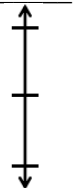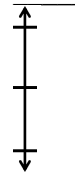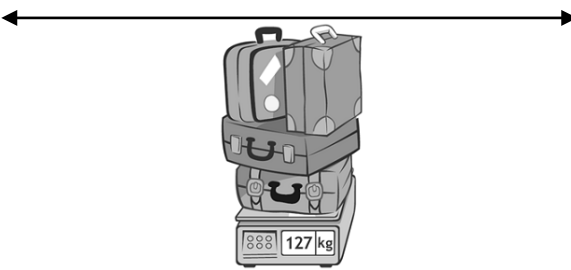| 19	Use place value strategies to reason about the size of kilograms, grams, liters, and milliliters.	This lesson should help students develop foundational understandings of measurement partitioning, iterating, and the compensatory principle (see unpacked standards). Mass materials: 1-kilogram weight, pan balance, digital scale, rice (1 kilogram per pair of students), gallon-sized sealable bags Capacity materials: 1-liter bottle, 12 clear plastic cups, dropper Students should understand that the smaller the unit of measure, the more units it takes to measure an object. The larger the unit of measure, the fewer units it takes to measure	1.) Ten bags of sugar weigh 1 kilogram. How many grams does each bag of sugar weigh? Use pictures and/or a place value chart to explain your reasoning. (Adapted from EngageNY) 2.) Morgan fills a 1-liter jar with water from the pond. She used a 100-mL cup to scoop water out of the pond and pour it into the jar. How many times will Morgan scoop water from the pond to fill the jar? Use pictures and/or a place value chart to explain your reasoning. (Adapted from EngageNY)	Engage NY Module 2 Lessons 6 & 9 (Appendix C)

20	Round two- and three-digit measurements to the nearest ten and use number lines to justify their reasoning.	Students must be able to identify which digit is in the tens place, which tens a given number is between, as well as the halfway point between.
		
		This concept should be developed conceptually using number lines, a hundreds chart, and manipulatives, such as graduated cylinders marked with 10-mL intervals. However, students may also benefit from step-by-step procedural instruction and rhymes such as: "5 and above, give it a shove, 4 and below, let it go."
		
		Students can use measurement tools to help develop a real world conceptual understanding.
		
		Question to use in your hook and then revisit after the lesson as a closing:
		When rounding to the nearest ten:
		  a. What is the **smallest** whole number that will round to 50?
		  b. What is the **largest** whole number that will round to 50?
		c. How many different whole numbers will round to 50?
			a) Round each measurement to the nearest ten. Use the number line to model your thinking.
			  a. 26 grams ≈ _____
			
			  b. 276 grams ≈ _____
			
			b) Bobby rounds 603 milliliters to the nearest ten. He says it is 610 milliliters. Is he correct? Why or why not? Use a number line and words to explain your answer.
				Engage NY Module 2 Lessons 12 & 13 (Appendix C)
				
				My Math Chapter 1, Lesson 4

21	Round two- and three-digit measurements to the nearest hundred and use number lines to justify their reasoning.	Students will benefit from practice identifying which number is halfway in between two others (i.e. 0-10 vs. 0-100). (See the EngageNY Sprint for Module 2, Lesson 14.) Students can use measurement tools labeled with intervals of hundreds to help develop a real world conceptual understanding of the objective. *Teaching Tip: An adaptation for struggling students on this exit ticket is to provide them with a hundreds chart. *Questions to use in the hook and then to revisit after the lesson in the closing: When rounding to the nearest hundred… a. What is the **smallest** whole number that will round to 500? b. What is the **largest** whole number that will round to 500? c. How many different whole numbers will round to 500?	1)Round each measurement to the nearest hundred. Use the number line to model your thinking. a. 64 grams ≈ _____ b. 617 grams ≈ _____ 2)Paul is moving to Australia. The total weight of his 4 suitcases is shown on the scale below. Use the number line to round the total weight to the nearest 100.	Engage NY Module 2, Lesson 14 (Appendix C) My Math Chapter 1, Lesson 5
22	<td colspan="4" align="center">**Flex Day (Instruction Based on Data)** ***Recommended Resources:*** "Round to the Nearest Ten/Hundred" (Appendix C) "How Many Paper Clips?" (Appendix C) "Worth the Weight" (Appendix C) "Fill It Up!" (Appendix C)</td>

