SD Common Core State Standards Disaggregated Math Template

Domain:	MEASUREMENT AND DATA	**Cluster:**	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit	**Grade level:**	4

Correlating Standard in Previous Year	Number Sequence & Standard	Correlating Standard in Following Year
3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. 3.MD.1Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	4.MD.1 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), ...	5.MD.1. Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Student Friendly Language:
I can solve problems involving measurement. I can convert measurements from one unit to another.

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
• Different units of measure are used for different types of measurement (e.g., liters for volume, inches for length). • Measurements can be converted using different units.	Measurements can be converted within a measurement system (e.g., 1 foot = 12 inches). Some measurement units are more appropriate to use than others in a specific context. There is a relationship between units of measure within a system (e.g., seconds, minutes, hours).	Record measurements in a table. Express the measurements in terms of smaller or larger units that are equivalent. Convert seconds, minutes, and hours, to properly express time.

Key Vocabulary:
meters, centimeters, kilograms, grams, pound, ounce, milliliter, liter, second, minute, hour, inch, foot, equivalent
Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?
Given a total length of lumber, determine the number of shorter lengths that can be made (e.g., 5 yards=15 ft.) Double or half amounts in a recipe. While grocery shopping, determine the better deal on price per ounce, pound, etc.

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3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram. 3.MD.2 - Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg) and liters (l) Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units. e.g. by using drawings (such as a beaker with a measurement scale) to represent the problem.	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.	5.MD.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units

Student Friendly Language:
I can use a diagram such as a number line to show measurement. I can use any of the four operations (+,-,x,÷) to solve word problems. I can convert units of measurement. I can use fractions and decimals in word problems.

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
• Any of the four operations can be used to solve word problems. • Solutions and strategies can be shown in in different types of diagrams.	In order to solve word problems, you might have to choose one or more operations.	Interpret and solve problems about the distance between two locations.

Key Vocabulary:
operations, word problems, distance, interval, time, volume, mass, simple fractions, decimals, measurement, unit, quantities, diagrams, number line, measurement scale
Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?
Figure out how long a movie will last or how long it will take to drive somewhere. Measure the amount of liquid you need for a recipe. Measure the amount of pool or hot tub chemicals to use.

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3.MD.5 Recognize area as an attribute of plane figures and understand concepts of area measurement. a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units. 3.MD.6 Measure areas by counting unit squares (square cm, square m, square in, square ft., and improvised units). 3.MD.7 Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. b. Multiply side lengths to find areas of rectangles whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a x b and a x c. Use area models to represent the distributive property in mathematical reasoning. d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. 3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.	5.MD.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.

Student Friendly Language:
I can find the area and perimeter of rectangles by using a formula. I can find the missing length or width of a rectangle using the area formula.

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
• The formula for calculating area is A = l x w. • Perimeter can be calculated by adding the length of each side.	A formula can be used to find the perimeter and area of rectangles. Multiplication or division can be used to find the area if one factor is unknown.	Use pictures, models or words to explain the relationship between area and perimeter. Apply the formulas of perimeter and area for rectangles.

Key Vocabulary:							
rectangle	area	perimeter	formula	dimension	square units	length	width

Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question "why do I have to learn this"?
Area: measuring a room for flooring, planting grass seed, covering a bulletin board, wrapping a present, painting a wall Perimeter: putting in a fence, borders on a bulletin board, putting trim around a room

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Domain:	MEASUREMENT AND DATA	**Cluster:**	Represent and interpret data.	**Grade level:**	4

Correlating Standard in Previous Year	Number Sequence & Standard	Correlating Standard in Following Year
3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets. 3.MD 4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.	4.MD.4 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.	5.MD.2 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*

Student Friendly Language:
I can make a line plot using fractions. I can solve problems by using information on a line plot.

