Nipher Middle School
Eighth Grade Course Descriptions
2025-2026

ALGEBRA 1

This class introduces students to fundamental algebraic skills such as: operations, algebraic expressions, solving equations, graphing, linear, quadratic, and exponential functions, and statistics. Students engage with relevant mathematical contexts to make math meaningful.

Unit 1 invites students to use tables, graphs, visuals, and equations to describe mathematical relationships. Students focus on equations and graphs in Unit 2 as they solve one- and two-variable equations and inequalities. They also revisit forms of linear equations when solving two-variable equations, which connects to equations of lines of best fit in Unit 3. Unit 3 also supports students in visualizing and analyzing one-variable and two-variable data. Unit 4 introduces features of functions that students will attend to in later units (e.g., domain and range, key features). Unit 5 revisits the work of Unit 2 as students solve systems of linear equations and inequalities. Unit 6 deepens the work that students started with exponential functions in Unit 1, incorporating the language about functions from Unit 4. Unit 7 is the first of two units about quadratics and focuses on the forms and key features of quadratic functions. The final unit of Algebra 1 (Unit 8) introduces several strategies for moving between forms of quadratic equations (e.g., factoring, completing the square, quadratic formula) to help highlight features of interest.
As students encounter challenging problems, and practice asking for help and a willingness to learn from others, they build the social emotional learning competencies of self-management, self-awareness, relationship skills, and social awareness.

ENGLISH LANGUAGE ARTS 8

Courses in the Nipher English Language Arts department include all aspects of effective communication. The eighth-grade curriculum aims to foster an enjoyment of reading through a range of activities, including whole-class novels, independent reading, book clubs, short stories, and more. Throughout the year, students will also add depth to their writing, including narrative, argumentative, informative, and literary analysis writing pieces. The curriculum is broken into four main sections: Narrative (with a whole-class novel), Argumentative (using short stories), Informative (research and choice book clubs), and Literary Analysis (with a whole-class novel).

MATHEMATICS 8

In Grade 8, instructional time should focus on three critical areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem.

Math 8 builds on what students have learned about proportional and geometric relationships in Math 7 to develop several key concepts in algebra and geometry. Students start the year with rigid transformations and congruence in Unit 1, which sets them up to learn about similarity and dilations in Unit 2. Students use what they know about similar triangles to explore slope as they study linear relationships in Unit 3. This work with linear relationships builds toward solving linear equations with variables on both sides of the equal sign, and systems of linear equations in Unit 4.
Unit 5 invites students to consider functions, specifically what makes a relationship a function. Unit 5 also explores the volumes of cylinders, cones, and spheres. Unit 6 returns to linear relationships as students explore bivariate data. Unit 7 builds on the exponent work from Math 6 to explore properties of exponents and scientific notation as a tool for representing very large and very small quantities. Math 8 ends with the Pythagorean theorem as students encounter square roots, cube roots, and irrational numbers for the first time.

SCIENCE 8

Course Overview:
The 8th Grade Earth Science curriculum is designed to provide students with a comprehensive understanding of the Earth's systems, processes, and interactions. Through a combination of classroom instruction, laboratory investigations, and hands-on activities, students will explore various topics related to Earth's structure, geology, weather, and climate.

Course Objectives:
1. Develop an understanding of Earth's structure and composition, including the layers of the Earth, plate tectonics, and the rock cycle.
2. Investigate the processes that shape the Earth's surface, such as erosion, weathering, and deposition.
3. Explore the Earth's history and the concept of geological time, including the formation of fossils and the principles of relative dating.
4. Examine the Earth's atmosphere and its role in weather and climate, including the water cycle, weather patterns, and severe weather phenomena.
5. Investigate the impact of human activities on the Earth's systems, including pollution, deforestation, and climate change.
6. Develop scientific inquiry and critical thinking skills through laboratory investigations, data analysis, and scientific modeling.

SOCIAL STUDIES 8
This course explores the history of global civilizations from the Classical Era to the Medieval Era, examining their rise and fall, cultural evolution, and technological advancements. Students will explore key themes such as the classical foundations of government, the growth of technology and trade, and increasing global interconnectedness. In each unit, students will evaluate a key topic and consider whether it can be considered progress. Through this process, they will develop critical thinking and communication skills while gaining a deeper understanding of how past events influence our world today.

WELLNESS 8
Wellness is a three-year comprehensive program in which students will participate in each grade level year they are at Nipher. Students will focus on healthful living practices, strong self-esteem and personal awareness, and building and maintaining a strong, healthy body through both class work and active participation in conditioning classes.

FULL YEAR ELECTIVES

BAND 8
Eighth grade band members must successfully complete 3 years of instrumental music study or meet director approval based on musical aptitude prior to enrollment. Students will develop skills that lead to advanced levels of proficiency in technique on their instrument. Students will gain an understanding of music theory as it pertains to their instrument and continue to experience a variety of literature for the modern band. Members of the ensemble will have opportunities to perform solos and small ensemble literature as well as large ensemble selections to be performed at required concerts and festivals.

CHOIR 8
In the Eighth Grade Choir, students will reinforce and further develop their singing skills and techniques. They will learn the process of sight-singing using Solfege, further develop their vocal range, adjust to their changing/changed voice and work on proper singing posture and breathing. The students will have opportunities to sing as a group on a regular basis and will have one or two formal evening performances per semester. *This class can be taken all year if desired (please write this on your course selection sheet).