23	Apply properties of addition and patterns in the addition table to perform mental addition.	Students must be familiar with the language of "addend" and "sum." Patterns that students should be aware of in the addition table: • In each column and row, even and odd numbers alternate. • The diagonal from top left to bottom right contains the even numbers 2, 4, 6, 8, 10, etc. (doubles). • The diagonals from top right to bottom left all contain the same number (i.e. make ten). • The sums in each row and column increase by the same amount. • The sum of any two even numbers or any two odd numbers is even. The sum of an even number and an odd number is odd. Students should be aware of the Commutative Property of Addition, the Identity Property of Addition, and the Associative Property of Addition (and how this can be used to aid mental math). Students may benefit from a chart comparing these properties to the properties of multiplication (introduced in Unit 2).	Adapted from Illustrative Math: This is a table showing all the ways to add the numbers 1 to 9. | +	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9	10
2	3	4	5	6	7	8	9	10	11
3	4	5	6	7	8	9	10	11	12
4	5	6	7	8	9	10	11	12	13
5	6	7	8	9	10	11	12	13	14
6	7	8	9	10	11	12	13	14	15
7	8	9	10	11	12	13	14	15	16
8	9	10	11	12	13	14	15	16	17
9	10	11	12	13	14	15	16	17	18	 Each sum which is larger than 10 can first be found by making a 10. For example, to find 8 + 5, we can write: $$8 + 5 = 8 + (2 + 3)$$ $$= (8 + 2) + 3$$ $$= 10 + 3$$ $$= 13$$ 1.) Apply this method to 7 + 8. 2.) Use a property of addition to explain why this reasoning works. Adapted from the unpacked standards: 3.) Describe another pattern you see in the addition table and explain why the pattern works that way.	My Math Chapter 2, Lessons 1 & 2 "Patterns in the Addition Table" (Appendix C) "Odd and Even Sums" (Appendix C) "Roll a Rule" (Appendix C) "Roll a Rule- 2-Step" (Appendix C)

24	Use place value strategies to mentally add multiples of 10 and 100. Apply rounding strategies to estimate the solution to single-step addition word problems and describe the difference between rounding to the nearest ten and hundred.	Students should not be required to regroup in this lesson. They should be using place value charts to manipulate the tens and hundreds column (i.e. for the exit ticket, they can think 160 + 3 tens + 2 hundreds). Students should be able to articulate why rounding to the nearest ten provides a more accurate estimate than rounding to the nearest hundred.	Adapted from the unpacked standards (3.NBT.1): Mrs. Rutherford drives 158 miles on Saturday and 231 miles on Sunday. 1.) Round to the nearest ten to estimate how many miles Mrs. Rutherford drove in all. 2.) Round to the nearest hundred to estimate how many miles Mrs. Rutherford drove in all. 3.) Mrs. Rutherford actually drove 389 miles. Which method provided a closer estimate? Why?	My Math Chapter 2, Lesson 3 "Number Morph" (Appendix C)

25	Use place value models (base ten blocks and expanded form) and mental math strategies to add three-digit measurements.	Students should be exposed to addition problems in both the horizontal and vertical formats. When modeling word problems throughout the unit, teachers should think aloud about how they know to use which operation.
		
		Students must understand that regrouping means using place value to exchange equal amounts to rename a number (My Math).
		
		Models/strategies that students may use (see unpacked standards 3.NBT.2):
		• Writing the addends in expanded form and adding each place value column together to find the sum in expanded form (My Math Chapter 2, Lesson 4). Students may only decompose one addend into expanded form (unpacked standards).
		• Adding and subtracting from the addends to make friendlier numbers
		• Drawing place value blocks
			Sample PARCC EOY assessment question:
			1.) Which expression could be used to find the value of 465 + 229?
			   a. $4 + 2 + 6 + 2 + 5 + 9$
			   b. $40 + 20 + 60 + 20 + 5 + 9$
			   c. $400 + 200 + 6 + 2 + 5 + 9$
			   d. $400 + 200 + 60 + 20 + 5 + 9$
			A recipe calls for 178 grams of rice and 225 grams of beans.
			2.) Use two different strategies to find the total mass of rice and beans for the recipe.
			
			| Strategy 1:
				Strategy 2:

Explanation:	Explanation:		My Math Chapter 2, Lessons 4 & 6 Engage NY Module 2 Lesson 15 & 16 (Appendix C) *Note: In lesson 15, students are required to regroup once. In lesson 16, students are required to regroup twice. The Concept Development section of both lessons introduces the standard algorithm with simultaneous work on the place value chart.*

| 26 | Use the standard algorithm to add three-digit measurements. | The Concept Development section of the EngageNY Module 2, Lessons 15 & 16 introduces the standard algorithm with simultaneous work on the place value chart.

