St. Clair Shores Adult and Community Education
2018 SUMMER SCHOOL REGISTRATION FORM – Grades 9-12
Class Dates: June 25, 2018 – August 2, 2018

Student Name ____________________________________________________________

Address ___________________________________________ City __________ Zip __________

Phone Number __________________________ Alternate Number ______________________

Parent/Guardian Name __________________________ Email _________________________________

High School Currently Attending __________________________________________

Birth Date ______________

Counselor Name ____________________________________________________________

IEP/504 Plan ____ (Yes) ____ (No)

Tuition: $270.00 per Course – No refunds issued after the first week of class (4 days)
Payment options:  Cash, Credit: Visa, Discover or MasterCard, Check (payable to SCSACE)
Counselor – Please initial one:  Free _____ ($65)     Reduced ($135)     Full ($270)

COURSES SELECTION - ½ credit per class

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<th>Session 1 (8:00am-10:00am)</th>
<th>Session 2 (10:05am-12:05pm)</th>
<th>Session 3 (12:10pm-2:10pm)</th>
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Grosse Pointe Location: Grosse Pointe North High School, 707 Vernier Rd., Grosse Pointe Woods, MI 48236

Counselor/Principal: Please complete this form and authorize with your signature.
Student: Bring the signed registration form and tuition fee to registration.

Session #1 Course Selection: ________________________________

Session #2 Course Selection: ________________________________

Session #3 Course Selection: ________________________________

_________________________  ____________________________
Counselor Signature/Date  Parent Signature/Date
ODYSSEYWARE COURSE OFFERINGS - 2017-2018

English Language Arts
- English 9 A & B
- English 10 A & B
- English 11 A & B
- English 12 A & B

Fine Arts
- Art History A & B
- Music Appreciation
- Music Theory
- Media Studies

Mathematics
- Algebra I A & B
- Geometry A & B
- Algebra II A & B

World Languages
- French I A & B
- French II A & B
- Spanish I A & B
- Spanish II A & B
- Spanish III A & B

Senior Math
- Pre Calculus A & B
- Integrated Math I A & B
- Consumers Math
- Personal Financial Literacy
- Trigonometry
- Advanced Algebra A & B

Computer
- Technology & You

Science
- Biology A & B
- Chemistry A & B
- Physics A & B

CTE
- Intro to Agri., Food & Natural Resources
- Construction Careers
- Principles of Business and Finance
- Intro to Careers in Education & Training
- Forensics: Using Science to Solve a Mystery
- Intro to Hospitality & Tourism Systems
- Intro to Law, Public Safety, Corrections, & Security

Science Elective
- Earth Science A & B
- Environmental Science A & B
- Integrated Physics & Chemistry A & B

Electives
- Essentials of Communication
- Essentials of Business
- Civil War
- Vietnam Era
- World Geography A & B
- World Civilizations
- Personal & Family Living
- Psychology
- 20th Century American History

Social Studies
- World History A & B
- US History A & B
- Government
- Economics

Health/Physical Ed
- High School Health
- Physical Education
ENGLISH LANGUAGE ARTS

English 9 A&B

COURSE OVERVIEW

Students will build on the sequential development and integration of communication skills in four major areas: reading, writing, speaking, and listening. Students will strengthen a foundation of understanding of the structure of language and grammar, and use this knowledge to write persuasive essays, professional career documents, focused research projects, literary analyses, and informational/explanatory texts. Students will also engage in speaking and listening activities that incorporate media and technology. In addition, students will read and comprehend a variety of literature, including poetry, drama, and novels. As a result of the reading, writing, speaking, and listening students do in this course, they will grow their vocabulary and their understanding of how to communicate effectively by making skillful choices when expressing themselves with language.

