Curriculum Team Vision

All teachers will plan for all instruction using the Massachusetts Curriculum Frameworks, aligned to the Common Core, and craft powerful learning experiences for students.

Contact Us
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Health Dynamics
- Demonstrate developmentally appropriate competence (basic skills, strategies, and rules) in many movement and motor skills, such as team sports, individual sports, and outdoor activities.
- Demonstrate exercises in strength training, cardiovascular activities, and flexibility training.
- Meet developmentally appropriate health related fitness benchmarks.
- Describe the physiology of the heart and lungs and their relationship to physical activities and cardiovascular diseases.
- Develop alternative activities to prevent the use of alcohol, drugs, and tobacco products.

Electives
In addition to art, music, and health dynamics, the following unified arts are part of the 9th grade curriculum:
- Technology
- Drama
- Stage Craft
- Chorus
- Industrial Arts
- Forensic Investigations
- Financial Literacy
- Community Service
- Consumer Law
- History of Lynn
- Street Law
- Sociology/ Psychology
- Microeconomics
- ROTC (at LEHS only)

Placement
All students should be in a program that is realistically challenging. Students who have ability but have failed to demonstrate that ability should be placed at a level at which they will be significantly challenged.

The Lynn Public Schools
Excellence and Innovation in Education
English Language Arts

Reading Literature & Informational texts
- Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
- Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.
- Determine the meaning of words and phrases as they are used in the text.
- Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.
- Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.
- Determine author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view.
- Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment.
- Relate a work of fiction, poetry, or drama to the seminal ideas of its time.
- Analyze how an author draws on and transforms source material in a specific work.
- Delineate and evaluate the argument and specific claims in a text.
- Analyze seminal US documents of historical and literary significance.
- By the end of grade 9, read and comprehend nonfiction, literature, including stories, dramas, and poems, in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Writing
- Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
- Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
- Demonstrate understanding of the concept of point of view by writing short narratives, poems, essays, speeches, or reflections from one's own or a particular character's point of view.
- Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
- Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
- Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
- Draw evidence from literary or informational texts to support analysis, reflection, and research.
- Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Speaking and Listening
- Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing his or her own clearly and persuasively.
- Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
- Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.
- Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
- Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
- Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate

Language
- Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to complex or clarify their own writing when needed.
- Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.
- Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
- Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

English Language Arts

- Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
Algebra I:
- Seeing Structure in Expressions
  - Interpret the structure of expressions.
  - Write expressions in equivalent forms to solve problems.
- Arithmetic with Polynomials and Rational Expressions
  - Perform arithmetic operations on polynomials.
- Creating Equations
  - Create equations that describe numbers or relationships.
  - Reasoning with Equations and Inequalities
  - Understand solving equations as a process of reasoning and explain the reasoning.
  - Solve equations and inequalities in one variable.
  - Solve systems of equations.
- Represent and solve equations and inequalities graphically.
  - Functions
    - Understand the concept of a function and use function notation.
    - Interpret functions that arise in applications in terms of the context.
    - Analyze functions using different representations.
  - Building Functions
    - Build a function that models a relationship between two quantities.
    - Build new functions from existing functions.
      - Linear, Quadratic, and Exponential Models
  - Construct and compare linear, quadratic, and exponential models and solve problems.
  - Interpret expressions for functions in terms of the situation they model.
- Statistics and Probability
  - Interpreting Categorical and Quantitative Data
  - Summarize, represent, and interpret data on a single count or measurement variable.
  - Summarize, represent, and interpret data on two categorical and quantitative variables.
  - Interpret linear models.
- Number and Quantity
  - Reason quantitatively and use units to solve problems.

