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Next

Frayer model math word problems

If your child has trouble with math , a graphic organizer can help. Graphic organizers help kids break down math problems into steps. They're great tools for figuring out what's being asked in a word problem or which operation to use. Kids can also use them to learn new math concepts. There are many types of graphic organizers. The five here could work for students of all ages. You and your child can adjust them depending on your child's needs and the math problem or topic. Each graphic organizer comes with instructions and one or two samples of what it looks like filled in. You can print them out and have your child fill them in by hand. (If your child struggles with writing, you can write in the problem and let your child do the rest.) ThoughtCo. / Deb Russell The Frayer Model is a graphic organizer that was traditionally used for language concepts, specifically to enhance the development of vocabulary. However, graphic organizers are great tools to support thinking through problems in math. When given a specific problem, we need to use the following process to guide our thinking which is usually a four-step process: What is being asked? Do I understand the question?What strategies might I use?How will I solve the problem?What is my answer? How do I know? Did I fully answer the question? These 4 steps are then applied to the Frayer model template (print the PDF) to guide the problem-solving process and develop an effective way of thinking. When the graphic organizer is used consistently and frequently, over time, there will be a definite improvement in the process of solving problems in math. Students who were afraid to take risks will develop confidence in approaching the solving of math problems. Let's take a very basic problem to show what the thinking process would be for using the Frayer Model. A clown was carrying a bunch of balloons. The wind came along and blew away 7 of them and now he only has 9 balloons left. How many balloons did the clown begin with? Using the Frayer Model to Solve the Problem: Understand: I need to find out how many balloons the clown had before the wind blew them away.Plan: I could draw a picture of how many balloons he has and how many balloons the wind blew away.Solve: The drawing would show all of the balloons, the child may also come up with the number sentence as well.Check: Re-read the question and put the answer in written format. Although this problem is a basic problem, the unknown is at the beginning of the problem which often stumps young learners. As learners become comfortable with using a graphic organizer like a 4 block method or the Frayer Model which is modified for math, the ultimate result is improved problem-solving skills. The Frayer Model also follows the steps to solving problems in math. Extending vocabulary using the Frayer Model. Purpose: Identify unfamiliar concepts and vocabulary. The Frayer Model is a graphic organizer (designed by Dorothy Frayer) that helps students to understand key words and concepts. Students are asked to provide a definition of the word, distinctive characteristics, examples, and non examples. FRAYER MODEL Example: Frayer Model for the word: INTEGER The language of mathematics is an important component of our instruction. We will use the Frayer model to identify and understand unfamiliar vocabulary. Frayer template Page 2 1st Reporting Period (1st 6W) Numbers and Operations (17 days) TEKS: 7.2; 7.3A, B; ELPS: C.2.1.5; C.4.F; C.4.G.C.2.1.4; CCRS: I.A.1.2; I.B.1; Rational Numbers What is a Rational Number Integers and Decimals Add and Subtract Multiply and Divide Exponents, Factors, and Fractions Percents Operations with Fractions Properties of operations Associative Property (of Multiplication and Addition) Commutative Property (of Multiplication and Addition) Distributive Property (of Multiplication Over Addition) Rational Numbers Vocabulary "I can" Statements I can add, subtract, multiply and divide rational numbers (including fractions and mixed numbers, with like denominators or with unlike denominators, with/without regrouping). I can change freely between improper fractions and mixed numbers. I can recognize if my answer is reasonable using estimation. I can apply the commutative, associative, and distributive properties appropriately in multiplying and dividing rational numbers. I can represent addition and subtraction on horizontal and vertical number lines. I can subtract a rational number by adding its opposite (additive inverse). I can use the absolute values of numbers on a number line to illustrate both addition and subtraction. I can apply properties of operations (commutative, associative, and distributive) to add and subtract rational numbers. I can convert a fraction to a decimal using long division. I can explain the difference between a rational and an irrational number. I can add and subtract rational