Grade Level	4	**Content Area**	Mathematics
Course Title (grades 9-12 Only)	NA		
Expected Prior Knowledge *The knowledge/skills mastered earlier in the year foundational to the mastery of the required Standard in the current sample.*	The students know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs* (*1, 12*), (*2, 24*), (*3, 36*).		
Alignment to Program of Instruction *Briefly outline methods of instruction found in this sequence of lessons that align to the Program of Instruction described in A.3.*	Students work both collaboratively and independently to achieve a thorough common core standard based understanding in order to apply mathematics knowledge to real world situations. Instruction encourages accuracy, precision and problem solving skills as students learn the basic principles of mathematics reasoning.		
Standard Number and Description *List the Number* and full description for the Required Standard or Science Performance Objective listed in section A.6.*	**4.MD.2** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.		
Materials/Resources Needed	bowling ball, empty gallon of milk, candy bar, a number and variety of weighable objects, cash register with play money (bills and coins), toy clock, 2 liter bottle of soda ¼ full, metal paper weight ,map, map scale, ruler, paper		

* ***Standard Number****: For English Language Arts (Reading and Writing), use Grade, Strand, Standard (e.g., 3.RI.2). For K-8 Math, use Grade, Domain, Standard (e.g., 6.EE.7). For HS Math, use Conceptual Category-Domain, Standard (e.g., A-REI.6). For Science, use Grade, Strand, Concept, PO (e.g., 4.1.3.1).*

Lesson (add as needed)	Instructional Strategies The teacher will:	Student Activities The students will:
1	**Review:** Show a variety of items to the class. Ask students to respond with the appropriate units of measure. Note that some may be a measurement of mass, while some may be a measurement of volume. 1. Hold up a bowling ball. What units of measure could we use? 2. Hold up candy bar. What unites of measure could we use? 3. Hold up half empty gallon of milk? 4. Repeat these steps for a review of all types of measurement units required for 4.MD.1. Include the examples of objects or examples that demonstrate the following: km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. **Introduction:** 1. Show students that there are five stations set up around the classroom. 2. Organize students into five groups. 3. Inform students they will need a pencil and a piece of paper for an answer sheet. 4. Tell students that at each station there will be an activity with directions for what to do and five questions that should be answered on an answer sheet. 5. Instruct students to work cooperatively within their groups but that they must ultimately answer individually. 6. Describe each station to students and the procedure necessary to answer the following questions: Station 1 is a cash register with play money (bills and coins) and 3 items with prices. Students answer 5 questions related to how much money will be given back based on different items to be purchased and different dollar amounts "buyer" gives to "cashier." For example, If Josie buys 2 bananas, a pizza and 2 containers of milk with a $10 bill, how much change will she receive? Station 2 is a toy clock with hour and minute hands. Students answer 5 questions on elapsed time based on different scenarios provided. For example, If Susie leaves her house at 11:45 AM and arrives at the library at 12:30 PM, how long did it take her to get there? Draw and label a number line to show the time Susie	**Review:** Respond when called on to answer review questions. For the bowling ball, respond with pounds or kilograms. For the candy bar, respond with ounces or grams. For the milk, respond with answer ½ gallon or liter. **Introduction:** Ask clarifying questions, if necessary.