Geometry:
- Congruence
  - Experiment with transformations in the plane.
  - Understand congruence in terms of rigid motions.
  - Prove geometric theorems.
  - Make geometric constructions.
    - Similarity, Right Triangles, and Trigonometry
      - Understand similarity in terms of similarity in terms of similarity transformations.
      - Prove theorems involving similarity.
    - Define trigonometric ratios and solve problems involving right triangles.
    - Apply trigonometry to general triangles.
      - Circles
  - Understand and apply theorems about circles.
  - Find arc lengths and area of sectors of circles.
- Expressing Geometric Properties with Equations
  - Translate between the geometric description and the equation for a conic section.
  - Use coordinates to prove simple geometric theorems algebraically.
  - Geometric Measurement and Dimension
    - Explain volume formulas and use them to solve problems.
  - Visualize relationships between two-dimensional and three-dimensional objects.
    - Modeling with Geometry
  - Apply geometric concepts in modeling situations.
  - Statistics and Probability
    - Conditional Probability and the Rules of Probability
  - Understand independence and conditional probability and use them to interpret data.
  - Use the rules of probability to compute probabilities of compound events in a uniform probability model.
    - Using Probability to Make Decisions
  - Use probability to evaluate outcomes of decisions.

Biology I
- Ecology: Ecology is the interaction among organisms and environments.
- Evolution and Biodiversity: Evolution is the result of genetic changes that occur in constantly changing environments.
- Anatomy and physiology: There is a relationship between the organization of cells into tissues and the organization of tissues into organs.
- Genetics: Genes allow for the storage and transmission of genetic information.
  - Cell Biology: Cells have specific structures and functions that make them distinctive.
  - Genetics: Genes allow for the storage and transmission of genetic information.

The Foreign Language Department offers from grades 7 through 12, five years of Spanish and French, in both regular, honors and advanced level classes, and 4 years of Latin. By using a coordinated program of books, tapes, visuals, and tests, modern language students learn the four skills of reading, writing, speaking, and listening, and also become acquainted with the culture and civilization of the countries that use the language. Latin students learn to read the language so that they may appreciate ancient literature and language. By studying mythology, classical civilization, and the relationship of Latin to English and many other modern languages, Latin serves as a background subject for many different areas.

Science

Biology I/Honors Biology:
This course includes the introduction to:
- The Chemistry of life: Chemical Elements form organic molecules that interact to perform the basic functions of life
- Cell Biology: Cells have specific structures and functions that make them distinctive.
- Genetics: Genes allow for the storage and transmission of genetic information.
- Anatomy and physiology: There is a relationship between the organization of cells into tissues and the organization of tissues into organs.
- Evolution and Biodiversity: Evolution is the result of genetic changes that occur in constantly changing environments.
- Ecology: Ecology is the interaction among organisms and between organisms and their environment

*It is important to note that students may take different math courses in a given year depending on previous courses taken, grades received, college/career plans, and/or interest.*
Writing Standards

- Write arguments focused on discipline-specific content.
- Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
- Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
- Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.
- Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
- Draw evidence from informational texts to support analysis, reflection, and research.
- Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Reading Standards

- Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.
- Determine the central ideas or conclusions of a text; trace the text’s explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.
- Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
- Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.
- Analyze the structure of the relationships among concepts in a text, including relationships among key terms.
- Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.
- Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
- Assess the extent to which the reasoning and evidence in a text support the author’s claim or a recommendation for solving a scientific or technical problem.
- Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.

World History II:
The Rise of the Nation State to the Present

Students study the rise of the nation state in Europe, the French Revolution, and the economic and political roots of the modern world. They study the origins and consequences of the Industrial Revolution, 19th century political reform in Western Europe, and imperialism in Africa, Asia, and South America. They will explain the causes and consequences of the great military and economic events of the past century, including World War I, the Great Depression, World War II, the Cold War, and the Russian and Chinese revolutions. Finally, students will study the rise of nationalism and the continuing persistence of political, ethnic, and religious conflict in many parts of the world.
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**Health Dynamics**
- Demonstrate activities for warming up and cooling down before and after aerobic exercise.
- Identify the components of physical fitness and the factors involved in planning and evaluating fitness programs for individuals at different stages of the life cycle.
- Identify life management skills and protective factors that contribute to achieving personal wellness goals.
- Promote positive physiological changes in the cardiovascular system via high intensity aerobic activities.
- Recognize the effects of substance use and abuse on the cardiovascular system and the rest of the body.

