Curriculum Unit Template

Taneyville R-II School
2021-2022

Grade: 8th **Subject: Math** **Quarter: 1/2 - Semester 1**

Unit 1 Title: Real Number System

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
8.NS.A Know that there are numbers that are not rational, and approximate them by rational numbers. 8.NS.A.1 Explore the real number system 8.NS.A.1.a Know the differences between rational and irrational numbers 8.NS.A.1.b Understand that all rational numbers have a decimal expansion that terminates or repeats 8.NS.A.1.c Convert decimals which repeat into fractions and fractions into repeating decimals 8.NS.A.1.d Generate equivalent representations of rational numbers 8.NS.A.2 Estimate the value and compare the size of irrational numbers and approximate their locations on a number line	• Irrational number • Perfect square • Rational number • subset	Student handouts - 1-6 Unit Study Guide Activities: • Squares and square roots I have/who has • Estimating square roots mazes • Rational vs irrational numbers card sort • Classifying real numbers guess my number • Classifying real numbers mystery pattern • Real number system review spin to ten	**Formative:** • Homework 1-6 • iReady **Summative:** • Classifying and estimation real numbers quiz • Unit 1 Assessment • Study Island

Curriculum Unit Template

Taneyville R-II School
2021-2022

Unit 2 Title: Exponents and Scientific Notation

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
8.EEI.A Work with radicals and integer exponents 8.EEI.A.3 Express very large and very small quantities in scientific notation and approximate how many times larger one is than the other. 8.EEI.A.1 Know and apply the properties of integer exponents to generate equivalent expressions 8.EEI.A.2 Investigate concepts of square and cube roots. 8.EEI.A.2.a. Solve equations of the form x2 = p and x3 = p, where p is a positive rational number. 8.EEI.A.2.b Evaluate square roots of perfect squares less than or equal to 625 and cube roots of perfect cubes less than or equal to 1000. 8.EEI.A.2.c Recognize that square roots of non-perfect squares are irrational 8.EEI.A.4 Use scientific notation to solve problems 8.EEI.A.4.a. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used 8.EEI.A.4.b. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities	• Cube root • Scientific notation • Square root	Student Handouts 1-7 Unit Study Guide Activities: • Square roots and Cube roots puzzle • Properties of exponents cut and paste • Properties of exponents solve and color • Scientific notation scavenger hunt • Operations with scientific notation task cards • Exponents and scientific notation stations unit review	**Formative**: • Homework 1-7 • iReady **Summative**: • Square roots, cube roots and exponents quiz • Study Island lessons • Unit 2 test

Curriculum Unit Template

Taneyville R-II School
2021-2022

Unit 3 Title: Linear Equations

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
8.EEI.B Understand the connections between proportional relationships, lines and linear equations. 8.EEI.B.1 Graph proportional relationships. 8.EEI.B.1.a. Interpret the unit rate as the slope of the graph 8.EEI.B.1.b. Compare two different proportional relationships. 8.EEI.B.2. Apply concepts of slope and y-intercept to graphs, equations and proportional relationships 8.EEI.B.2.a. Explain why the slope (m) is the same between any two distinct points on a non-vertical line in the Cartesian coordinate plane 8.EEI.B.2.b. Derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.	• Coefficient • Constant • Infinitely many solutions • Like terms • No solution • variable	Student Handouts 1-8 Unit Study Guide **Activities**: • Simplifying Expressions solve and color • Multi-step equations speed dating • Multi-step equations scavenger hunt • Writing and solving equations round table • Equations with special cases card sort • Linear equations review task cards	**Formative**: • Homework 1-5 • iReady **Summative**: • Multi-step equations mini-quiz • Expressions and equations quiz • Unit 3 Test • Study Island lessons

Curriculum Unit Template

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2021-2022

Unit 4 Title: Linear Relationships

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
8.EEI.B Understand the connections between proportional relationships, lines and linear equations. 8.EEI.B.1 Graph proportional relationships. 8.EEI.B.1.a. Interpret the unit rate as the slope of the graph 8.EEI.B.1.b. Compare two different proportional relationships. 8.EEI.B.2. Apply concepts of slope and y-intercept to graphs, equations and proportional relationships 8.EEI.B.2.a. Explain why the slope (m) is the same between any two distinct points on a non-vertical line in the Cartesian coordinate plane 8.EEI.B.2.b. Derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.	• Linear relationship • Slope • Slope-intercept form • Unit rate • y-intercept	Student Handouts 1-6 Unit Study Guide **Activities**: • Slope and rate of change he said/she said • Slope and rate of change task cards • Graphing linear equations spinner activity • Graphing linear equations scavenger hunt • Multiple representations cut and paste • Multiple representations performance task	**Formative**: • Homework 1-6 • iReady **Summative**: • Slope and slope-intercept form quiz • Unit 4 Test • Study Island

