

Parents' Guide to Tenth Grade: Core Subjects

This year your child will learn to:

Traits Exhibited by Many

Fifteen to Eighteen-Year Olds

All children develop differently, but you may notice the following traits as your child attends Tenth, Eleventh, or Twelfth Grades.

- ◆ Want to earn money for independence and freedom
- ◆ Desire increased responsibility
- ◆ Need to be treated as young adults
- ◆ Occasionally revert to childish behavior
- ◆ Are very critical of self
- ◆ Seek prestige and belonging to the power group
- ◆ Are able to concentrate and specialize in selected skills and interests
- ◆ Have expansive and changing ambitions
- ◆ Are encountering a conflict between idealism and materialism
- ◆ Develop crushes with depth of feeling
- ◆ Tend to cover own weaknesses with similar weaknesses of the group

Grade 10 Teachers:

Ann Kedrowski, Katie Maier, Anna Kaiser: English 10
 Dan Stratton: Algebra B
 Leslie Felch, Dan Stratton: Algebra 1
 Cody Roggenbauer: Algebra 1
 Hannah Bohrtz, Todd Felch: Algebra 2
 Hannah Bohrtz, Robert Isberner: Geometry
 Robert Isberner: Integrated Math 1
 Dan Stratton: Practical Geometry
 Margo Smith: Integrated Science
 Tom Fitzgerald, Margo Smith: Biology
 David Ley: Chemistry
 Tom McCarty: World History
 John Holbrook: Modern US History
 Kathy Klingenberg, Mary Savage, Chris Ruchti, Angie Lloyd, Tammy Koskey, Sue Brandt, Joe Kell, Natalie Kell, Melissa Jirgl: Special Education
 Sandra Wurdeman: Library/Media

Self-Directed Learning

- Follow school and classroom rules
- Use self-control
- Show respect for others
- Work to solve own problems
- Work cooperatively with others
- Work independently
- Use time productively
- Make plans and organize before working
- Complete work in a timely manner
- Evaluate own work
- Assess own progress

English 10

- Use language to convey appropriate messages
- Listen when others are speaking
- Contribute ideas to discussions
- Analyze literature in terms of character, plot, setting, conflict, theme
- Support opinions with factual information
- Summarize fiction and non-fiction text
- Understand and describe an author's craft: organizational structure, point of view, character development, argument development
- Analyze and compare different pieces of text
- Know and apply the rules of punctuation
- Write well-developed and organized paragraphs and essays
- Apply knowledge of parts of speech, subject-verb agreement, phrases and clauses, parallel structure, and commonly confused words
- Recognize that words may have different contextual meanings
- Understand and use figurative language to create a setting or tone
- Present oral reports and speeches
- Understand how an author creates tone and message (allusion, alliteration, allegory)
- Understand the importance of word choice in conveying a message and relating to an audience
- Understand dialect as used in literature selections
- Spell words correctly
- Write a variety of essays focusing on the Six Traits of Writing
- Self-assess writing according to the 6+1 Writing Traits model
- Increase written and spoken vocabulary
- Use computers to organize and communicate information
- Read and write poetry
- Read contemporary literature (Twelve Angry Men, Dead Poets' Society, To Kill a Mockingbird)
- Formulate discussion and response questions
- Annotate reading texts
- Read a variety of non-fiction pieces, including memoir, essays, biographies

- Read self-selected materials
- Self-select research topics and conduct library and Internet research
- Read non-fiction (magazine articles, Internet sources, reference books)
- Participate in group projects and presentations

All Math Courses

- Apply common sense and probability of result to all work
- Understand how math is essential in real life including career choices
- Compare real numbers
- Understand and use ratios, proportions, percents, rates of change
- Manipulate numbers and compute using appropriate operations
- Explain orally and in writing numerical operations and procedures
- Use technology to carry out computations
- Use geometric models to describe relationships and solve problems
- Use appropriate measurement tools
- Measure using estimation and reasoning
- Know and use geometric formulas
- Read and use data in graphs and tables

Algebra 1B (See Algebra 1)