Teachers should model problems in which students will need to regroup once and problems that require them to regroup twice. | 1.) Find the sums:
  a. 68 + 29
  b. 328 + 47
  c. 519 + 293
2.) The third grade sells lemonade to raise funds for a charity. After selling 156 liters of lemonade in 1 week, they still have 97 liters of lemonade left. How many liters of lemonade did they have at the beginning? Use the standard algorithm to solve.
3.) Check your work on #2 using the place value chart below.

| Hundreds | Tens | Ones |
\|---\|---\|---\|
\| \| \| \| | My Math Chapter 2, Lesson 7

Engage NY Module 2 Lesson 15 & 16 (Appendix C) |
| 27 | Use place value models (base ten blocks) and number lines to subtract three-digit measurements. | Students should be exposed to subtraction problems in both the horizontal and vertical formats. When modeling word problems throughout the unit, teachers should think aloud about how they know to use which operation.

Students should recognize that subtracting a number from itself equals zero and subtracting zero from a number equals itself.

Students should be exposed to the number line strategy (LearnZillion) in which they can create their own "jumps" on an open number line to find the difference between two numbers:

https://learnzillion.com/lesson_plans/8214#fndtn-lesson | A bowl of guacamole weighs 507 grams. The empty bowl weighs 255 grams.
  1.) Use two different strategies to find the mass of guacamole in the bowl:

| Strategy 1: | Strategy 2: |
\|---\|---\|
\| Explanation: \| Explanation: \|

  2.) Maria is solving 432 – 216. Use place value language to explain what she is doing and why in this first step.

| Hundreds | Tens | Ones | | My Math Chapter 3, Lesson 4

Engage NY Module 2 Lessons 18 & 19 (Appendix C)
Note: In lesson 18, students are required to regroup once. In lesson 19, students are required to regroup twice. The Concept Development section of lesson 18 introduces the standard algorithm with simultaneous work on the place value chart. The Concept Development section of lesson 19 introduces subtracting across zeros with the standard algorithm. |

28	Use the standard algorithm to subtract three-digit measurements when required to regroup once.	In this lesson, students should be exposed to subtracting with zeros in the tens or ones place of a three-digit number, but should only be required to regroup once.	1.) Find the differences: a. 381 – 146 b. 730 – 426 c. 509 – 384 2.) The total weight of 2 books is 408 grams. One book weighs 187 grams. How much does the other book weigh? Use the standard algorithm to solve. 3.) Use place value language to explain each step you took in #2. Your answer should include words such as: regroup/rename, ones, tens, hundreds, and place.	My Math Chapter 3, Lesson 5 & 7 Engage NY Module 2, Lessons 18 (Appendix C)
29	Use the standard algorithm to subtract three-digit measurements when required to regroup twice.	In this lesson, students will continue to work with zeros in the tens and ones place of a three-digit number, but they will be required to regroup twice.	1.) Find the differences: a. 346 – 187 b. 700 – 592 2.) A sheep weighs about 647 kilograms less than a cow. A cow weighs about 725 kilograms. About how much does a sheep weigh? Use the standard algorithm to solve. 3.) Use place value language to explain each step you took in #2. Your answer should include words such as: regroup/rename, ones, tens, hundreds, and place.	My Math Chapter 3 Lesson 5 & 7 Engage NY Module 2, Lessons 19 (Appendix C)
30	Use addition and subtraction fact families to write equations to represent word problems and to solve for unknown amounts.	Students should understand that addition and subtraction are "inverse operations," and therefore can be used to check work. Students should understand that an equation has an equals sign and may include letters or symbols to stand for an unknown. This lesson should provide students with a day to practice applying their addition and subtraction skills to mixed operation word problems.	1.) What number can go in the blank to make the number sentence true? 512 + ____ = 568 2.) Carlos had 900 milliliters of lemonade. After he poured some for his friends, he had 187 milliliters left over. How many milliliters of lemonade did he share with his friends? a. Write an equation to represent the word problem. b. **Use a different operation** to write an equation to represent the word problem. c. Solve. 3.) Explain how you can use inverse operations to check your work on an addition or a subtraction problem.	https://learnzillion.com/lesson_plans/8790#fndtn-lesson

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