- **Unit 1: Reading and Writing:** Students will build vocabulary strategies to use when reading and writing, including the use of context clues, denotation, connotation, word parts, and etymology; in addition, students collect strategies for active listening.
- **Unit 2: The Structure of Language:** Students will examine the purpose and use of a variety of parts of speech, including nouns, verbs, adverbs, phrases, and clauses; students will explore the various types of informal and formal letters, including constructing a properly formatted business letter.
- **Unit 3: Language Use and Language History:** Students will explore the nature and history of the English language, in addition to the meaning and purpose of analogies, gerunds, participles, and various verb tenses.
- **Unit 4: Researching a Complex Process:** Students will build a complex understanding of the process and practice of research, including documentation and citation, determining reliable sources, viewing and utilizing visuals and media, and constructing an essay and oral presentation based on this research process.
- **Unit 5: Practical Persuasion:** Students will strengthen their knowledge of persuasive strategies in reading and writing, including writing and delivering an original persuasive speech.
- **Unit 6: Mass Media:** Students will examine and interpret aspects of mass media, including visual elements, bias, fallacies, and reliability.
- **Unit 7: Poetry and Short Stories:** Students will examine the fundamentals of poetry and short stories, and write and revise a literary analysis essay based on a short story from the unit.
- **Unit 8: The Odyssey:** Students will explore Homer’s Greek epic, The Odyssey, interpreting characters, events, setting, cultural context, and themes.
- **Unit 9: Romeo and Juliet:** Students will read Shakespeare’s Romeo and Juliet, interpreting characters, events, setting, and themes.
- **Unit 10: Studies in the Novel:** Students will trace the definition and development of the novel genre, specifically reading Twenty Thousand Leagues Under the Sea, interpreting characters, events, setting, and themes.

CURRICULUM CONTENT AND SKILLS FOCUS

**Reading Comprehension Skills**

- Analyzing propaganda and logical fallacies
- Understanding elements of narrative prose
- Reading informative nonfiction
- Reading fiction
- Reading poetry
- Developing reading skills: analysis, evaluation, and interpretation

**Composition**

- Writing business letter
- Writing a formal essay
- Writing a persuasive essay
- Writing about poetry
- Writing a speech
- Writing a full-length research paper

**Grammar and Usage**

- Parts of speech
- Usage errors
- Sentence structure — clauses and phrases
Literature Studies

- Drama: genre/type, structure, and elements
- Fiction: genre/type, structure, and elements, and modes
- Short stories: structure, elements, and literary devices
- Poetry: genre/type, structure, elements, and literary devices

Speaking and Listening

- Listening skills: elements, common errors, and strategies
- Speaking skills: elements, purpose, organization, and delivery

Special Topics

- Origin/development of language
- Research skills: Internet, library, and reference materials
- Visual media: charts, graphs, and tables

LITERATURE LIST

The following are literary works students will encounter in English I:

Reading and Writing

- Webster, Daniel
  - Imaginary Speech of John Adams

Drama

- Shakespeare, William.
  - Romeo and Juliet

Fiction

- Connell, Richard.
  - "The Most Dangerous Game" (excerpt)
- Saki.
  - "The Open Window"
- Verne, Jules.
  - Twenty Thousand Leagues Under the Sea

Poetry

- Homer.
  - The Odyssey
- Wordsworth, William.
  - "Lines Written in Early Spring" (excerpt)
- Rossetti, Christina.
  - "Up-Hill"
- Johnson, Ben.
  - "To the memory of my beloved, The AUTHOR Mr. William Shakespeare, And what he hath left us"
- Keats, John.
  - "To My Brother George"
- Whitman, Walt.
  - "As I Ponder'd in Silence"
- Tennyson, Alfred Lord.
  - "The Eagle"
English 10 A&B

COURSE OVERVIEW

Students will continue to build on the sequential development and integration of communication skills in four major areas: reading, writing, speaking, and listening. Students will strengthen an increasingly advanced understanding of the structure of language and grammar, and use this knowledge to write literary analyses, professional career documents, poetry, a short story, and an original speech. In addition, students will read and comprehend a variety of literature, including short stories, drama, and expository text. As a result of the reading, writing, speaking, and listening students will do in this course, they will grow their vocabulary and their understanding of how to communicate effectively by making skillful choices when expressing themselves with language.