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**Electives**

In addition to art, music, and health dynamics, the following unified arts are part of the 10th grade curriculum:
- Technology
- Drama
- Stage Craft
- Chorus
- Industrial Arts
- Forensic Investigations
- Financial Literacy
- Community Service
- Consumer Law
- History of Lynn
- Street Law
- Sociology/Psychology
- Microeconomics
- ROTC (at LEHS only)

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**Placement**

All students should be in a program that is realistically challenging. Students who have ability but have failed to demonstrate that ability should be placed at a level at which they will be significantly challenged.

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**The Lynn Public Schools**
Excellence and Innovation in Education
Reading Literature & Informational texts

• Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
• Determine a theme or central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
• Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.
• Determine the meaning of words and phrases as they are used in the text.
• Analyze how an author’s choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.
• Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.
• Determine author’s point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view.
• Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment.
• Relate a work of fiction, poetry, or drama to the seminal ideas of its time.
• Analyze how an author draws on and transforms source material in a specific work.
• Delineate and evaluate the argument and specific claims in a text.
• Analyze seminal US documents of historical and literary significance.
• By the end of grade 10, read and comprehend literary nonfiction at the high end of the grades 9–10 text complexity band independently and proficiently.

Writing

• Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
• Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

English Language Arts

• Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
• Demonstrate understanding of the concept of point of view by writing short narratives, poems, essays, speeches, or reflections from one’s own or a particular character’s point of view.
• Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
• Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
• Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.
• Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
• Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
• Draw evidence from literary or informational texts to support analysis, reflection, and research.
• Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Speaking and Listening

• Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others’ ideas and expressing his or her own clearly and persuasively.
• Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
• Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.

English Language Arts

• Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
• Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
• Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate

Language

• Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
• Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
• Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
• Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.
• Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
• Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
Mathematics

Geometry:
- Congruence
  - Experiment with transformations in the plane.
  - Understand congruence in terms of rigid motions.
- Prove geometric theorems.
- Make geometric constructions.
  - Similarity, Right Triangles, and Trigonometry
- Understand similarity in terms of similarity in terms of similarity transformations.
- Prove theorems involving similarity.
- Define trigonometric ratios and solve problems involving right triangles.
- Apply trigonometry to general triangles.
- Circles
- Understand and apply theorems about circles.
  - Expressing Geometric Properties with Equations
  - Translate between the geometric description and the equation for a conic section.
- Use coordinates to prove simple geometric theorems algebraically.
  - Geometric Measurement and Dimension
  - Explain volume formulas and use them to solve problems.
- Visualize relationships between two-dimensional and three-dimensional objects.
  - Modeling with Geometry
  - Apply geometric concepts in modeling situations.
  - Statistics and Probability
  - Conditional Probability and the Rules of Probability
  - Understand independence and conditional probability and use them to interpret data.
  - Use the rules of probability to compute probabilities of compound events in a uniform probability model.
  - Using Probability to Make Decisions
- Use probability to evaluate outcomes of decisions.

Algebra II:
- Number and Quantity
  - The Complex Number System
  - Perform arithmetic operations with complex numbers.
  - Use complex numbers in polynomial identities and equations.
- Vector and Matrix Quantities
  - Represent and model with vector quantities.
  - Perform operations on matrices and use matrices in applications.
  - Algebra
  - Seeing Structure in Expressions
    - Interpret the structure of expressions.
    - Write expressions in equivalent forms to solve problems.
  - Arithmetic with Polynomials and Rational Expressions
    - Perform arithmetic operations on polynomials.
    - Understand the relationship between zeros and factors of polynomials.
    - Use polynomial identities to solve problems.
    - Rewrite rational expressions.
  - Creating Equations
    - Create equations that describe numbers or relationships.
    - Reasoning with Equations and Inequalities
      - Understand solving equations as a process of reasoning and explain the reasoning.
      - Represent and solve equations and inequalities graphically.
  - Functions
    - Interpreting Functions
      - Interpret functions that arise in applications in terms of the context.
      - Analyze functions using different representations.
    - Building Functions
      - Build a function that models a relationship between two quantities.
      - Build new functions from existing functions.

*It is important to note that students may take different math courses in a given year depending on previous courses taken, grades received, college/career plans, and/or interest.

