already learned in this unit. Tell the students to follow these center instructions:

- They will have approximately 25 minutes at each of the centers.
- Give students jobs: leader, questioner, supply manager, and organizer. Jobs are assigned based on reading group, which students switch between often based on their learning. The leader is usually a student in the highest reading group. This student is responsible for reading the directions and explaining the directions to the student. They are also the student you can go to for help if needed. The questioner is the only student from the group that is allowed to ask the teacher a group question. Only if the group cannot figure the answer out on their own may the questioner come ask the teacher. The supply manager is in charge of all the supplies and distributing and handling the supplies. The organizer is in charge of group clean up, telling the group when to clean up and how the supplies, trash, etc. are to be placed. All students are to participate in cleanup that is directed by the organizer.
- Group students and rotate centers in a way that is conducive to the most learning gains. Use heterogeneous grouping with a high-, low-, and two medium-ability students in each group.

Centers will include:

- Let's Rock n' Roll
- Tic-Tac-Toe

Let's Rock n' Roll!
Distribute **Handout 11.1: Rock n' Roll Record**. Tell each student to roll a number cube six times to create two 3-digit numbers. Students will record the numbers on their handout. Instruct them to choose any method to add the 2 numbers showing their work on the handout. Tell them to compare each member's sum and determine which sum has the greatest value and which has the least value. Tell students to repeat if time allows.

Tic-Tac-Toe
Allow students to play a game of Tic-Tac-Toe and to choose a partner. Students choose whether they are "Xs" or "Os."

Inform students that before they can mark a spot on the game board that they will have to correctly answer a 3-digit addition problem created by their opponent. The opponents must check their work to make sure that the problem is correct.

If the problem is correct, then the student gets to place his/her "X" or "O" on the selected spot. If the problem is incorrect, then his/her partner can share their answer. Students take turns until someone wins.

Reflection and Closing (5 minutes)

- ✓ Students explain the 5 most important new learning gains they made during today's lesson. When students finish explaining the 5 learning gains, all at once they will raise their hands in the air and lead them into shouting, "High five for learning!"

Note: If today's learning goals were successfully met, release the Magnificent Math. The MVP of today's learning goals is given Magnificent Math to protect. Magnificent Math may sit on his/her desk, and he/she may take the superhero to recess, lunch, specials, etc. He/she may also take the superhero home for the night. Be sure to discuss the rules of receiving Magnificent Math. The stuffed animal may not become a distraction to others, and it must be returned the following day.

Homework

No homework given. Encourage students to study for the summative assessment.

Handout 11.1: Rock N' Roll Record

Roll 1	**Roll 2**	**Roll 3**
Roll 4	**Roll 5**	**Roll 6**

Workspace:

Lesson 12: Superheroes Save the Day

Focus Standards: 2.NBT.1, 2.NBT.3

Additional Standards: 2.NBT.2, 2.NBT.4, 2.NBT.5, 2.NBT.7, 2.NBT.9

Standards for Mathematical Practice: SMP.2, SMP.6, SMP.7

Estimated Time: 2-3 days

Resources and Materials:

- Handout 12.1: Superheroes Save the Day
- Handout 12.2: Teacher Rubric
- Handout 12.3: Student Rubric
- Handout 12.4: Comic Strip Performance Task Visual Instructions
- Handout 12.5: Comic Strip Templates

Lesson Targets:

- Students will use their knowledge of place value and place value strategies to add 3-digit numbers without regrouping.

Guiding Questions:

- When do I add 3-digit numbers together?
- What strategy works best for adding numbers in each situation?

Vocabulary

Academic Vocabulary:	**Instructional Strategies for Academic Vocabulary:**
● Difference ● Expanded Form ● Mental Math ● Place Value ● Place Value Form ● Standard Form ● Sum ● Written Form	☐ Introduce words with student-friendly definition and pictures ☐ Model how to use the words in discussion ☐ Read and discuss the meanings of words in a mathematical context

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

Instructional Plan

Understanding Lesson Purpose and Student Outcomes:
Students will be able to add and subtract three-digit numbers by using an algorithm that is connected to a model or other strategy. Likewise, students will use algorithms to add and subtract using place value and explain the process of composing and decomposing numbers with and without regrouping.

Activity 1: Performance Task

- ✓ Distribute **Handout 12.1: Performance Task** and **Handout 12.2: Performance Task Rubric**. Explain to students that they will create a comic strip about a superhero who has to solve an addition problem using 3-digit numbers in order to defeat a villain. Your comic strip must have a hero, a villain, and something or someone to be rescued. It will show numbers modeled with base ten blocks and a place value mat. The comic strip must include numbers written in standard form, expanded form, and number word form. The addition in the comic strip must be demonstrated with the standard algorithm, using base ten blocks, using a number line, and with expanded notation. Review all components of the rubric and discuss any misconceptions and answer any questions.