numbers in real-world situations. I can use the four operations to solve problems involving rational numbers. I can convert between whole numbers, fractions, and decimals. I can estimate and compute in my head to determine whether an answer makes sense. Ratios and Proportional Relationships (10 days) TEKS: 7.4A,C,D; 7.1F,G,E,D,A ELPS: C.4.D; C.2.E; CCRS: VIII.A.1,2,3,4,5; VIII.B.1 Proportional Relationships Ratios Proportions Constant of Proportionality Equivalent Ratios Ratio Table Rates Unit Rates Constant Rate of Change Graphs Scale Drawing Scale Factor Ratio and Proportional Relationships Vocabulary >>> HOMEWORK >>>>> Ratio Sample Problems "I can" Statements I can write a ratio as a part-to-part or part-to-whole in different ways (a:b, a to b, a/b). I can explain what a part-to-part or part-to-whole relationship means in a given situation. I can use models and pictures to relate concepts of ratio, proportion, and percent. I can represent and analyze patterns, rules, and functions using tables, graphs, words, and manipulatives. I can determine whether two quantities represent a proportional relationship. I can recognize, represent, and explain proportions using tables, graphs, equations, diagrams, and verbal descriptions). I can determine the appropriate unit rates to use in a given situation, including those with fractions. I can compute unit rates. I can transfer my understanding of unit rates to multiple real-world problems. I can explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate. 2nd Reporting Period (2nd 6W) Multiple Representations of Linear Relationships (16 days) TEKS: 7.7; 7.10.A,B,C; 7.11.A,C; 7.1.B,C,D,E ELPS: C.3.B,E; C.1.B; C.4.D,F; C.3.E; C.2.C,D CCRS: IX.B.1; II.A.1; IX.C.1; II.B.1; IX.A.1,2; B.C.1,2 Proportions and Percents Proportions Conversions Percents Percent of Change Applications "I can" Statements I can solve a proportion using equivalent ratios. I can find the percent of a number in more than one way, such as setting up a proportion, changing the percent to a decimal and multiplying, using benchmark percents (1%, 10%, 50%), or using mental math. I can make sense of what percent means in a real-world situation. I can use ratio and rate reasoning to solve real-world and mathematical problems. I can identify constant and varying rates of change. I can describe situations involving constant and varying rates of change. Ratios and Proportional Relationships (7 days) TEKS: 7.4A,C,D; 7.1F,G,E,D,A ELPS: C.4.D; C.2.E; CCRS: VIII.A.1,2,3,4,5; VIII.B.1 Proportionality in Geometry Geometry Measurement Graphing in the Coordinate Plane Similarity Scale Scale Drawing Scale Factor "I can" Statements I can locate a point on the coordinate grid using the x-coordinate and y-coordinate (X,Y). I can make and answer questions about a graph. I can look for relationships between two variables in a graph. I can represent a real world-problem using a coordinate graph. I can interpret the coordinate pairs in the context of a real-world problem. I can solve problems with scale drawings of geometric figures. I can compute actual lengths and area from a scale drawing. I can reproduce a scale drawing using a different scale. 3rd Reporting Period (3rd 6W) Ratios and Proportional Relationships (11 days) TEKS: 7.4A,C,D; 7.1F,G,E,D,A ELPS: C.4.D; C.2.E; CCRS: VIII.A.1,2,3,4,5; VIII.B.1 Linear Relationships Expressions, Equations, and Inequalities Linear Expression Equivalent Expressions Modeling, Writing and Solving Two-Step Equations Modeling, Writing and Solving Two-Step Inequalities $y = mx + b$; Tables and Descriptions $y = mx + b$; Writing and Graphing Equations "I can" Statements I can replace variables with numbers and give the value of the expression. I can recognize when two algebraic expressions are equivalent. I can write, solve, and interpret two-step equations using known and unknown values. I can write, solve, and interpret two-step inequalities using known and unknown values. I can represent the solution of an inequality graphically and algebraically. Geometric Relationships (8 Days) TEKS: 7.8.A,B,C; 7.9.A,B,C,D; 7.1.A,C,E,F ELPS: C.4.D,F; C.3.F.1; C.3.D CCRS: IV.C.1,2 Geometric Relationships: Planar Figures Two-dimensional figures Perimeter Area Composite Figures Angles and Triangles Circles Circumference, Area "I can" Statements I can calculate perimeter and area of a triangle. I can calculate perimeter and area of a rectangle. I can calculate perimeter and area of a parallelogram. I can describe what happens to the perimeter and area of a 2D shape when the lengths of the sides are doubled. I can construct triangles from three measures of angles or sides. I can draw (freehand, with ruler and protractor, with technology) geometric shapes with given conditions. I can notice when the given conditions determine a unique triangle, more than one triangle, or no triangle. I can describe the two-dimensional figures that result from slicing three-dimensional figures. I know the