Mathematics

Science

Chemistry I:
This is the study of the fundamental concepts of matter, energy and chemical changes. The major areas studied are atomic theory, chemical bonding, chemical reactivity, writing and balancing equations, stoichiometry, acids and bases, gas laws, electrochemistry, redox reactions and nuclear chemistry. Most of these topics will be covered in laboratory investigations or experiments allowing the student to supply many ideas of chemistry.

Applied Chem:
This course is designed for the student who does not intend to study science after high school. The intent of this course is to provide students with fundamental chemistry concepts assisting them in developing into responsible citizens capable of making educated decisions. Such topics may include: Acid Rain, Greenhouse Effect, Fossil Fuels, Ozone Depletion, Food Chemistry, Nutrition, Pharmaceutical, Forensics and Medical Issues. Greater emphasis will be placed on collaborative, hands-on laboratory activities. Exploring the role of chemistry in various fields will allow the student to better understand the principles of chemistry, their applications and the relevance of chemistry in our daily lives.

Engineering the Future:
Engineering the Future is a full-year, introductory engineering course, suitable for students in grade 9-12. The course provides a strong foundation in physics and offers students an opportunity to explore the social, historical, and environmental contexts of emerging technologies. A central goal of the course is to build technology literacy for every student. Throughout the course, students develop a practical understanding of how we are influenced by technology, and how we all influence future technological development by the choices we make as workers, consumers, and citizens.

Biology II:
This course includes an in-depth exploration of following:
- Chemistry of life: Chemical Elements form organic molecules that interact to perform the basic life functions
- Cell Biology: Cells have specific structures and functions that make them distinctive
- Genetics: Genes allow for the storage and transmission of genetic information
- Anatomy and physiology: There is a relationship between the organization of cells into tissues and the organization of tissues into organs.
- Evolution and Biodiversity: Evolution is the result of genetic changes that occur in constantly changing environments
- Ecology: Ecology is the interaction among organisms and between organisms and their environment
Reading Standards
- Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.
- Determine the central ideas or conclusions of a text; trace the text’s explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.
- Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
- Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.
- Analyze the structure of the relationships among concepts in a text, including relationships among key terms.
- Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.
- Translate quantitative or technical information expressed in words into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
- Assess the extent to which the reasoning and evidence in a text support the author’s claim or a recommendation for solving a scientific or technical problem.
- Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.

Writing Standards
- Write arguments focused on discipline-specific content.
- Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
- Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
- Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.
- Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
- Draw evidence from informational texts to support analysis, reflection, and research.
- Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Social Studies
U.S. History I:
The Revolution through Reconstruction, 1763-1877
Students examine the historical and intellectual origins of the United States during the Revolutionary and Constitutional eras. They learn about the important political and economic factors that contributed to the outbreak of the Revolution as well as the consequences of the Revolution, including the writing and key ideas of the U.S. Constitution. Students also study the basic framework of American democracy and the basic concepts of America government such as popular sovereignty, federalism, separation of powers, and individual rights. Students study America’s westward expansion, the establishment of political parties, and economic and social change. Finally, students will learn about the growth of sectional conflict, how sectional conflict led to the Civil War, and the consequences of the Civil War, including Reconstruction.
Curriculum Team Vision

All teachers will plan for all instruction using the Massachusetts Curriculum Frameworks, aligned to the Common Core, and craft powerful learning experiences for students.

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LYNN PUBLIC SCHOOLS
Eleventh Grade Curriculum Guide

Excellence and Innovation in Education
The eleventh grade student will:

**Reading Literature & Informational Texts**

- Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
- Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.
- Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
- Analyze the impact of the author’s choices regarding how to develop and relate elements of a story or drama.
- Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful.
- Analyze how an author’s choices concerning how to structure specific parts of a text contribute to its overall structure and meaning as well as its aesthetic impact.
- Analyze a case in which grasping point of view requires distinguishing what is directly stated in a text from what is really meant.
- Analyze multiple interpretations of a story, drama, or, evaluating how each version interprets the source text.
- Analyze a work of fiction, poetry, or drama using a variety of critical lenses.
- Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.
- Integrate and evaluate multiple sources of information presented in different media or formats as well as in words in order to address a question or solve a problem.
- Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning and the premises, purposes, and arguments in works of public advocacy.
- Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln’s Second Inaugural Address) for their themes, purposes, and rhetorical features.
- By the end of grade 11, read and comprehend nonfiction and literature, including stories, dramas, and poems, in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.

