Grade 8 Curriculum Overview

District 88 is committed to provide a high quality instructional program for our students. This overview shares the Essential Standards at this grade level.

English Language Arts *In Grade 8, students will*	
Standard	Description
RL.8.1	Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
RL.8.2	Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text.
RL.8.4	Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
RL.8.10	By the end of the year, read and comprehend literature, including stories, dramas, and poems, at the high end of grades 6-8 text complexity band independently and proficiently.
RI.8.1	Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
RI.8.2	Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.
RI.8.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
RI.8.6	Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.
RI.8.10	By the end of the year, read and comprehend literary nonfiction at the high end of the grades 6-8 text complexity band independently and proficiently.
L.8.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
W.8.1	Write arguments to support claims with clear reasons and relevant evidence.
W.8.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

W.8.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
SL.8.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.

Math	
In Grade 8, students will	
Standard	Description
8.NS.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
8.NS.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.
8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.
8.EE.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
8.EE.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9, and determine that the world population is more than 20 times larger.
8.EE.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
8.EE.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
8.EE.6	Use similar triangles to explain why the slope m is the same between any two

	distinct points on a non-vertical line in the coordinate plane; 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.
8.EE.7	Solve linear equations in one variable.
8.EE.7.a	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).
8.EE.7.b	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
8.EE.8	Analyze and solve pairs of simultaneous linear equations.
8.EE.8.b	Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.
8.EE.8.c	Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.
8.F.3	Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function A = s2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.
8.G.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
8.SP.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?
8.F.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.1
8.F.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear

	function represented by an algebraic expression, determine which function has the greater rate of change.
8.F.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
8.F.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Social Studies
In Grade 8, students will

Standard	Description
SS.H.1.6-8.MC.	Use questions generated about individuals and groups to analyze why they, and the developments they shaped, are seen as historically significant.
SS.CV.3.6-8.LC, MdC, MC.	Compare the means by which individuals and groups change societies, promote the common good, and protect rights.
SS.H.3.6-8.MC.	Use other historical sources to infer a plausible maker, date, place of origin, and intended audience for historical sources where this information is not easily identified.
SS.EC.1.6-8.MC.	Evaluate alternative approaches or solutions to current economic issues in terms of benefits and costs for different groups and society as a whole.

Science: Introduction to Physical & Chemical Sciences
In Grade 8, students will:

Standard	Description
MS-ETS1-1	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
MS-ETS1-2	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
MS-ETS1-4	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.
SC.MS.PS1-2	Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.
SC.MS.PS1-3	Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.
SC.MS.PS1-4	Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.
SC.MS.PS1-5	Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.
SC.MS.PS1-6	Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.
SC.MS.PS2-1	Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.
SC.MS.PS2-2	Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.
SC.MS.PS2-4	Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.
SC.MS.PS2-5	Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.
SC.MS.PS3-1	Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.
SC.MS.PS3-2	Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.
SC.MS.PS3-3	Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.
SC.MS.PS3-4	Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.
SC.MS.PS3-5	Construct, use, and present arguments to support the claim that when the motion energy of an object changes, energy is transferred to or from the object.
SC.MS.PS4-1	Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.

SC.MS.PS4-2	Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.

Art	
In Grade 8, students will	
Standard	Description
VA:Cr2.3.8.a VA:Cr3.1.8.a VA:Re9.1.8.a VA:Re8.1.7.a	Select, organize, and design images and words to make visually clear and compelling presentations. Apply relevant criteria to examine, reflect on, and plan revisions for a work of art or design in progress. Create a convincing and logical argument to support an evaluation of art. Interpret art and generate meanings through describing and analyzing feelings, subject matter, formal characteristics, art-making approaches, and contextual information and identify key concepts

Plano Middle School 8th Grade Band	
In Grade 8, students will	
Performing: Select	Description: Select a varied repertoire to study based on music reading skills (where appropriate), an understanding of formal design in the music, context, and the technical skill of the individual and ensemble.
MU:Pr4.1.E.8a	● Students will perform this standard at an intermediate level by end of year
Performing: Analyze	Demonstrate, using music reading skills where appropriate, how the setting and formal characteristics of musical works contribute to understanding the context of the music in prepared or improvised performances
MU:Pr4.2.E.8a	● Students will perform this standard at a intermediate level by end of year
Performing: Interpret	Description: Demonstrate understanding and application of expressive qualities in a varied repertoire of music through prepared and improvised performances
MU:Pr4.3.E.8a	● Students will perform this standard at an intermediate level by end of year
Performing: Present	Description: Demonstrate attention to technical accuracy and expressive qualities in prepared and improvised performances of a varied repertoire of music representing diverse cultures and styles.
MU:Pr6.1.E.8a	● Students will perform this standard at an intermediate level by end of year
Responding:	Description: Explain the influence of experiences, analysis, and context on

Evaluate	interest in and evaluation of music
MU:Re9.1.E.8a	● Students will perform this standard at an intermediate level by end of year

Plano Middle School 8th Grade Choir *In Grade 8, students will*	
Performing: Select	Description: Select a varied repertoire to study based on music reading skills (where appropriate), an understanding of formal design in the music, context, and the technical skill of the individual and ensemble.
MU:Pr4.1.E.8a	● Students will perform this standard at an intermediate level by end of year
Performing: Interpret	Description: Demonstrate understanding and application of expressive qualities in a varied repertoire of music through prepared and improvised performances
MU:Pr4.3.E.8a	● Students will perform this standard at an intermediate level by end of year
Performing: Present	Description: Demonstrate attention to technical accuracy and expressive qualities in prepared and improvised performances of a varied repertoire of music representing diverse cultures and styles.
MU:Pr6.1.E.8a	● Students will perform this standard at an intermediate level by end of year
Responding: Evaluate	Description: Explain the influence of experiences, analysis, and context on interest in and evaluation of music
MU:Re9.1.E.8a	● Students will perform this standard at an intermediate level by end of year

Physical Education *In Grade 8, students will*	
Standard	Description
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