Note: This activity may take several days to complete.

For students who are EL, have disabilities, or perform well below grade-level:

- Give students two 3-digit numbers and work with them to help organize their ideas.

Reflection and Closing:
Lead a classroom discussion and allow students to provide feedback on the performance task.

Homework
No homework given.

Handout 12.1: Superheroes Save the Day

Name:_____ **Date:** _____

Directions: Create a comic strip with a superhero who has to solve an addition problem using 3-digit numbers in order to defeat a villain. Your comic strip must have a hero, a villain, and something or someone to be rescued or saved. It will show numbers modeled with base ten blocks and a place value mat. The numbers will be written in standard form, expanded form, and number word form. The addition in the comic strip must be demonstrated using base ten blocks, using a number line, and with expanded notation.
Look at your rubric to make sure you've included everything you need. SAVE THE DAY!

Handout 12.2 Teacher Rubric

Level	Mastery Level	Math Computation	Modeling Numbers	Math Vocabulary	Comic Strip Elements	Neatness and Organization
0	No Understanding	No attempt at addition was made.	No attempt at modeling the number was made.	No math vocabulary was used.	No task submitted.	No task submitted or task is illegible.
1	Not Representing Mastery	The student did not correctly model the addition.	The student did not model the number correctly.	1-2 math vocabulary words were used correctly.	The comic strip's elements are missing or unclear to the reader.	The work appears sloppy and unorganized. It is hard to know what information goes together.
2	Developing Mastery	The student correctly modeled addition in one way: expanded form, base-10 blocks, or num. line.	The comic strip shows the number modeled one way: word form, expanded form, or standard form.	3 math vocabulary words were used correctly.	The comic strip has one of the elements: a hero, a villain, or something to be rescued or saved.	The work is presented in an organized fashion but may be hard to read at times.
3	Approaching Mastery	The student correctly modeled addition two ways: expanded form, base-10 blocks, and/or a num. line.	The comic strip shows the number modeled two ways: word form, expanded form, and/or standard form.	4 math vocabulary words were used correctly.	The comic strip has two of the elements: hero, a villain, and something to be rescued or saved.	The work is presented in a neat and organized fashion that is somewhat easy to read.
4	Exemplifying Mastery	The student modeled addition with expanded form, base-10 blocks, and a num. line correctly.	The comic strip shows the number modeled in word form, expanded form, and standard form.	5 math vocabulary words were used correctly.	The comic strip has a hero, a villain, and something to be rescued or saved.	The work is presented in a neat, clear, organized fashion that is very easy to read.

Handout 12.3: Student Rubric

Level	Mastery Level	Math Computation	Modeling Numbers	Math Vocabulary	Comic Strip Elements	Neatness and Organization
0	No Understanding	Nothing was turned in, or it was so messy it couldn't be read.				
1	Not Representing Mastery	Tried, but made math mistakes in all addition.	Tried, but had mistakes in all models.	No math vocabulary is used, or it is mostly (50% or more) used in the wrong way.	The hero, villain and something to be saved are unclear or missing.	Comic strip is sloppy and unorganized.
2	Developing Mastery	Show only 1 way: Expanded form Base-10 blocks Number line	Show only 1 way: Standard form Word form Expanded form	Some math vocabulary is used correctly.	Includes 1 of: Hero Villain Something to be saved or rescued	Comic strip is organized, but hard to read.
3	Approaching Mastery	Show only 2 ways: Expanded form Base-10 blocks Number line	Show only 2 ways: Standard form Word form Expanded form	Most math vocabulary is used correctly.	Includes 2 of: Hero Villain Something to be saved or rescued	The comic strip is organized and mostly neat enough to read/understand.
4	Exemplifying Mastery	Show all 3 ways: Expanded form Base-10 blocks Number line	Show all 3 ways: Standard form Word form Expanded form	All or almost all math vocabulary is used correctly.	Includes all 3 of: Hero Villain Something to be saved or rescued	The comic strip is organized and neat.