**Writing**

- Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
- Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
- Demonstrate understanding of the concept of theme by writing short narratives, poems, essays, speeches, or reflections that respond to universal themes.
- Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
- Use technology, including the internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
- Conduct short as well as more sustained research projects to answer a question or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
- Draw evidence from literary or informational texts to support analysis, reflection, and research.
- Write routinely over extended and shorter time frames for a range of tasks, purposes, and audiences.

**Speaking and Listening**

- Initiate and participate effectively in a range of collaborative discussions with diverse partners on grades 11 topics, texts, and issues, building on others’ ideas and expressing his or her own clearly and persuasively.
- Integrate multiple sources of information presented in diverse formats and media in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
- Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
- Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
- Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
- Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate.

**Language**

- Demonstrate command of the conventions of standard English grammar and usage when writing or speaking as well as capitalization, punctuation, and spelling when writing.
- Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
- Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.
- Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
- Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
Mathematics

Algebra II:

Number and Quantity

- The Complex Number System
  - Perform arithmetic operations with complex numbers.
  - Use complex numbers in polynomial identities and equations.

Vector and Matrix Quantities

- Represent and model with vector quantities.
- Perform operations on matrices and use matrices in applications.

Seeing Structure in Expressions

- Interpret the structure of expressions.
- Write expressions in equivalent forms to solve problems.

Arithmetic with Polynomials and Rational Expressions

- Perform arithmetic operations on polynomials.
- Understand the relationship between zeros and factors of polynomials.
- Use polynomial identities to solve problems.
- Rewrite rational expressions.

Creating Equations

- Create equations that describe numbers or relationships.
- Reason with Equations and Inequalities
  - Understand solving equations as a process of reasoning and explain the reasoning.
  - Represent and solve equations and inequalities graphically.

Interpreting Functions

- Interpret functions that arise in applications in terms of the context.
- Analyze functions using different representations.

Building Functions

- Build a function that models a relationship between two quantities.
- Build new functions from existing functions.

Trigonometric Functions

- Extend the domain of trigonometric functions using the unit circle.
- Model periodic phenomena with trigonometric functions.
- Prove and apply trigonometric identities.

*It is important to note that students may take different math courses in a given year depending on previous courses taken, grades received, college/career plans, and/or interest.

Science

Biotech:

This course provides an introduction to current biotechnology practices. The theory of biotechnology, along with hands-on laboratory experience, provides the student with a general background of the biotechnology industry. Biotechnology companies follow current good manufacturing practices (cGMP), which are regulated by the Food and Drug Administration (FDA). cGMP details quality management, requirements, facility and equipment cleaning, production and process controls, packaging, labeling, complaint handling, and record keeping. Along with the theory and government regulations are general laboratory skills. Students learn what job opportunities are available with a biotechnology education.

Ecology:

This course will provide an in-depth study of the interaction among organisms and between those organisms and their environment. The students will develop an understanding of what an ecosystem is and the elements that determine the types and numbers of organisms that live in them. They will look at the atmosphere, the hydrosphere and the lithosphere, how each biotic factor helps to sustain the biosphere, and how the biotic factors of the biosphere interact with each of the other spheres. Ecology also refers to any form of biodiversity, from the biology of the smallest bacteria to the global flux of atmospheric gases that are regulated by photosynthesis and respiration as organisms breath in and out of the biosphere. Studying all of life’s processes will help students explain and understand the adaption and evolution of all life. Strong analysis and synthesis skills will be developed and used extensively in all work done in this course.

Physics:

This course places emphasis on problem solving aspects of classical Newtonian mechanics which includes rectilinear and curvilinear motion. Heat, waves, sound, light and optical concepts are also studied in depth. Labs are conducted throughout the year to supplement the course work.

Anatomy and Physiology:

Cell and tissue levels of organization are presented as the foundation for understanding organs and organ systems. Lab activities include both actual and virtual dissections. This course is recommended for students planning to enter the nursing or medical profession and/or any student who has a desire to learn more about the human body.

