nsttac

Examples of Infusing Secondary Transition Skills into College and Career Ready Standards in Mathematics

Mathematics	
Standard	**Activity**
Grade 6: Ratio and Proportional Relationships	
6.RP.A Understand ratio concepts and use ratio reasoning to solve problems.	Have student calculate cost differences based on "unit price" when making purchases for 2, 4, 10, or 100 people at a grocery store or large bulk item store.
Grade 6: The Number System	
6.NS.A Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	
6.NS.B Compute fluently with multi-digit numbers and find common factors and multiples.	
6.NS.C Apply and extend previous understandings of numbers to the system of rational numbers.	
Grade 6: Expressions and Equations	
6.EE.A Apply and extend previous understandings of arithmetic to algebraic	

expressions.	
6.EE.B Reason about and solve one-variable equations and inequalities.	
6.EE.C Represent and analyze quantitative relationships between dependent and independent variables.	
Grade 6: Geometry	
6.G.A Solve real-world and mathematical problems involving area, surface area, and volume.	
Grade 6: Statistics and Probability	
6.SP.A Develop understanding of statistical variability.	
6.SP.B Summarize and describe distributions.	
Grade 7: Ratios and Proportional Relationships	
7.RP.A Analyze proportional relationships and use them to solve real-world and mathematical problems.	
Grade 7: The Number System	
7.NS.A Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.	
Grade 7: Expressions and Equations	

7.EE.A Use properties of operations to generate equivalent expressions.	Student will develop and make cookbook recipes. - List ingredients - Write steps to make the creations they have created - Double recipe, Decrease recipe - Have 3 readers read for errors - Make book for all to use [Camden-Harmony Grove School District, AR]
7.EE.B Solve real-life and mathematical problems using numerical and algebraic expressions and equations.	Using the Menu Math Book the students will write checks. Students will take food orders, figure food costs, compute taxes (Lakeside High School, AR)
Grade 7: Geometry	
7.G.A Draw, construct, and describe geometrical figures and describe the relationships between them.	
7.G.B Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.	
Grade 7: Statistics and Probability	
7.SP.A Use random sampling to draw inferences about a population.	
7.SP.B Draw informal comparative inferences about two populations.	
7.SP.C Investigate chance processes and develop, use, and evaluate probability methods.	

Grade 8: The Number System	
8.NS.A Know that there are numbers that are not rational and approximate them by rational numbers.	Using the "one-more than" strategy with cents pile modification. (rounding). [NSTTAC]
Grade 8: Expressions and Equations	
8.EE.A Work with radical and integer exponents.	Sorting: (using square root because of repeated division) task would involve sorting the same number of objects within the same number of groups. [NSTTAC]
8.EE.B Understand the connections between proportional relationships, lines, and linear equations	
8.EE.C Analyze and solve linear equations and pairs simultaneous linear equations.	
Grade 8: Functions	
8.F.A Define, evaluate, and compare functions.	Any independent purchase using decision making would be a function. [NSTTAC]
8.F.B Use functions to model relationships between quantities.	
Grade 8: Geometry	
8.G.A Understand congruence and similarity using physical models, transparencies, or geometry software.	
8.G.B Understand and apply the Pythagorean Theorem.	Building a bird house or dog house: you need a right angle at the top and then you determine how much wood you need from corner to corner on the bottom (this applies the Pythagorean theorem). [NSTTAC]
8.G.C Solve real world	Using liquid (paint, drink, vinegar, etc) can be used for volume of cylinders, cones, and spheres. [NSTTAC]

and mathematical problems involving volume of cylinders, cones and spheres	
Grade 8: Statistics and Probability	
8.SP.A Investigate patterns of association in bivariate data.	Collect data on any two variables and investigate the relationship, for example: how many students have a curfew and how many students have chores? Is there evidence that those who have a curfew also tend to have chores? [NSTTAC] Have students create data displays using excel from spread sheet financial or other performance data and then present findings based on the displays. [Erickson, A., KU]
High School: Number and Quantity	
High School- The Real Number System	
HSN-RN.A Extend the properties of exponents to rational exponents.	
HSN-RN.B Use properties of rational and irrational numbers.	Bank interest or paycheck hourly wage For example, .991 is the interest rate when you have a savings account. It is an irrational number. Server hourly wage could be $2.125 per hour. [NSTTAC]
High School- Quantities	
HSN-Q.A Reason quantitatively and use units to solve problems.	Cooking breakfast for a group of 8. Everyone wants 2 eggs and 3 pieces of bacon. When I go to the grocery store, how many packs of bacon and cartons of eggs do I need? [NSTTAC] Make no-cook Christmas goodies for each teacher. [Clarendon Public Schools, AR] 1. Find number of teachers to number of students' ratio. 2. Determine what materials are needed. 3. Determine amount of materials needed. 4. Purchase needed materials from store 5. Create Item 6. Wrap and label item 7. Deliver item Student will develop and make cookbook recipes. - List ingredients - Write steps to make the creations they have created - Double recipe, Decrease recipe - Have 3 readers read for errors - Make book for all to use [Camden-Harmony Grove School District, AR] Raising money for the Prom will be figured by the cost of the meal, cost of the decorations, and the cost of