Handout 12.4: Comic Strip Performance Task Visual Instructions

Comic Strip Elements:

- ☐ ***HERO***
  The good guy
- ☐ ***VILLAIN***
  The bad guy
- ☐ ***SOMETHING TO BE SAVED OR RESCUED***
  A prize, a person, something the bad guy stole…

Number Models:

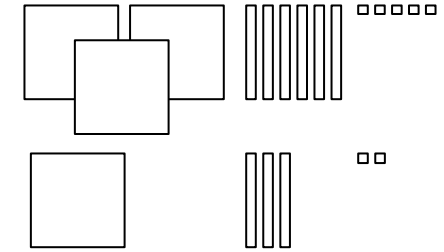
- ☐ ***STANDARD FORM***
  ex. 365
- ☐ ***WORD FORM***
  ex. three hundred sixty-five
- ☐ ***EXPANDED FORM***
  300 + 60 + 5

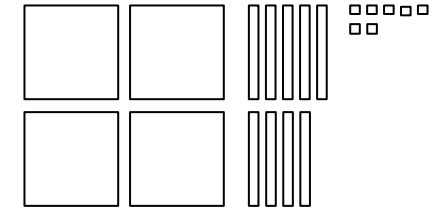
Addition Models:

☐ Expanded Form

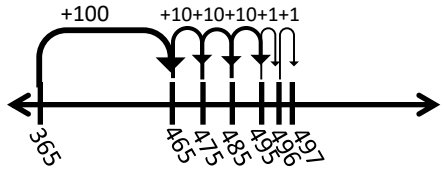
300 + 100 = 400
60 + 30 = 90
5 + 2 = 7
497