- **Unit 1: Reading, Writing, and Speaking:** Students strengthen their understanding of the basic parts and structure of language, including vocabulary, sentence and paragraph structure, and etymology; in addition, students review strategies for active listening.
- **Unit 2: Language Structure:** Students will understand the purpose and use of increasingly advanced parts of speech, including noun plurals, suffixes, pronouns/antecedents, and clauses.
- **Unit 3: Writing Effective Strategies:** Students will understand and utilize the key parts of a sentence, including participles, gerunds, and a variety of phrases.
- **Unit 4: Exposition:** Students will refine their reading skills, including distinguishing the main idea of a text, understanding relationships between ideas, and interpreting varieties of English (including dialect and colloquial speech); students will then utilize this knowledge in the composition of focused, well-written essays and speeches.
- **Unit 5: Get a Job:** Students will reinforce an understanding of increasingly advanced grammar and punctuation, and will master the writing of professional documents, such as resumes and cover letters.
- **Unit 7: Media and You:** Students will refine their interpretation of various forms of media, learning to analyze the purpose, audience, occasion, subject, and potential bias of a variety of media.
- **Unit 8: Short Stories:** Students will read and analyze short stories, completing literary analyses and composing their own, original short stories using the literary techniques and elements taught in the unit.
- **Unit 9: Reviewing Literature:** Students will continue to advance their literary analysis skills, delving into elements such as character, symbolism, and mood with a critical eye and utilizing writing skills to compose a full literary analysis essay of *Silas Marner*.
- **Unit 10: Poetry:** Students will read and analyze poetry, including poetic elements such as form, rhyme, meter, diction, and symbolism; students will write a poem analysis as well as compose an original poem to demonstrate their understanding.
- **Unit 11: Pygmalion:** Students will read George Bernard Shaw's *Pygmalion*, interpreting and analyzing characters, events, and themes, culminating in an advanced literary analysis essay examining theme in the literature.

CURRICULUM CONTENT AND SKILLS FOCUS

**Reading Comprehension Skills**

- Elements of narrative prose
- Reading fiction
- Reading poetry
- Reading skills: analysis, evaluation, and interpretation
- Strategies for comprehension: making inferences and identifying main ideas

**Composition**

- Paragraph elements and structure: connectives and transitions
- Writing expository prose: process
- Writing instructions
- Writing a literary critique
- Writing a poem
- Writing a poetry analysis
- Writing a short story
- Writing a speech

**Grammar and Usage**

- Development of English: grammar, spelling, pronunciation, and vocabulary
- Nouns: noun plurals
- Pronouns: types, gender, case, and pronoun-antecedent agreement
LITERATURE STUDIES

- Sentence structure: clauses, phrases, and compound/complex sentences
- Drama: structure and elements
- Fiction: genre/type, structure, elements, and modes
- History of drama: Greek/Roman plays and medieval drama
- History of novels: oral tradition, novel prototypes, and early novels
- Poetry: genre/type, structure, elements, and literary devices

SPEAKING AND LISTENING

- Listening skills: elements, common errors, and strategies
- Speaking skills: elements, purpose, organization, and delivery

SPELLING

- Nouns: plural and affixes

SPECIAL TOPICS

- Origin/development of language
- Research skills: Internet, library and reference materials
- Study skills: note taking
- Job-seeking skills: resumés and cover letters

LITERATURE LIST

Following are literary works students will encounter in English II.

DRAMA

- Shaw, George Bernard.
  o Pygmalion

FICTION

- Eliot, George.
  o Silas Marner
- de Maupassant, Guy.
  o “The Necklace”
- Stockton, Frank.
  o “The Lady, or the Tiger?”
- Twain, Mark.
  o “The Celebrated Frog of Calaveras County”

POETRY

- Keats, John.
  o “To My Brother George”
- Housman, A.E.
  o “The Loveliest of Trees”
  o “Is My Team Ploughing?”
- Tennyson, Alfred.
  o “The Eagle”
- Wylie, Elinor.
  o “Velvet Shoes”
- Shelley, Percy.
  o “Ozymandias”
- Burns, Robert.
  o “A Red, Red Rose”
- Blake, William.
  o “The Sick Rose,” “The Tyger”
English 11 A&B

COURSE OVERVIEW

Students will continue to build on the sequential development and integration of communication skills in four major areas: reading, writing, speaking, and listening. Students will strengthen an increasingly advanced understanding of the structure of language and grammar, and use this knowledge to write literary analyses, professional career documents, poetry, advanced essays, and a focused research project. In addition, students will read and comprehend a variety of literature, including drama, literary fiction, poetry, and foundational American documents. As a result of the reading, writing, speaking, and listening students will do in this course, they will grow their vocabulary and their understanding of how to communicate effectively by making skillful choices when expressing themselves with language.