History of Science and Technology:

This course examines the history of science spanning from ancient times to the present. Through the lens of history, this survey course will examine the growth of scientific ideas by examining the cultural and social context in which the ideas developed. The relationship between prevailing scientific explanations in various eras and new, emerging ideas will be traced. Understanding the transformation of society in various eras due to innovations in science and technology will be a key concept in this course.

Earth Science:

This course places its main emphasis on the chemical makeup of the earth, mineral identification, rock identification, layers of the atmosphere and plate tectonics. Other topics include oceanography, marine topography, topographic maps and the earth’s relationship to the universe.

AP Chemistry:

This college level course provides an in-depth study of atomic and molecular structure, ideal gases, solutions, stoichiometry, equilibrium, kinetics, and thermodynamics. The course also places emphasis on data collection and analysis.

AP Biology:

This course includes the full range of topics that would be taught in a two semester introductory college biology course. The course revolves are four big ideas: Evolution, Cellular Processes, Genetics and Information Transfer, and Interactions in Biological Systems. The course places an emphasis on scientific inquiry and analysis.

Honors Anatomy and Physiology (Lab work required)

This course will include a yearlong program of intense human anatomy and physiology studies. The areas covered will include medical terminology, basic chemistry, cell and tissue structure, and the 11 systems of the human body.

*For AP courses, students take the College Board AP exam in May to possibly earn college credits.
Literacy in Science, Social Studies, and Technical Subjects

Reading Standards

- Cite specific textual evidence to support analysis of science and technical texts, primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas; paraphrase in simpler yet still accurate terms.
- Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- Follow complex multistep procedure for carrying out experiments and then analyze results.
- Determine the meaning of words and phrases as they are used in a text, if symbols, key terms, and other domain specific words, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
- Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.
- Analyze text structures information or ideas into categories of hierarchies, demonstrating an understanding of the information or ideas.
- Analyze author’s purpose.
- Evaluate authors’ differing points of view on the same historical event or issue by assessing the authors’ claims, reasoning, and evidence.
- Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.
- Evaluate an author’s premises, claims, and evidence by corroborating or challenging them with other information.
- Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.
- By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

Writing Standards

- Write arguments focused on discipline-specific content.
- Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
- Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
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- Draw evidence from informational texts to support analysis, reflection, and research.
- Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Foreign Language

The Foreign Language Department offers from grades 7 through 12, five years of Spanish and French, in both regular, honors and advanced level classes, and 4 years of Latin. By using a coordinated program of books, tapes, visuals, and tests, modern language students learn the four skills of reading, writing, speaking, and listening, and also become acquainted with the culture and civilization of the countries that use the language. Oral skills are supplemented with tapes. Latin students learn to read the language so that they may appreciate ancient literature and language. By studying mythology, classical civilization, and the relationship of Latin to English and many other modern languages, Latin serves as a background subject for many different areas.

Social Studies

US History II:

This course takes the student from the late nineteenth century to the present time. The development of the United States from a continental to a world power is stressed. The student in this course, studies the expansion of popular democracy and the social agenda, the increasing role of labor and the farmer, the growth of business and industry, and the evolution of America into a superpower. Selected readings and reports will be required.
Curriculum Team Vision

All teachers will plan for all instruction using the Massachusetts Curriculum Frameworks, aligned to the Common Core, and craft powerful learning experiences for students.

Contact Us
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Web: www.lynnschools.org

Kimberlee M. Powers
Executive Director
Curriculum and Instruction
powersk@lynnschools.org

LYNN PUBLIC SCHOOLS
Twelfth Grade Curriculum Guide

Excellence and Innovation in Education
Reading Literature & Informational Texts

- Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
- Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.
- Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
- Analyze the impact of the author’s choices regarding how to develop and relate elements of a story or drama.
- Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful.
- Analyze how an author’s choices concerning how to structure specific parts of a text contribute to its overall structure and meaning as well as its aesthetic impact.
- Analyze a case in which grasping point of view requires distinguishing what is directly stated in a text from what is really meant.
- Analyze multiple interpretations of a story, drama, or evaluative essay, evaluating how each version interprets the source text.
- Analyze a work of fiction, poetry, or drama using a variety of critical lenses.
- Demonstrate knowledge of eighteenth-, nineteenth-, and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.
- Integrate and evaluate multiple sources of information presented in different media or formats as well as in words in order to address a question or solve a problem.
- Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning and the premises, purposes, and arguments in works of public advocacy.
- Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln’s Second Inaugural Address) for their themes, purposes, and rhetorical features.