	the favor times the number of attendees. Looking at how to make the best profit per item sold. [North Little Rock School District, AR] Read recipe to make cake • Inferences to decrease by half, double, or make low calorie • Make cake or cakes [Little Rock School District, AR]
High School- The Complex Number System	
HSN-CN.A Perform arithmetic operations with complex numbers.	
HSN-CN.B Represent complex numbers and their operations on the complex plane.	
HSN-CN.C Use complex numbers in polynomial identities and equations.	
High School-Vector and Matrix Quantities	
HSN-VM.A Represent and model with vector quantities.	Matrix- amount of production of a given task in a specified time period. For example, a.m. shift and p.m. shift productivity [NSTTAC]
HSN-VM.B Perform operations on vectors	
HSN-VM.C Perform operations on matrices and use matrices in applications.	
High School: Algebra	
High School – Seeing Structure in Expressions	
HSA-SSE.A Interpret the structure of expressions.	Knowing amounts that are consistent and the number of people. For example, coefficient example: knowing there are 6 bags of popcorn in a box and 12 cans of coke in a carton. The amount of people is your variable. If you have 7 people coming over, how many boxes of popcorn and cartons of coke do you need? [NSTTAC]
HSA-SSE.B Write expressions in	

equivalent forms to solve problems.	
High School -Arithmetic with Polynomials and Rational Expressions	
HSA-APR.A Perform arithmetic operations on polynomials.	Using the same as above with multiple variables. Number of people is the variable (above), use people and money as the polynomials. For example, if you had 7 people coming over and only $15. This activity could use a sale paper from the local grocery store. [NSTTAC]
HSA-APR.B Understand the relationship between zeros and factors or polynomials.	
HSA-APR.C Use polynomials to solve problems	
HSA-APR.D Rewrite rational expressions.	
High School- Creating Equations	
HSA-CED.A Creating equations that describe numbers or relationships.	For example, represent inequalities describing nutritional and cost constraints on combinations of different foods. (Any greater than or less than combination). For example, if you are on a gluten free diet versus a normal diet. [NSTTAC] Tax form and chart. Compare single versus married income tax including number of dependents versus "x" dependents. (Could be used for many other standards even state vs. federal tax) [White Hall School District, AR]
High School-Reasoning with Equations and Inequalities	
HSA-REI.A Understand solving equations as a process of reasoning and explain the reasoning.	Any inequality example: need 50 nails to build the birdhouse. I have two boxes of 15 and 8 nails I found from my last project. Do I have enough or do I need to buy more? Explain with a chart for graphical display. [NSTTAC]
HSA-REI.B Solve equations and inequalities in one variable.	
HSA-REI.C Solve systems of equations.	

HSA-REI.D Represent and solve equations and inequalities graphically.	Any inequality example: need 50 nails to build the birdhouse. I have two boxes of 15 and 8 nails I found from my last project. Do I have enough or do I need to buy more? Explain with a chart for graphical display. [NSTTAC] Have student review graphed information from post-school setting (e.g., college regarding students in different majors, apartments regarding crime statistics for the neighborhood, employer regarding health benefits) and report interpretation of the graphed data to the class. [Erickson, A., KU] Have students review graphed data from various sources - newspaper, trade magazine, internet site - and report interpretation. Then work in pairs to re-graph data to emphasize a different point. [Erickson, A., KU]
High School: Functions	
High School- Interpreting Functions	
HSF-IF.A Understand the concept of a function and use function notation.	Functions have numerical outputs and inputs and are defined by algebraic expressions. For example, the time in hours it takes for a car to drive 100 miles is a function of the car's speed in miles per hour. [NSTTAC] Use car purchasing and insurance costs. [White Hall School District, AR]
HSF-IF.B Interpret functions that arise in applications in terms of the context.	
HSF-IF.C Analyze functions using different representations.	
High School- Building Functions	
HSF-BF.A Build a function that models a relationship between two quantities.	Route to grandma's is (x) but if I decided to stop by Aunt Betty's (y) then I have changed my route by (y). [NSTTAC] Have student calculate lapsed time to get to work from (a) different locations (e.g., home, school, community center) and using different modes of transportation (e.g., bus, bike, car) [Erickson, A., KU]
HSF-BF.B Build new functions from existing function.	Have student consider local county budget cuts and apply to specific cuts to a teacher's salary as portion of budget reduction and determine expense cuts necessary for personal budget. [Erickson, A., KU]
High School- Linear, Quadratic, and Exponential Models	
HSF-LE.A Construct and compare linear, quadratic, and exponential models and	Garden: grow a percent rate based on number of day and water. This is the reason we have "growing seasons." Day light and rainfall influence the growth of a garden. This is seasonal. [NSTTAC]

