

McKinley Classical Leadership Academy: Ninth Grade Curriculum



McKinley’s curriculum framework emphasizes conceptually challenging, in-depth, and complex content within cognitive, affective, aesthetic, social, and leadership domains as recommended by National Association of Gifted Children (NAGC) *2010 Pre-K-Grade 12 Gifted Programming Standards*. Differentiation, content-based acceleration, and enrichment are interventions implemented for our high-ability learners. In addition to providing project/problem based learning experiences, McKinley uses concepts from Capturing Kids’ Hearts and the Six Pillars of Character to build community amongst students, staff, and families.

9th Grade Curriculum at a Glance

Freshman Literature

Readings:

- *Excerpts from:*
 - Hunger Games by Suzanne Collins*
 - Ready Player One by Ernest Cline*
 - The Maze Runner by James Dashner*
- *The House on Mango Street by Sandra Cisneros*
- *Born A Crime: Stories from a South African Childhood by Trevor Noah*
- *The Color of Water: A Black Man’s Tribute to His White Mother by James McBride*

Literacy Skills & Objectives

In depth literary analysis and writing opportunities such as:

- Read closely for textual details.
- Annotate texts to support comprehension and analysis.
- Engage in productive evidence-based discussions about text.
- Collect and organize evidence from texts to support analysis in writing.
- Make claims about and across texts using specific textual evidence.
- Engage in productive evidence-based conversations around central ideas or themes.
- Determine meaning of unknown vocabulary.
- Provide an objective summary of the text.
- Paraphrase and quote relevant evidence from a text.
- Write original evidence-based claims and defend using evidence.
- Critique one’s own writing and peers’ writing.
- Revise writing.

- Generate and respond to questions in scholarly debate/discussions.

Mathematics (Note: Many students are accelerated based on a track record of math ability and placement tests. Refer to the appropriate grade level for your child’s placement.)

Algebra 150:

Algebra 150 will help students acquire an understanding of numbers and increased proficiency in mathematical operations and algebraic notations. Students will study real numbers, operations, exponents, ratios, proportions, patterns, graphs, linear equations, inequalities, systems of linear equations and quadratic equations. The course will also introduce students to factoring, data collection, data plots, sample space, and probability.

By the end of the year, students will be able to....

- Extend and use properties of rational exponents.
- Use units to solve problems.
- Interpret and use structure.
- Create equations that describe linear, quadratic and exponential relationships.
- Understand solving equations as a process, and solve equations and inequalities in one variable.
- Solve systems of equations.
- Represent and solve linear and exponential equations and inequalities graphically.
- Perform operations on polynomials.
- Understand the concept of a function and use function notation.
- Interpret linear, quadratic and exponential functions in terms of the context.
- Analyze linear, quadratic and exponential functions using different representations.
- Build new functions from existing functions (linear, quadratic and exponential).
- Construct and compare linear, quadratic and exponential models and solve problems.
- Use arithmetic and geometric sequences.
- Summarize, represent and interpret data.

Chapters:

- Solving Equations and Inequalities
- Functions
- Slope
- Systems of Equations
- Exponential Equations
- Polynomials
- Quadratic Equations
- Data and Statistical Analysis

Geometry 250:

Geometry 250 will help students acquire an understanding of geometric and spatial relationships. Students will study real numbers, operations, and patterns. They will investigate angles, parallel and perpendicular lines, circles, two- and three-dimensional objects, surface area, volume, Cartesian coordinates, sample space, probability distribution, constructions, transformations, and symmetries. The course will also introduce students to inductive and deductive reasoning, which they will use to establish the validity of conjectures, prove theorems, and critique the arguments of others.

By the end of the year, students will be able to....

- Experiment with transformations in the plane.
- Understand congruence in terms of rigid motions.
- Prove geometric theorems.
- Make geometric constructions.
- Understand similarity in terms of similarity transformations.
- Prove theorems involving similarity.
- Define trigonometric ratios, and solve problems involving right triangles.
- Understand and apply theorems about circles.
- Find arc lengths and areas of sectors of circles.
- Translate between the geometric description and the equation for a conic section.
- Use coordinates to prove geometric theorems algebraically.
- Explain volume formulas and use them to solve problems.
- Visualize relationships between two-dimensional and three-dimensional objects.
- Apply geometric concepts in modeling situations.
- Understand independence and conditional probability and use them to interpret data.

Chapters:

- Foundations of Geometry
- Parallel and Perpendicular Lines
- Transformations
- Triangle Congruence
- Relationships in Triangles
- Quadrilaterals
- Similarity
- Right Triangles and Trigonometry
- Coordinate Geometry
- Circles
- Two and Three Dimensional Models
- Probability

Advanced Algebra 350 (Algebra 2):

Algebra 350 (Algebra II) will help students acquire an understanding of real world applications of mathematical procedures as they prepare for higher-level mathematics courses. Students will study real numbers, operations, and patterns as they extend their understanding of algebraic concepts. They will work with matrices, complex numbers, logarithms, polynomial functions and their inverse, systems of equations and inequalities, transformations, mathematical models, scatter-plots, and statistics.

By the end of the year, students will be able to....

- Extend and use the relationship between rational exponents and radicals
- Use complex numbers.
- Define and use logarithms.
- Solve equations and inequalities.
- Solve general systems of equations and inequalities.
- Perform operations on polynomials and rational expressions.
- Use and interpret functions.
- Create new functions from existing functions.
- Use functions to model real-world problems
- Make inferences and justify conclusions.

Chapters:

- Linear Functions and Systems
- Quadratic Functions and Equations
- Polynomial Functions
- Rational Functions
- Rational Exponents and Radical Functions
- Exponential and Logarithmic Functions
- Trigonometric Functions
- Trigonometric Equations and Identities
- Conic Sections
- Matrices
- Data Analysis
- Probability

Science

Freshman Physics

Students will be expected to meet the state high school graduation requirements. Students will understand and solve problems related to the following topics: motion, force, laws of conservation, energy, waves and vibrations, sound, light, and electricity.

Main Topics Covered:

- Unit 1: Forces, Motion, Conservation Law
- Unit 2: Work, Energy, Systems, Equilibrium
- Unit 3: Energy Flow and Transfer, Energy Systems, Changes in Matter
- Unit 4: Electricity
- Unit 5: Vibrations, Waves, Sound
- Unit 6: Light, Optics
- Unit 7: Heat, Fluids, Hydraulics, Magnetism, Motors

Educational Resources: CPO Science: www.curiosityplace.schoolspecialty.org; textbook and simulations are available

Science Enrichment Activities: Lab days for investigating covered concepts; optional participation in Science Fair

Social Studies

- Progression of Learning
 - *American Beginnings to 1877*
 - *Bridge to the 20th Century (1877-1917)*
 - *Modern America Emerges (1890-1920)*
 - *The 1920's and the Great Depression (1919-1940)*
 - *World War II and Its Aftermath (1931-1960)*
 - *Living With Great Turmoil (1954-1975)*
 - *Passage to a New Century (1968-Present)*

Educational Resources: Textbook: *The Americans* (Holt-McDougal—2012), *The Story of America* (Holt Rinehart & Winston—January 1994), *African American History* (Holt-McDougal—2008) Geography enrichment website: www.Sheppardsoftware.com

Social Studies Enrichment Activities: Kids Vote, Debating the Debates, Classroom UN

We hope you are able to get an understanding of our values and academics at McKinley CLA. Should you have additional questions later, please visit our website (<http://www.slps.org/mckinleycla>), where you can find answers to many frequently asked questions.

Ninth Grade Class Advisors