Writing

- Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
- Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
- Demonstrate understanding of the concept of theme by writing short narratives, poems, essays, speeches, or reflections that respond to universal themes.
- Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
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Speaking and Listening

- Initiate and participate effectively in a range of collaborative discussions with diverse partners on grades 11–12 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.
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- Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence to add interest.
- Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate.

Language

- Demonstrate command of the conventions of standard English grammar and usage when writing or speaking as well as capitalization, punctuation, and spelling when writing.
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- Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.
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<table>
<thead>
<tr>
<th>Mathematics</th>
<th>Science</th>
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<tbody>
<tr>
<td><strong>Algebra III:</strong></td>
<td><strong>Biology II:</strong></td>
</tr>
<tr>
<td>This is a course in advanced algebra topics and trigonometry for the college bound student who has successfully completed Algebra II and Geometry. Topics include algebraic equations and inequalities, patterns and functions including polynomial functions, rational functions, conic sections, exponential and logarithmic functions, trigonometric functions, analytic geometry, systems of equations and inequalities, matrices and determinants, sequences, data analysis, and probability.</td>
<td>A detailed survey of biological organization focusing on structural and functions diversity. Major concentration involves the comparison of cytological and physiological characteristics of representative life forms.</td>
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<tr>
<td><strong>Advanced Mathematics:</strong></td>
<td><strong>Forensics:</strong></td>
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<tr>
<td>This course is for seniors who have completed algebra III, but will not be taking calculus. The course will include and reinforce topics such as: conic sections, complex numbers in trigonometry form, matrices and linear algebra, linear programming (optimization and minimization), regressions, vectors, sequence and series, parametric equations, polar coordinates, 3-D coordinate system, and limits.</td>
<td>Using a hands-on study approach, students have the opportunity to recreate a crime scene and learn how to sketch out crime scenes and collect evidence. Students may have the opportunity to begin an introduction to the various aspects of forensic science, such as blood pattern analysis, toxicology, report preparation, firearm trajectories or characteristics of wounds. As a good follow up to the basics of forensic science, a course in crime scene investigation basics provide students with the six rules of working a crime scene, which are to observe, assess, search, collect, document and analyze.</td>
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<tr>
<td><strong>Pre-Calculus:</strong></td>
<td><strong>Biotect/Forensics:</strong></td>
</tr>
<tr>
<td>This course is designed to give students a thorough preparation in the topics needed for the study of calculus. Topics include advanced algebra, geometry, trigonometry, analytic geometry, elementary functions including linear, polynomial, rational, exponential, logarithmic, trigonometric, inverse trigonometric, and piecewise defined. The graphing calculator is an integral part of the course.</td>
<td>This course combines biotechnology and forensics. Students will study biotechnology to understand the techniques used in the industry and in Forensic science. Biotechnology provides an introduction to current biotechnology practices. The Theory of biotechnology, along with hands-on laboratory experience, provides the student with a general background of the biotechnology industry. A lecture, discussion, lab and project-based course that focus on the molecular and genetic tools used to analyze and modify genetic material and used to modify organisms to produce desired small molecules and proteins. Students will also learn what job opportunities are available with a biotechnology education.</td>
</tr>
<tr>
<td><strong>Probability and Statistics/Discrete:</strong></td>
<td><strong>Anatomy and Physiology:</strong></td>
</tr>
<tr>
<td>This is a semester course in statistics. The focus of the course is on data analysis and real-world applications. Aspects of statistics included are variation, data collection, graphic display of data, concepts underlying inference, and problem solving skills. Examples and exercises are based on realistic data drawn from a variety of disciplines. The graphing calculator is essential to the course.</td>
<td>The human body is studied to understand how homeostasis is maintained at the cellular, tissue, and organ systems levels. This course also includes an exploration of human clinical conditions.</td>
</tr>
<tr>
<td><strong>Calculus:</strong></td>
<td><strong>Applied Chemistry:</strong></td>
</tr>
<tr>
<td>This course features an enhanced problem solving focus that encourages the student to look at problems numerically, graphically, and analytically. Trigonometric functions are presented in the prerequisites, and then used throughout. Extensive real-life applications using real-world data are included throughout the course. Topics include limits and their properties, differentiation, applications of differentiation, integration, logarithmic, exponential and other transcendental functions, and integration techniques.</td>
<td>This course is designed for the student who does not intend to study science after high school. The intent of this course is to provide students with fundamental chemistry concepts assisting them in developing into responsible citizens capable of making educated decisions. Such topics may include: Acid Rain, Greenhouse Effect, Fossil Fuels, Ozone Depletion, Food Chemistry, Nutrition, Pharmaceutical, Forensics and Medical Issues, Greater emphasis will be placed on collaborative, hands-on laboratory activities. Exploring the role of chemistry in various fields will allow the student to better understand the principles of chemistry, their, applications and the relevance of chemistry in our daily lives.</td>
</tr>
</tbody>
</table>