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
• A line plot begins with the lowest value of the data and ends with the highest value. • A line plot has a mark for every piece of data.	A line plot can be used for organizing data. A line plot can be used to help compare and interpret data.	Create a line plot using a data set of measurements in fractions. Collect data by measuring objects to 1/8 of an inch and display the data on a line plot. (e.g., measure students' height and create a line plot) Solve a problem by using the data in a line plot.

Key Vocabulary:
line plot, fraction, range, difference
Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question "why do I have to learn this"?
Students can measure and record the size variation among specimens of a certain type of plant or animal. A doctor measures the height and weight of children the same age and creates line plots of the data. The line plots are used to represent and communicate the variation in size among children the same age. An automotive engineer performs a number of trials to measure the distance a vehicle travels under certain conditions. A line plot of the data is created and analyzed to determine the optimum conditions of the vehicle.

SD Common Core State Standards Disaggregated Math Template

Domain:	MEASUREMENT AND DATA	**Cluster:**	Geometric measurement: understand concepts of angle and measure angles.	**Grade level:**	4

Correlating Standard in Previous Year	Number Sequence & Standard	Correlating Standard in Following Year
none	4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles. b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees.	none

Student Friendly Language:
I can identify angles as two rays that share a point. I can measure an angle in units called degrees. I can use fractions of a circle to measure an angle. I can count the number of one degree turns to measure an angle.

Know (Factual)	**Understand (Conceptual) The students will understand that:**	**Do (Procedural, Application, Extended Thinking)**
• rays can share common endpoints • a circle has 360 degrees • a degree represents a fraction of a circle	An angle is made up of two rays with a common endpoint. An angle can be measured with reference to a circle. The number of one-degree turns determines the measurement of the angle.	Identify an angle. Measure an angle with reference to a circle in degrees.

Key Vocabulary:
angle ray degrees circle arc endpoint
Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question "why do I have to learn this"?
To measure and cut wood or steel for projects such as putting corners together to make a picture frame. To work with athletic stunts,diving/skating/snowboarding- "doing a 360"

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Correlating Standard in Previous Year	Number Sequence & Standard	Correlating Standard in Following Year
????	4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	????

Student Friendly Language:
I can use a protractor to measure and draw angles.

Know (Factual)	**Understand (Conceptual) I want students to understand that:**	**Do (Procedural, Application, Extended Thinking)**
• a protractor is a tool used to measure angles • use of a protractor (how to read it, position it) • degrees	A protractor measures angles to whole number degrees. A protractor can be used to construct angles to a given whole-number degrees.	Use a protractor to measure angles to the nearest degrees. Use a protractor to draw angles to the degrees given.

Key Vocabulary:
protractor whole number angle degree
Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?
Draw plans for building or constructing an item sports (reflection angles in billiards or basketball, the angle needed to position yourself and golf club to hit the ball in the hole, and the best angle to throw a shot put or discus)

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Correlating Standard in Previous Year	Number Sequence & Standard	Correlating Standard in Following Year
none	4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	none

Student Friendly Language:

I can measure an angle.
I can measure pieces of an angle to find the total degrees.
I can find unknown angles using an equation (math sentence).

Know (Factual)	**Understand (Conceptual) The students will understand that:**	**Do (Procedural, Application, Extended Thinking)**
• non-overlapping parts are fractions of an angle • Angles can be decomposed into non-overlapping parts. • A circle has a total of 360 degrees and can be split into smaller parts.	An angle can be measured finding the sum of each non-overlapping part of an angle. Unknown angles can be found using equations with a symbol for the unknown angle.	Decompose an angle into non-overlapping parts. Find the angle measure of the whole by adding together the degrees in each decomposed part. Write an equation, with a symbol for an unknown angle measure. Use an equation, by adding or subtracting to find the amount of an unknown angle.

Key Vocabulary:

degree angle measure decomposed non-overlapping equation

Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?

I can use a compass to find a precise location.
I can create a flight plan and follow it using a compass.
I can set softball or baseball bases at the correct angle.
I can hold my pool cue at the correct angle to get the ball into the pocket.
I can cut tile, stained glass or quilt pieces at the correct angle to make them fit.