Curriculum Unit Template

Taneyville R-II School
2021-2022

Unit 5 Title: Functions

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
8.F.A Define, evaluate and compare functions 8.F.B. Use functions to model relationships between quantities 8.F.A.1 Explore the concept of functions. 8.F.A.1.a Understand that a function assigns to each input exactly one output. 8.F.A.1.b Determine if a relation is a function. 8.F.A.1.c Graph a function 8.F.A.2 Compare characteristics of two functions each represented in a different way. 8.F.A.3 Investigate the differences between linear and nonlinear functions. 8.F.A.3.a Interpret the equation y = mx + b as defining a linear function, whose parameters are the slope (m) and the y-intercept (b). 8.F.A.3.b Recognize that the graph of a linear function has a constant rate of change 8.F.A.3.c Give examples of nonlinear functions 8.F.B.1 Use functions to model linear relationships between quantities 8.F.B.1.a Explain the parameters of a linear function based on the context of a problem 8.F.B.1.b Determine the parameters of a linear function 8.F.B.1.c Determine the x-intercept of a linear function 8.F.B.2 Describe the functional relationship between two quantities from a graph or a verbal description	• Function • Linear relationship	Student Handouts 1-5 Unit study guide **Activities**: • Identifying functions card sort • Writing linear equations puzzle • Comparing functions solve and color • Distance vs. time graphs spinner activity • Distance vs time graphs cut and paste • Functions unit review stations	**Formative**: • Homework 1-5 • iReady **Summative**: • Functions quiz • Unit 5 test • Study island

Curriculum Unit Template

Taneyville R-II School
2021-2022

Unit 6 Title: Systems of Equations

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
8.EEI.C. Analyze and solve linear equations and inequalities and pairs of simultaneous linear equations 8.EEI.C.2 Analyze and solve systems of linear equations 8.EEI.C.2.a. Graph systems of linear equations and recognize the intersection as the solution to the system 8.EEI.C.2.b. Explain why solution(s) to a system of two linear equations in two variables correspond to point(s) of intersection of the graphs 8.EEI.C.2.c. Explain why systems of linear equations can have one solution, no solution or infinitely many solutions 8.EEI.C.2.d. Solve systems of two linear equations	• Infinitely many solutions • No solution • Solution • variable	Student Handouts 1-5 (6,7) Unit study guide **Activities**: • Solving systems by graphing cut and paste • Solving systems by graphing scavenger hunt • Solving systems by substitution mazes • Applying systems of equations puzzle train • Systems of equations unit review he said/she said	**Formative**: • Homework 1-5 (6,7) • iReady **Summative**: • Systems of Equations quiz • Study island • Unit 6 test

Curriculum Unit Template

Taneyville R-II School
2021-2022

Grade: 8th **Subject: Math** **Quarter: 3/4 - Semester 2**

Unit 7 Title: Angle Relationships

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
8.GM.A Understand congruence and similarity using physical models, transparencies or geometry software 8.GM.A.5 Explore angle relationships and establish informal arguments. 8.GM.A.5.a Derive the sum of the interior angles of a triangle 8.GM.A.5.b. Explore the relationship between the interior and exterior angles of a triangle 8.GM.A.5.c. Construct and explore the angles created when parallel lines are cut by a transversal 8.GM.A.5.d. Use the properties of similar figures to solve problems	• Alternate exterior angles • Alternate interior angles • Corresponding angles • Exterior angles • Remote interior angle • Transversal • Vertical angles	Student Handouts 1-5 Unit Study Guide **Activities**: • Parallel lines and transversals cut and paste • Parallel lines and transversals find it and fix it • Interior angles of triangles solve and color • Exterior angles of triangles domino train • Angles and similar triangles card sort • Angle relationships unit review task cards	**Formative**: • Homework 1-5 • iReady **Summative**: • Mini quiz 1 • Mini quiz 2 • Unit 8 test • Study Island