It is important to note that students may take different math courses in a given year depending on previous courses taken, grades received, college/career plans, and/or interest.

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**Marine Biology:**
This course concentrates on the marine life typical of New England waters. Classes study a variety of local organisms including sponges, jellyfish, clams, crabs, and fish. Both live and preserved specimens are studied as students learn about the structure and function of life in the oceans. Additional topics include the study of ocean water, currents, waves, pollution, ocean mining, and man's influence on the marine environment.

**AP Environmental Science:**
This college level course includes an in-depth study of environmental issues that are related to global populations. Topics include: impact of human population growth, pollution, and use of technology in environmental science.

**AP Physics:**
This course enables students to pursue college-level studies while still in high school. AP physics provides willing and academically prepared students with the opportunity to earn college credit, advanced placement, or both. The AP Physics course covers topics typically found in a first-year introductory college physics course and advances the student's understanding of concepts normally covered in high school physics. Major course themes include: Newton's Laws, Pascal's and Archimedes' Principles, solid and fluid mechanics, wave motion and sound, magnetism, circuits, thermodynamics, optics, quantum mechanics, particle physics, and astrophysics.

**AP Biology:**
This course includes the full range of topics that would be taught in a two semester introductory college biology course. The course revolves around four big ideas: Evolution, Cellular Processes, Genetics and Information Transfer, and Interactions in Biological Systems. The course places an emphasis on scientific inquiry and analysis.

**Students take the College Board AP examination in May to possibly earn college credits for AP classes.**
Chemistry II:
This is a 12th grade science elective. It is a second year course that continues to study principles of chemistry in depth. The course is shaped around two essential questions: What do we know? How do we know what we know? Major topics covered in this course include: stoichiometry, physical characteristics of gases, molecular composition of gases, states of matter, solutions, acids and bases. Course work is supplemented by lab experiments. Students will be given a problem to solve using the scientific method as a culminating project. This is a challenging course where students are expected to be able to apply quantitative thinking, problem solving, and experimental procedures. Students need to have strong, independent study skills for this class.

Literacy in Science, Social Studies, and Technical Subjects

Reading Standards
- Cite specific textual evidence to support analysis of science and technical texts, primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
- Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas; paraphrase in simpler yet still accurate terms.
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- Analyze author’s purpose.
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Writing Standards
- Write arguments focused on discipline-specific content.
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Social Studies
US Government and Politics:
The course is designed to provide an analytic perspective on United States politics and the U.S. Government. The course will focus on the institutions, groups, ideas and beliefs that comprise U.S. politics. The course requires familiarity with the basic institutions of the U.S. Government, and a background in the historical development of the United States.

Microeconomics:
This class introduces students to basic economic principles through classroom discussion and debates, workbook exercises, classroom activities, and outside speakers. While it is outside the microeconomics curriculum, students participate in a “stock market game” where they are responsible for investing their own “money.”