formulas for the area and circumference of a circle. I can use circle formulas to solve problems. I can explain the relationship between the circumference and area of a circle. I can use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. I can solve real-world and mathematical problems involving 2-dimensional area (triangles, quadrilaterals, polygons) I can solve real-world and mathematical problems involving 3-dimensional volume and surface area (cubes and prisms) 4th Reporting Period (4th 6W) Unit 05: Geometric Relationships (8 Days) TEKS: 7.8.A,B,C; 7.9.A,B,C,D; 7.1.A,C,E,F ELPS: C.4.D,F; C.3.F.1; C.3.D CCRS: IV.C.1,2 Geometric Relationships: Solid Figures Solids Lateral and Total Surface Area The volume of Prisms and Pyramids "I can" Statements I can categorize/sort 2D and 3D shapes by their properties e.g., interior angle measures, perpendicular/parallel sides, congruent angles/sides. I can use my own words to define geometric math terms e.g., vertex, face, altitude, diagonal, isosceles, equilateral, acute, obtuse and another vocabulary as appropriate. I can name triangles in two ways - by their sides and by their angles. I can identify if planes are parallel, perpendicular or intersecting. I can describe what happens to a shape after a reflection, rotation, translation or dilation. I can draw similar figures. I can build 3d objects with cubes and then draw the front, side, and top view in two dimensions; i.e., projection sets. Probability and Statistics (18 days) TEKS: 7.6.A,B,D,E,H,I; 7.1.C,E,F ELPS: C.4.C,D,F CCRS: V.A.1; V.B.1,2; VI.C.1 Measurement and Data Simulation Experimental and Theoretical Probability: Simple Event Experimental and Theoretical Probability: Making Predictions Compound Probability: Independent Events Compound Probability: Dependent Events Sampling Activity Categorical Data Displaying and Analyzing Data Dot and Box Plots Populations and Samples Random sample Inference Using Probability Measures of center Measures of variability "I can" Statements I can determine whether generalizations are valid by examining sample size and sampling methods. I can use data from a random sample to draw conclusions and make reasonable arguments about a population. I can describe sample size and sampling methods that will allow me to make more accurate conclusions and arguments. I can generate a sample space to determine the probability of simple or compound events using methods such as organized lists, tables, tree diagrams or simulations. I can compare and draw informal inferences about two populations using measures of center (median, mean) and measures of variation (range), visual overlap, and mean absolute deviation. I can compare the degree of visual overlap of the data plots from two different populations. I can explain what the difference between the two data plots means. I can use measures of center and measures of variability to draw informal inferences about two populations. I can explain why the numeric probability of an event must be between 0 and 1. I can explain the likelihood of an event occurring based on probability. I can determine the probability for a single event by collecting and analyzing frequency in a chance process. I can explain the difference between experimental and theoretical probability. I can develop a model to and use it to find probabilities of events, simple or compound. I can compare and contrast probability models and explain discrepancies using those probability models. I can design and investigate a simulation that will allow me to collect data to generate frequencies for compound events using sample spaces, organized lists, tables and tree diagrams. 5th Reporting Period (5th 6W) Measurement and Data (13 days) TEKS: 7.6.G,F; 7.12.B,C,F; 7.13.A,E,F; 7.1.A,B,E,F,G ELPS: C.4.D,F; C.3.C; C.1.F CCRS: VI.A.1; VI.B.2,3; VI.C.12; V.A.1; V.B.2 Personal Financial Literacy (14 Days) TEKS: 7.13.A,B,C,D; 7.1.A,C,F,G ELPS: C.4.D,F; C.2.1.3 CCRS: II.B.1; II.C.1; I.B.1 Personal Financial Literacy Credit Debit Deposit Overdraft Withdraw Original Price Sales Price PFL Taxes, Interest, and Incentives Discount Price Budgets Assets and Liabilities "I can" Statements I can identify fixed and variable expenses. I can understand the meaning of Credit and Debit (representing them as positive and negative numbers), I can understand the meaning of Deposit, Withdraw, Overdraft, and solve real-world problems. I can understand the meaning of Original Price, Discount, Taxes, and Sales Price, and solve real-world problems. I can solve the following types of multistep and percent problems: simple interest, taxes, markups, gratuities and commissions, fees, percent increase and decrease, and percent error. 6th Reporting Period (6th 6W) STAAR Review (20 Days) TEKS: All ELPS: All CCRS: All ----- Math 7th Resources from the page of LEAD4WARD TEKS Snapshot TEKS Scaffold Vocabulary The English Language Proficiency Standards (ELPS) College and Career Readiness Standards (CCRS)