Algebra 1 and Algebra 1B

- Simplify expressions using number properties and combining like terms
- Know and use the definition of an exponent n , either positive or negative
- Know that a non-zero number to the zero power is one
- Understand and use negative and positive numbers and even and odd powers
- Be able to multiply exponents
- Convert decimal numbers to and from scientific notation
- Use a scientific calculator
- Maintain equivalence of an equation throughout number operations
- Expand binomials
- Factor expressions

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This year your child will learn to:

- Interpret geometrical problems and put in equation form
- Know the concept of slope
- Understand and use a function
- Use proportion to calculate for an unknown quantity
- Calculate frequencies
- Solve quadratic equations
- Solve linear equations
- Solve equations with more than one variable
- Understand sine, cosine, and tangent ratios
- Understand the properties of triangles

Geometry

- Classify angles
- Use and understand perpendicular lines and planes
- Construct indirect and direct proofs
- Understand congruent angles
- Classify Triangles
- Classify Polygons
- Understand similarity of proportion
- Use square roots
- Use the Pythagorean Theorem
- Understand and use circles, segments, and arcs
- Figure surface area of prisms, cylinders, cones, spheres
- Calculate and graph slope of lines

Algebra 2 and Algebra 2 Accelerated

- Creating graphical solutions of simultaneous equations
- Understand and use scientific notation
- Understand and use radicals
- Understand and use roots of quadratic equations including complex roots
- Understand properties of real numbers
- Understand and use advanced factoring
- Understand inequalities and systems of inequalities
- Understand and use logarithms and antilogarithms
- Understand and calculate conic sections
- Calculate using exponential equations
- Understand and use basic trigonometric functions (**Alg 2 Accelerated only**)
- Understand and apply the algebra of polynomials

- Understand vectors in polar and rectangular form
- Understand and interpret algebraic word problems
- Understand matrices and use matrices to solve problems

Practical Geometry

- Classify angles
- Use and understand perpendicular lines and planes
- Understand congruent angles
- Classify Triangles
- Classify Polygons
- Understand similarity of proportion
- Understand and use the Pythagorean Theorem
- Construct logical and sequential proofs
- Apply geometry knowledge to actual situations
- Understand how geometry is used in career choices

Integrated Math II

- Simplify expressions using order of operations, number properties, and combining like terms
- Use exponents effectively
- Interpret and make different types of graphs
- Organize data using stem-and-leaf plots, line plots, and scatter plots
- Recognize patterns and sequences
- Understand mean, median, and mode, and know how to compute each
- Understand and use ratios
- Identify and apply concepts dealing with complementary and supplementary angles
- Understand properties of triangles
- Understand and apply basic right triangle trigonometry
- Understand and apply the concept of percent (taxes, interest rates)
- Understand decimals and money
- Write and solve linear equations
- Understand quantity/cost relationships

Introduction to Programming: Java

- Learn the principles of computer programming
- Learn the capabilities of Java platform
- Learn the syntax of object-oriented language
- Create applications with graphics
- Create applets and servlets

- Create an computer game

Integrated Science: Earth

- Understand that scientific knowledge is always growing
- Learn about the classification system of rocks and minerals
- Understand geologic time scale
- Use data and models to understand predictability of volcanoes and earthquakes
- Understand plate tectonics and continental drift and how this theory contributes to other sciences
- Use the metric system for measurement and lab data collection
- Use atomic structure and theory to describe physical and chemical interactions
- Understand geologic time and fossilized evidence
- Understand the rock cycle
- Understand sedimentary processes
- Plan and conduct science experiments and communicate results
- Understand how the earth has changed and continues to change (weathering/erosion)
- Create tables and graphs to record and communicate scientific data
- Use critical reading, writing, and thinking skills

Integrated Science: Physics

- Analyze motion of objects and the forces that produce this motion
- Investigate gravitational forces and how these forces impact on the universal system
- Investigate models of heat energy and the behavior of this energy form
- Investigate mechanical wave models and the transfer of energy by these forms
- Investigate models of light energy and describe the behavior of energy form
- Describe models of electromagnetic forces and the behavior of these forces
- Create tables and graphs to record and communicate scientific data
- Use critical reading, writing, and thinking skills

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This year your child will learn to:

Biology

- Identify chemical reactions related to physical functions and environmental changes
- Understand single and multi-celled organisms
- Understand how cells differentiate and self-regulate
- Understand and explain theories of molecular and genetic heredity
- Understand the theory of evolution, natural selection and biological classification
- Explain how species have changed and how species have attained diversity
- Explain how organisms cooperate and compete in the ecosystem
- Understand the impact of energy on organisms in living systems
- Devise a scientific solution to a community or environmental problem
- Know how cultures and individuals have contributed to scientific knowledge
- Understand the scientific method of observation, investigation, data collection, and hypothesis
- Describe how science has expanded human knowledge and application of genetics
- Use critical reading, writing, and thinking skills

Chemistry

- Describe atomic structure and the properties of atoms
- Explain how substances interact with one another to produce new substances
- Use patterns in physical and chemical properties to predict likely chemical changes
- Understand intermolecular forces
- Explain exchanges of energy in chemical reactions and exchange of mass and energy in nuclear reactions
- Describe how science and technology affect decisions made in our government policies
- Use critical reading, writing, and thinking skills
- Gain a basic understanding of organic chemistry, including the alkanes, alkenes, and alkynes
- Investigate/learn laboratory techniques unique to organic chemistry

- Know and understand the structure and nomenclature of organic compounds
- Investigate reactions of organic compounds
- Discuss and describe how organic compounds affect our lives and environment

Honors Chemistry/Lab

- Gain a basic understanding of inorganic chemistry
- Utilize basic laboratory techniques to collect data
- Understand appropriate methods of analyzing and reporting data collected in the laboratory
- Study and understand the chemistry of solutions
- Understand how a change in solute affects a solutions properties
- Use group problem-based learning to gain understanding of systems at equilibrium
- Gain an understanding of the physical states of matter
- Use group problem solving techniques to arrive at a procedure to solve scientific questions
- Utilize understanding of systems at equilibrium in a wide-range of applications
- Apply a general knowledge of chemistry applicable to the day-to-day life of students
- Gain an understanding of oxidation-reduction reactions and their implications in technology

All Social Studies Courses

- Understand that social studies involves the study of history, geography, political science, economics, peoples, cultures, and social sciences such as anthropology, sociology, and psychology
- Use atlases, maps, and globes to locate regions and collect data
- Construct mental maps, recalling major physical features
- Understand that environment affects people and culture
- Research a topic and present relevant data and conclusions to the class or teacher
- Participate in group projects
- Present information orally and in writing

- Contribute to discussions with relevant information and opinions
- Use critical reading, writing, and thinking skills

World History

- Understand different cultures or eras and the corresponding political systems
- Learn about important people and their contributions to history and/or the present
- Understand that history affects the present and future conditions of cultures, people and countries
- Learn about ancient civilizations
- Learn about Asian civilizations
- Learn about Medieval Europe, the Reformation and the Renaissance
- Identify diverse belief systems around the world
- Be able to discuss the implications of industrialization, urbanization, and population growth
- Learn about basic human rights across the globe

Modern US History

- Learn about important people and their contributions to history and/or the present time
- Make connections across historical eras
- Learn about the Iraq and Gulf Wars, the Vietnam War, the Korean War and the World Wars
- Understand the Cold War, its effects, and how it ended
- Learn about the Civil Rights movement, Progressive Era, and New Deal programs
- Learn about social and political issues from the 1970s to the present
- Learn about 20th C and 21st C US Presidents—their contributions, problems, and policies

Information and Technology

- Use software to organize thoughts for written work
- Keyboard accurately at 30-45 wpm
- Use scanner, digital camera, and other digital equipment
- Produce word processing documents, spreadsheets, databases, PowerPoint, and drawing products
- Use various web browsers to modify and focus web searches

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This year your child will learn to:

- Transfer graphics, pictures, and video clips into student-made documents
- Use a variety of library resource materials
- Demonstrate proper citation of resource materials used
- Learn to assess one's own progress and quality of work
- Use personal initiative and time management skills to complete projects on time
- Work with a group to complete a project
- Use anti-plagiarism strategies
- Participate in blended learning courses
- Produce digital video projects
- Use library catalog
- Use library web page
- Use Boolean search strategies
- Use advanced database and Internet features
- Understand the meaning of copyright and fair use
- Demonstrate safe use of the Internet
- Understand the purpose of Wikis and Blogs
- Recognize and use primary documents
- Evaluate resources
- Understand bias and opinion