ORCHESTRA (min. 3-year experience)
Students must have at least two years of prior experience with the completion of Essential Techniques Book 3. Students will work on orchestral pieces, two performances for 6th-8th grade, Festival of Strings at Kirkwood High School and Large Group Festival. Emphasis will be placed on advanced techniques such as shifting, theory, three-octave scales/arpeggios, orchestral excerpts in preparation for the KHS Orchestra auditions, sight-reading, music theory, composer history, and genres. Students will have the opportunity to participate in the annual solo and small ensemble festival and receive feedback from a judge.

WORLD LANGUAGES (FRENCH 1, GERMAN 1 or SPANISH 1)
This course is for high school credit and continues from seventh grade World Language – French, German or Spanish. Students may not switch or begin in a new language. From eighth grade, students with a grade of "C" or above, proceed to Level 2 World Language in high school. Some thematic areas in eighth grade include ordering food in a restaurant, asking for and understanding directions, and describing people. Students will improve speaking, listening, reading and writing skills, and learn more sophisticated grammatical structures. Cultural similarities and differences are explored throughout the year.

SOAR 8
This course is offered to students who meet district criteria for the state gifted program. Students will complete activities and projects involving creativity, critical thinking, research, presentation skills, and problem solving. Once in the middle school program, students need not requalify each year.

YEARBOOK 8
This year-long course allows students to use their graphic design and photography skills to create the Nipher yearbook publication. Students will develop a yearbook theme, take and edit photos, learn to use an online design platform, and utilize marketing techniques to sell books. Students should be hard- working team players who are self-motivated, and eager to learn. Any student interested in this class must go through an application process to apply.

SEMESTER ELECTIVES

ART 8
Students in the Eighth Grade Art program will continue to expand and deepen their knowledge and understanding of the art elements and principles of design in light of art history, art criticism, and studio activities. Studio activities will include both two-dimensional and three-dimensional formats and will continue to build on student skills in a range of media. Students will embrace artistic practices by keeping a sketchbook and digital portfolio of their artwork.

BROADCAST JOURNALISM 8: *THE KNIGHTLY NEWS*
This class is home to *The Knightly News* crew. Students will participate in a fully functional broadcast newsroom that produces *The Knightly News* morning announcements and operates a YouTube channel three days a week. Students should be hard-working team players who are creative, self-motivated, and able to make deadlines. Any student interested in this class must go through an application process to apply.

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In the Eighth Grade Choir, students will reinforce and further develop their singing skills and techniques. They will learn the process of sight-singing using Solfege, further develop their vocal range, adjust to their changing/changed voice and work on proper singing posture and breathing. The students will have opportunities to sing as a group on a regular basis and will have one or two formal evening performances per semester. *This class can be taken all year if desired.

DRAMA 8
This course continues to develop acting and performance skills using more advanced scene work, improvisational exercises and games. A wider variety of dramatic literature is studied, using an active approach. Dramatic structure, character and script analysis are emphasized. Students study character history, motivation and relationships using materials from a variety of genres and styles. Basic technical theatre skills are applied to a Nipher Players production and beginning design skills are introduced.

ENGINEERING TECH 8: Design Modeling and Manufacturing
This course offers an in depth look at engineering careers, engineering design process and manufacturing techniques. Students will use a CAD modeling system to create three-dimensional (3D) models. Students will describe the design process and how it works, along with demonstrating the ability to measure accurately to solve engineering problems. Students will understand the purpose and importance of working in a team and evaluating criteria and constraints to solve technical problems through drawings and other forms of communication. After gaining knowledge of orthographic and isometric drawings, students will use various tools and materials to manufacture items from technical working drawings. *This is a prerequisite course to Tech II: Advanced Design and Architecture. This will be available to 8th grade students in the first semester who did not take Engineering Technology Design Modeling in 7th grade.

INTRODUCTION TO FAMILY AND CONSUMER SCIENCES 8
This course introduces students to the diverse topics within Family and Consumer Sciences. Through hands-on activities, they will develop important life skills while exploring career opportunities in fields such as nutrition, culinary arts, fashion, interior design, child development, and financial literacy.

MEDICAL DETECTIVES 8
In the Medical Detectives course, students play the role of real-life medical detectives as they collect and analyze medical data to diagnose disease. They solve medical mysteries by performing a brain dissection and conducting crime scene investigations. Students use tools such as the engineering design process, an engineering notebook and electrophoresis to solve a murder.

ROBOTICS 8
In Robotics, students will create and explore mechanical systems, energy transfer, and learning to code machines to operate independently. We will be using the VEX robotics platform to design, build, and program real-world objects such as traffic lights, robotic arms, and race cars.

STRENGTH & CONDITIONING 8 (This is in addition to a Wellness class)
This course is taken in addition to Wellness 8. It is designed to emphasize the importance of weight training and cardiovascular fitness. The student will learn age-appropriate training principles associated with strength/aerobic training, Olympic style lifting, speed/agility/coordination, and a variety of functional movements. To show personal development, students will be required to track their progress. Games will be incorporated periodically to show the positive correlation between movement and cardiovascular fitness.

WOODWORKING 8
This course allows students to explore the area of woodworking and the processes used to transform raw materials into a finished project. Students will design and construct at least two wood projects throughout the course of the semester. An emphasis will be placed on how to safely use hand and power tools.