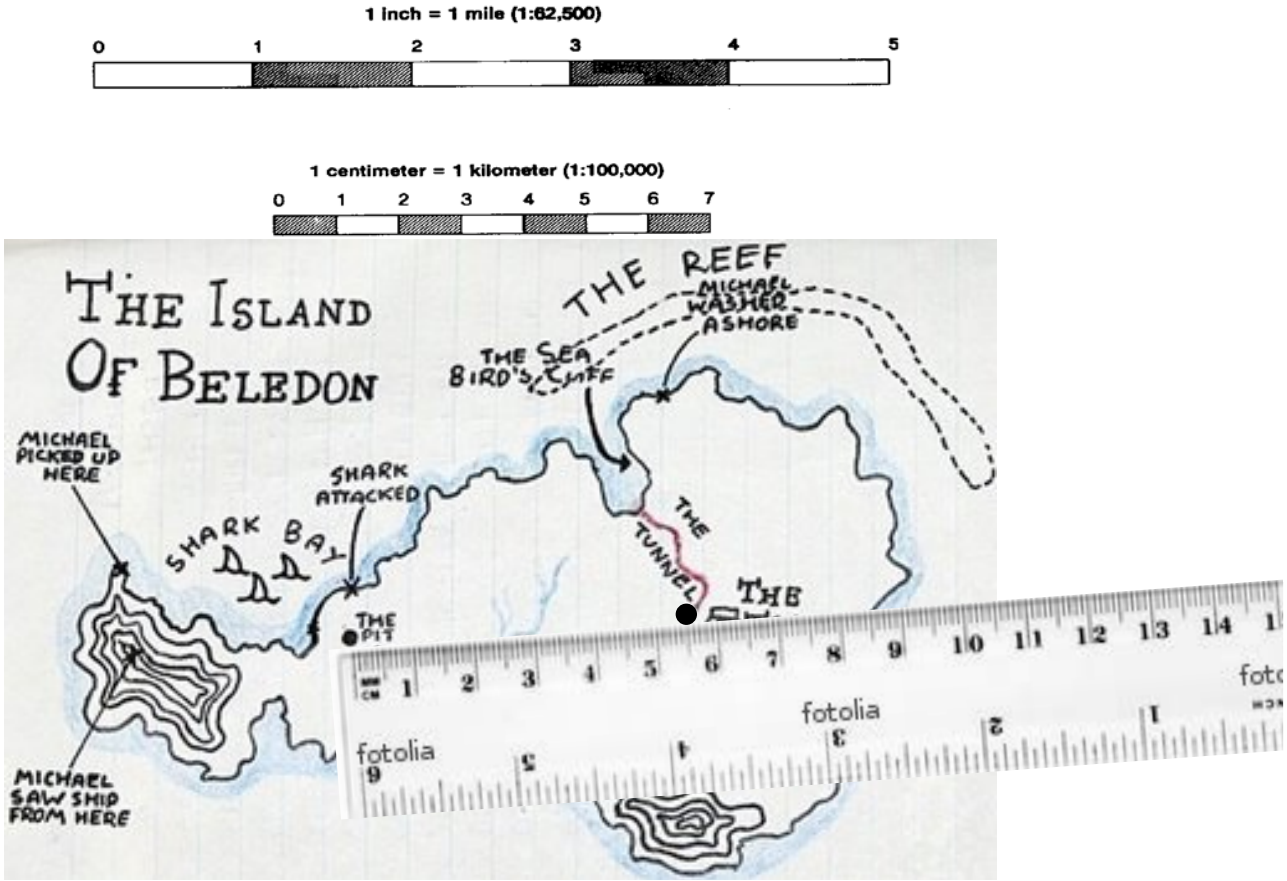
	left her house and the time she arrives at the library using measurement increments of 15 minutes. Station 3 is a 2L bottle that is ¼ full of water. Students answer five questions using four operations. For example, How many total liters of soda would there be if there were 4 bottles with the same amount of liquid in each? Station 4 is a metal paper weight weighing 5.6 grams. Students answer five questions using four operations. For example, how much would this paper weight weigh if it was cut exactly in half? Draw and label a number line to show paper weight's weight and its weight after being cut exactly in half using increments of 0.1. Station 5 is a map, map scale, and ruler. Students answer five questions determining distances from different points on the map using four operations. For example, If George has to travel from Leetown to Pruneville 5 days a week, how many miles will he travel in a week? **Interaction:** 1. Move from station to station answering questions from students, ensuring they know which station to go to next. 2. Rotate students to keep them on-time. **Wrap Up:** 1. Direct students to sit around desks as groups. 2. Explain to students that tomorrow they will have an opportunity to fix or change any answers at any of the stations. 3. Ask each group to come to a consensus to name the most challenging question or activity. Next they should write a clarifying question. 4. Ask each group to write their question on the white board and provide clarity by showing how to solve question, without actually providing the answer. **Individual Practice:** Assign questions from student textbook that correspond to the standard being taught. Remind students to show work.	**Interaction:** 1. Work in groups at designated station to answer questions. 2. Ask questions of students within their groups or provide assistance or clarification to others in their group. 3. Show work on answer sheet and find their own answers individually . 4. Ask teacher for help if confused about how to solve problems. 5. Move to next station when prompted by teacher until they have rotated through all stations. **Wrap Up:** 1. Sit around desks as group. 2. Discuss the activity and which questions they found most challenging. 3. Agree on what was most challenging and then share question with the class when prompted. 4. Take notes to help clarify correct procedure in order to successfully solve question posed. **Individual Practice:** Complete the questions, showing work.