Curriculum Unit Template

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2021-2022

Unit 8 Title: Transformations

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
8.GM.A Understand congruence and similarity using physical models, transparencies or geometry software 8.GM.A.1. Verify experimentally the congruence properties of rigid transformations 8.GM.A.1.a. Verify that angle measure, betweeness, collinearity and distance are preserved under rigid transformations 8.GM.A.1.b. Investigate if orientation is preserved under rigid transformations 8.GM.A.2 Understand that two-dimensional figures are congruent if a series of rigid transformations can be performed to map the pre-image to the image 8.GM.A.2.a. Describe a possible sequence of rigid transformations between two congruent figures 8.GM.A.3 Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates 8.GM.A.4 Understand that two-dimensional figures are similar if a series of transformations (rotations, reflections, translations and dilations) can be performed to map the pre-image to the image. 8.GM.A.4.a Describe a possible sequence of transformations between two similar figures	• Congruence • Dilation • Image • Orientation of a figure • Pre-image • Reflection • Rotation • Scale factor • Similarity • translation	Student Handouts 1-7 (8) Unit Study Guide **Activities**: • Translations cut and paste • Reflections card sort • Rotations mazes • Dilations he said/she said • Unit review guess my transformation • Unit review transformations scavenger hunt	**Formative**: • Homework 1-7 (8) • iReady **Summative**: • Translations, reflections and rotations quiz • Unit 8 Test • Study Island

2022-2023

Curriculum Unit Template

Taneyville R-II School
2021-2022

Unit 9 Title: Pythagorean Theorem

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
8.GM.B Understand and apply the Pythagorean Theorem 8.GM.B.1 Use models to demonstrate a proof of the Pythagorean Theorem and its converse 8.GM.B.2 Use the Pythagorean Theorem to determine unknown side lengths in right triangles in problems in two- and three-dimensional contexts 8.GM.B.3 Use the Pythagorean Theorem to find the distance between points in a Cartesian coordinate system.	• Converse • Hypotenuse • legs	Student Handouts 1-4 Unit study guide **Activities**: • Pythagorean theorem intro activity • Pythagorean theorem mazes • Pythagorean converse mystery pattern • Pythagorean theorem he said/she said • Pythagorean theorem scavenger hunt • Pythagorean theorem review stations	**Formative**: • Homework 1-4 • iReady **Summative**: • Pythagorean theorem quiz • Unit 9 test • Study Island

Curriculum Unit Template

Taneyville R-II School
2021-2022

Unit 10 Title: Volume

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
8.GM.C Solve problems involving volume of cones, pyramids and spheres 8.GM.C.1 Solve problems involving surface area and volume 8.GM.C.1.a Understand the concept of surface area and find surface area of pyramids 8.GM.C.1.b. Understand the concepts of volume and find the volume of pyramids, cones and spheres	• Cone • Cylinder • Sphere • volume	Student Handouts 1-4 (5) Surface area of spheres notes Unit study guide **Activities**: • Volume of cylinders solve and color • Volume of cones puzzle • Volume of cylinders and cones scavenger hunt • Volume of spheres four in a row • Volume unit review cut and paste • Volume unit performance task	**Formative**: • Homework 1-4 (5) • Surface area of spheres ws from Kuta software or Math worksheets for kids • iReady **Summative**: • Mini quiz 1 • Unit 10 test • Study Island

Curriculum Unit Template

Taneyville R-II School
2021-2022

Unit 11 Title: Scatter Plots and Data

Standards	Vocabulary	Activities/Resources	Formative/Summative Assessments
8.DSP.A Investigate patterns of association in bivariate data 8.DSP.A.1 Construct and interpret scatter plots of bivariate measurement data to investigate patterns of association between two quantities. 8.DSP.A.2 Generate and use a trend line for bivariate data, and informally assess the fit of the line. 8.DSP.A.3 Interpret the parameters of a linear model of bivariate measurement data to solve problems. 8.DSP.A.4 Understand the patterns of association in bivariate categorical data displayed in a two-way table. 8.DSP.A.4.a. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. 8.DSP.A.4.b Use relative frequencies calculated for rows or columns to describe possible association between the two variables	• Bivariate data • Linear association • Relative frequency • Two-way table	Student Handouts 1-6 Unit study guide **Activities**: • Types of association card sort • Constructing scatter plots investigation • Scatter plots and trend lines cut and paste • Trend lines and predictions scavenger hunt • Two-way tables guess my table • Relative frequency find it, fix it	**Formative**: • Homework 1-6 • iReady **Summative**: • Scatter Plots and trend lines quiz • Study Island • Unit s10 Test