☐ Base-10 Blocks





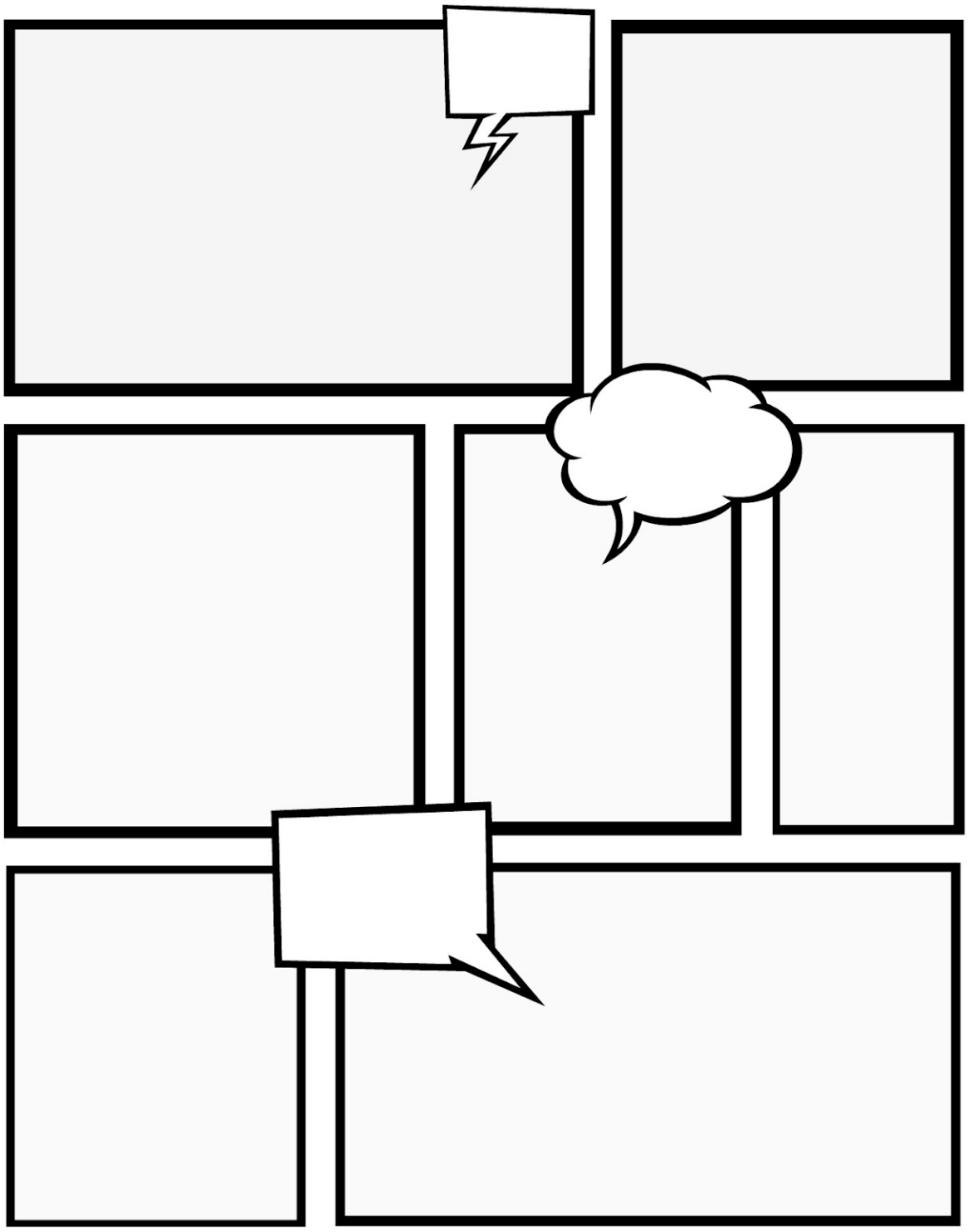
☐ Number Line

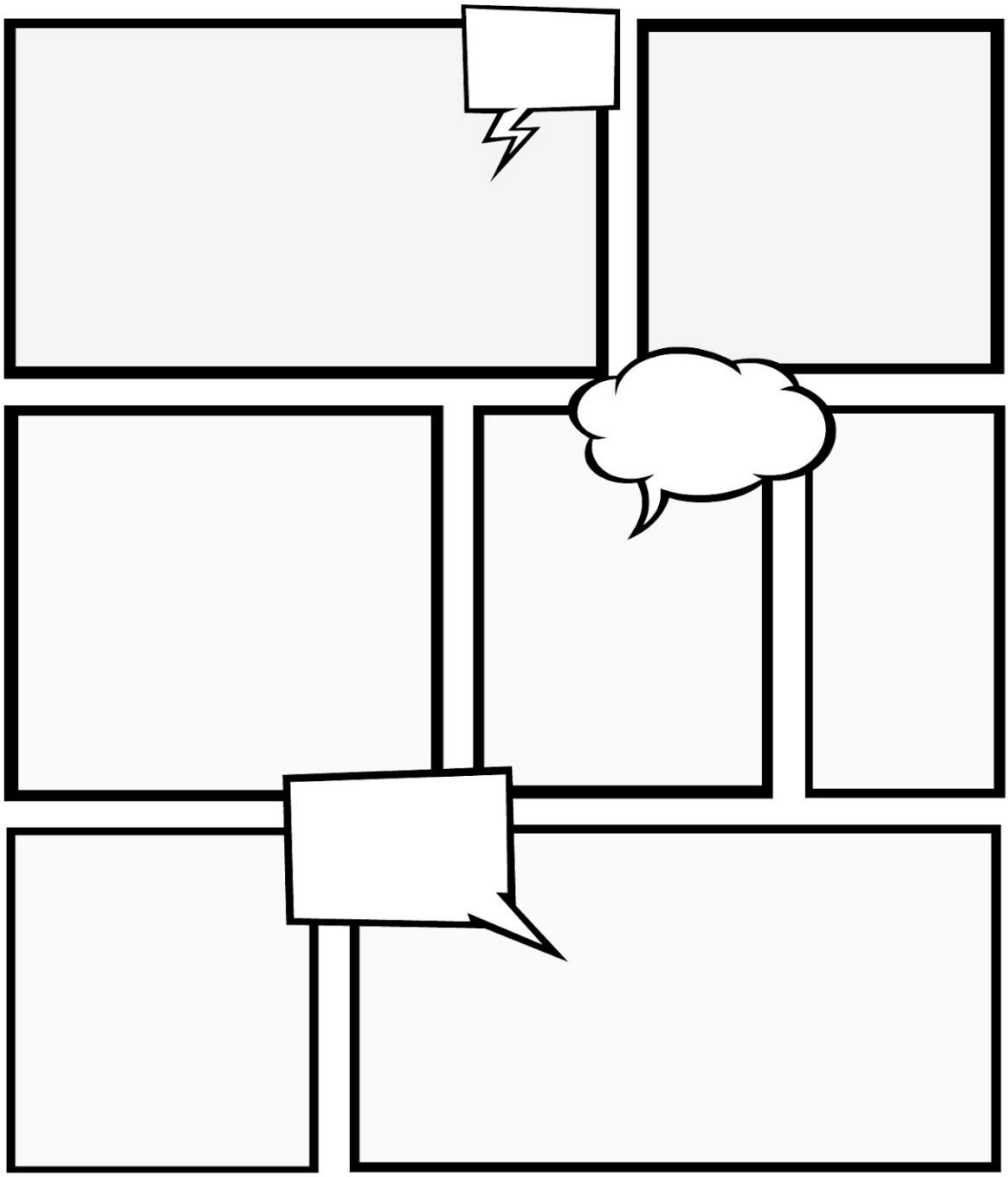


Math Vocabulary (Use 5)

- ☐ ***ADD***
- ☐ ***ADDITION***
- ☐ ***ADDEND***
- ☐ ***BASE-10***
- ☐ ***SUM***
- ☐ ***ONES***
- ☐ ***TENS***
- ☐ ***HUNDREDS***
- ☐ ***DIGIT***
- ☐ ***VALUE***
- ☐ ***EQUAL OR EQUALS***

Handout 12.5 Comic Strip Templates





For training or questions regarding this unit, please contact:

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