	Review: Instruct students to arrange desks in a circle. Sit in circle with students. Ask review questions based on the five stations from yesterday's activity. Toss red bean bag to students who volunteer to answer. 1. What are the four operations? Answers: addition, subtraction, multiplication, division 2. What words in a word problem indicate addition? Answers include: sum, altogether, more than 3. What words in a word problem indicate subtraction? Answers include: difference, take away, less than 4. What words in a word problem indicate multiplication? Answers include: times, product, by 5. What words in a word problem indicator division? Answers include: quotient, per 6. What diagram from yesterday's activity did you use to show a measurement quantity? Answer: number line 7. What does "to scale" mean with regards to a number line? Answer: measured in equal increments	**Review:** Respond to questions.
2	Call on students to answer problems assigned for Individual Practice. Explain on white board how to solve problem if students have incorrect answers. Instruct students who have incorrect answer to find their error and then re-do the answer and respond with the correct answer. **Introduction:** 1. Instruct students to re-form groups from yesterday's activity. 2. Explain that students will have an opportunity to re-visit each station to ensure answers are correct. 3. Explain that other students may assist students on correct procedure but may not provide answers to students. 4. Instruct students that they may ask teacher for assistance as well. Encourage students to check as many answers from yesterday's activity as possible. 5. Instruct students that at the conclusion of this activity, students will be grading answers for a score. **Interaction:** Move amongst students to provide clarity and feedback to students needing help.	Share answers to problems assigned for Individual Practice. Ask clarifying questions. Find errors, re-do problems in order to respond with correct answers. **Interaction:** 1. Return to stations from yesterday's activity. 2. Make sure all questions have correct answers by checking work on as many answers as possible.

	Wrap Up: 1. Discuss questions and answers from stations. 2. Ask questions from review at beginning of today's activity as another check for understanding. **Individual Practice:** Instruct students to complete a worksheet on which they will label number lines with various scaled measurement increments based on data points provided on worksheet.	3. Find errors made and correct them. Ask clarifying questions of group members or the teacher, if necessary. **Wrap Up:** 1. Check answers from stations for accuracy. 2. Participate in a Question and Answer wrap up activity as directed by teacher to review standard and ensure enduring understanding. **Individual Practice:** Complete a worksheet on which they will label number lines with various scaled measurement increments based on data points provided on worksheet.

Summative Assessment Items:

1. Maria read for an hour and a half on Monday, 45 minutes on Tuesday, 20 minutes on Wednesday, and 32 minutes on Thursday. Her goal is to read 4 hours per week. How many minutes will she need to read on Friday to reach her goal?
2. Marco bought a juice box for $1.05, a bunch of bananas for $1.13, and a box of crackers for $2.00. He gave the clerk a $5.00 bill. How much change should he receive?
3. Fran and her friends handed out water at a charity race. Fran handed out 2 liters, one of her friends handed out 1.7 liters, and her other friend handed out 3.5 liters. How many total milliliters did Fran and her friends hand out?
4. Jamal has 2 pounds of flour. He wants to make several batches of a recipe that calls for 8 ounces of flour. How many batches can he make?
5. Use the map scale, ruler, and map to answer the following question. How far is it from the pit to the tunnel?
    A. 5.5 cm
    B. 5.5 in
    C. 5.5 km
    D. 5.5 mi



Answer Key: Each correct answer is awarded 1 point, and no partial credit is available. A score of 4/5 demonstrates mastery.

1. Maria needs to read for 53 minutes on Friday to reach her goal.
2. Jon received $.82 or 82¢. (The answer may be expressed either way.)
3. Fran and his friends handed out 7,200 or 7200 milliliters or mL. (The answer may be expressed with or without a comma and labeled with a word or abbreviation.)
4. Jamal can make 4 batches.
5. C