SD Common Core State Standards Disaggregated Math Template

Domain:	Ratios & Proportional Relationships	**Cluster:**	Understand ratio concepts and use ratio reasoning to solve problems.	**Grade level:**	6

Correlating Standard in Previous Year	Number Sequence & Standard	Correlating Standard in Following Year
5.NF.3 Interpret a fraction as division of the numerator by the denominator (a/b = a÷b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret 3/4 as the result of dividing 3 by 4, noting the 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weights, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?	6.RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."*	7.RP.2 Recognize and represent proportional relationships between quantities.

Student Friendly Language:

I can write and explain a ratio describing the relationship between two quantities. For example if I am given 3 red chips and 2 blue chips, I will be able to give the ratio of red chips to blue chips as 3 to 2, 3:2, or 3/2

I can define the term ratio and give various examples.

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
• Ratio • Fraction • Part to part • Part to whole	Ratios compare two quantities. Ratios can be written 3 ways such as 3 to 2, 3:2, or 3/2. There are a variety of contexts for using ratios and ways to express them, such as part to part or part to whole.	Write and model a ratio using two quantities. Describe and compare two numbers using ratios including appropriate notation. Simplify ratios. Identify a ratio in a real life context.

Key Vocabulary:

fraction	ratio	simplify	equivalent fractions
quantity	part to part	part to whole	

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”?

Teacher/student ratio
Boy/Girl ratio
Construction: cost of small project and relate to bigger projects (cost per sq foot)
Cooking/Baking: Doubling/Tripling recipes
Farming: Pesticides application, bags of seeds per acre
Mixing gasoline and oil amounts for snowmobiles, weed eaters, and lawnmowers etc.
Painting: Mixing colors together to get a specific color
Ratio of sugar to water in lemonade

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Student Friendly Language:

I can understand the difference between a rate and a ratio.

I can calculate the unit rate when given a ratio.

I can say and write a unit rate and ratio.

I can use correct labels after finding a unit rate.

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
• Ratios • Rates • Unit rates	A relationship exists between ratios and unit rates. Units can be compared using ratios. Ratios can be written as equivalent unit rates.	Calculate a unit rate. Solve one-step problems converting a ratio to a unit rate. Compare and contrast ratios and rates.

Key Vocabulary:

ratio	rate	unit rate	simplify
equivalent	per	fraction	

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"?

Shopping: 15 ounces costs $0.75. What does it cost for one ounce?

Restaurant bill: $75.00 total. How much is that per person when you have a party of 5?

Traveling: If you are traveling 300 miles in 5 hours, how many miles did you travel in 1 hour?

Comparison shopping: 20 oz. pop for $1.49 and a 12 oz. pop for $1.00. Which is the better deal?

Cooking: A recipe calls for 30 liters of water for 7 people. How much water will be needed per serving?

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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.	6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems. e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed n 35 hours? At what rate were lawns being mowed?* c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	7.RP.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. 7.RP.2 Recognize and represent proportional relationships between quantities. 7.RP.3 Use proportional relationships to solve multi-step ratio and percent problems. 7.G.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

Student Friendly Language:

I can solve real-life problems using ratios and rates.

I can make a table to compare ratios and plot the results on a coordinate plane.

I can calculate unit rate problems involving unit pricing and speed.

I can find a percent of a quantity as a rate per 100.

I can change measurements from one unit to another by using ratios.

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
• Equivalent ratios • Representations of equivalent ratios • Coordinate plane (x and y axis) • Ordered pairs • Unit rate • Percent as per 100 • Measurement conversion	Ratios can be used to find missing values in a table. Rate reasoning can be used to solve unit rate problems. Percent is a rate per 100. Ratio reasoning can be used to convert measurement units.	Make a table to compare ratios and plot the results on a coordinate plane. Calculate unit rate problems involving unit pricing and speed. Calculate percent and solve problems involving whole, part, and percent. Convert measurement units by using ratios.

Key Vocabulary:

equivalent ratios coordinate plane quantity plot ordered pairs rate rate percentage quantity part whole per 100 convert table tape diagram double number line diagram ratio reasoning rate reasoning

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"?

Graphing Hourly Rate – mowing, babysitting, newspaper carrier

Comparing prices for two companies – What is the best price for one shirt?
- Soda Prices – Is the 12-pack of pop a better deal than the 6-pack of pop?
- Vehicles – Miles per gallon and Miles per hour
- Vacation – d=rt – I traveled 500 miles and it took 6 hours. What is my speed?

Grades – I got 7 out of 10 problems correct. What percent did I receive?
- Sports – Statistics, Averages (Free Throw, etc.)

Measurement – How many cups would I have to use to fill a gallon?
- Comparing two heights – 70 inches to 5'8"