solve problems.	Figuring the cost of painting a room by figuring square footage and cost of paint – subtract square footage of windows and doors. Write up a quote for a completed painting job. [North Little Rock School District, AR]
HSF-LE.B Interpret expressions for functions in terms of the situation they model.	Students will first create a budget and then research cell phone plans by reading ads and contracts. Students will decide which plan they can afford and which one meets their needs. [Hoxie School District, AR]
High School- Trigonometric Functions	
HSF-TF.A Extend the domain of trigonometric functions using the unit circle	
HSF-TF.B Model periodic phenomena with trigonometric functions.	
HSF-TF.C Prove and apply trigonometric identities.	
High School: Geometry	
High School- Congruence	
HSG-CO.A Experiment with transformations in the plane. .	Anything you would have to replicate-slides, rotations. For example-setting a table at a restaurant; you would use both slides and rotations. If the teacher set one place setting, the student would have to "slide" to replicate on the left and right. The student would use "rotation" to do the place setting across from the example. [NSTTAC]
HSG-CO.B Understand congruence in terms of rigid motion.	
HSG-CO.C Prove geometric theorems.	
HSG-CO.D Make geometric constructions	
High School- Similarity, Right Triangles, and Trigonometry	
HSG-SRT.A Understand similarity in terms of similarity	

transformations.	
HSG-SRT.B Prove theorems involving similarity.	
HSG-SRT.C Define trigonometric ratios and solve problems involving right triangles.	
HSG-SRT.D Apply trigonometry to general triangles.	
High School- Circles	
HSG-C.A Understand and apply theorems about circles.	Landscaping: arc length to determine the circular flower bed or circular driveway [NSTTAC]
HSG-C.B Find arc lengths and areas of sectors of circles	
High School- Expressing Geometric Properties with Equations	
HSG-GPE.A Translate between the geometric description and the equation for a conic section.	
HSG-GPE.B Use coordinates to prove simple geometric theorems algebraically.	
High School- Geometric Measurement and Dimension	
HSG-GMD.A Explain volume and formulas and use them to solve problems.	Investigate relationship of 2-D vs 3-D objects. For example, a cookie and a circle/cookie drawn on a piece of paper. Use a 2-D and 3-D movie for visualization. [NSTTAC] Convert among different-sized standards measurements units within a given measurement system and use these conversions in solving multi-step, real world problems. [Erickson, A., KU]

HSG-GMD.B Visualize relationships between two-dimensional and three-dimensional objects.	Students can assemble products or create a display using pictorial directions (2-D.) They will compare the 3-D outcome with the original drawings and adjust accordingly. This skill will transfer into many entry level jobs where employees will have to follow diagrams and complete assembly tasks independently. [Baltimore County Public Schools, MD] Students can analyze a school map in order to connect 2-D shapes with real spaces (rooms, corridors, doors, etc.) [Baltimore County Public Schools, MD] Students can match pictures of shapes to real life examples in the classroom (rectangle = door, square = rug, etc.) [Baltimore County Public Schools, MD] Have student make a scale drawing of a dorm room on the campus for the college they plan to attend - or apartment layout from websites, accounting for furniture they wish to use. [Erickson, A., KU]
High School- Modeling with Geometry	
HSG-MG.A Apply geometric concepts in modeling situations.	Modeling a tree trunk, can of food, soda can as a cylinder, cereal, cracker box as a rectangular prism, ice cream cone is a cone. [NSTTAC]
High School: Statistics and Probability	
High School- Interpreting Categorical and Quantitative Data	
HSS-ID.A Summarize, represent, and interpret data on a single count or measurement variable.	Median, median, mode, outliers [NSTTAC] Have students figure their grade average in a class. Calculate overall GPA based on grades at end of each grading period. Look at test data from previous graduates rank highest to lowest GPA. Using their current GPA where would they fall in class rank. [Malvern Public Schools, AR] Have students examine balance sheets from school-based or actual balance and determine supplies to be ordered or changes to make in expenses in coming month. Could be conducted as a cooperative group work. [Erickson, A., KU] Have students examine local city or county budget data and recommend expenditures and budget cuts. [Erickson, A., KU]
HSS-ID.B Summarize, represent, and interpret data on two categorical and quantitative variables.	Have students examine school performance data regarding test scores and attendance and "make a report" to the class. [Erickson, A., KU]

HSS-ID.C Interpret linear models.	
High School- Making Inferences and Justifying Conclusions	
HSS-IC.A Understand and evaluate random processes underlying statistical experiments.	Heads or tails game [NSTTAC]
HSS-IC.B Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	
High School- Conditional Probability and the Rules of Probability	
HSS-CP.A Understand independence and conditional probability and use them to interpret data.	Using the TV show Deal or No Deal and probability of winning the $1,000,000. Also use the lottery or election if students are not familiar with the TV show. [NSTTAC]
HSS-CP.B Use the rules of probability to compute probabilities of compound events in a uniform probability model.	Use rock, paper, and scissors in groups. - Record data - Chart and graph data - Use the rules of probability to compute the probability of each component: rock, paper, or scissors.[Malvern Public Schools, AR]
High School- Using Probability to Make Decisions	
HSS-MD.A Calculate expected values and use them to solve problems.	Compare a high-deductable versus a low-deductable automobile insurance policy using various, but reasonable chances of minor or a major accident. [NSTTAC]

HSS.MD.B Use probability to evaluate outcomes of decisions.	