- **Unit 1: The Uses and Varieties of English**: Students will complete an in-depth study of the nuances of the English language, including standard and nonstandard English, professional language, colloquialisms, and legal and business English, utilizing both this knowledge and reference tools to complete projects involving topics such as language analysis and etymology.
- **Unit 2: Writing Effective Sentences**: Students will advance their understanding of the parts of speech, correctly recognizing the purpose and use of various types of clauses, conjunctions, and verbal expressions.
- **Unit 3: Sentence Workshop**: Students will understand the relationships among sentence parts in the English language, working with elements such as pronouns, adverbs, infinitives, and parallelism to improve sentence structure.
- **Unit 4: Why Study Reading?**: Students will dissect specific elements of the English language with the purpose of advancing their reading comprehension skills; these elements include Latin and Green prefixes and roots, pronunciation, and context clues.
- **Unit 5: Poetry**: Students will analyze poetic meter, rhyme, and form, as well as poetic elements such as imagery and connotation in a variety of poetry, demonstrating mastery of the content through the composition of original poetry, poetic analyses, and a prose paraphrase of a classic poem.
- **Unit 7: Nonfiction**: Students will examine the elements of nonfiction, looking closely at expository works such as essays, speeches, magazine and newspaper articles, and editorials; students will create their own expository texts, including developing a survey and graphing the results.
- **Unit 8: American Drama**: Students will complete an analytical reading of Thornton Wilder's play, Our Town, interpreting the elements of drama such as stage devices, structure, theme, conflict, and character.
- **Unit 9: Studies in the American Novel**: Students will examine the history and structure of the American novel, using a critical lens to read, interpret, and analyze Ernest Hemingway's The Old Man and the Sea.
- **Unit 10: Research**: Students will build mastery in the skills required for academic research, including the utilization of various reference sources, documentation, citation; culminating in the development of an outline, thesis, and final research project.
- **Unit 11: Reviewing Communication Skills and Literature**: Students will review the major skills mastered in the course, including effective reading and writing, as well as the process of composing advanced academic texts, such as research projects, expository essays, and critical analyses.

CURRICULUM CONTENT AND SKILLS FOCUS

**Reading Comprehension Skills**

- Context, denotation, connotation, and symbolism
- Reading drama
- Reading poetry: recognizing scansion
- Reading skills: analysis, evaluation, and interpretation
- Strategies for comprehension: making inferences and identifying main ideas

**Composition**

- Sentence construction errors
- Using English variations
- Writing a brief biography
- Writing expository prose: process
- Writing from personal experience
- Writing a literary critique
- Writing a poem
- Writing about poetry: analysis, evaluation, and interpretation
- Writing a research paper: process

**Grammar and Usage**
• Clauses: main/subordinate clauses, elliptical clauses, and adjective/adverb clauses
• Levels of language use: standard/nonstandard, slang, colloquialisms, medical, legal, professional, and literary
• Phrases: appositive, gerund, participle, and infinitive phrases
• Pronouns: indefinite, personal, and case, including nominative, objective, and possessive pronouns
• Verbs: present and past participles

**Literature Studies**

- **Drama**
  - Elements: structure, theme, setting, style, character, and literary devices
  - Mode: naturalism, realism, Romanticism, and symbolism
  - History of drama: Greek/Roman plays, medieval drama, Elizabethan drama, and American drama
  - Genre/type: medieval drama, Elizabethan, and modern (subtypes)
- **Fiction**
  - Elements: structure, theme, mood, irony, purpose, and literary devices
  - Mode: naturalism, realism, and Romanticism
  - Genre/type: novels (subtypes)
  - History of novels: American novel
- **Nonfiction**
  - Elements: structure and literary devices
  - History of nonfiction: classical to modern
  - Genre/type: exposition, journal, biography, autobiogaphy, essays, speeches, criticism, satire, editorials, and letters
- **Poetry**
  - Elements: structure, meter, rhyme, and symbolism
  - Literary devices: sound effects, metrical effects, and figures of speech
  - Genre/type

**Special Topics**

- English variations: regional dialects
- Research skills: Internet, library, and reference materials

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**LITERATURE LIST**

Following are literary works students will encounter in English III.

**Drama**

• Wilder, Thornton
  - *Our Town*

**Fiction**

• Hemingway, Ernest
  - *The Old Man and the Sea*

**Nonfiction**

• Addison, Joseph
  - *The Spectator* (excerpt)
• Byrd, William
  - “A Progress to the Mines” (excerpt)
• de Crevecoeur, Jean.
  - *Letters from an American Farmer* (excerpt)
• Emerson, Ralph
  - “Commodity” (excerpt)
• Franklin, Benjamin
  - “The Ephemera”
• Henry, Patrick
  - “Give Me Liberty or Give Me Death”
• Irving, Washington
  o “A History of New York” (excerpt)
• Jacobs, Harriet A
  o Incidents in the Life of a Slave Girl, Seven Years Concealed, Written by Herself (excerpt)
• Jefferson, Thomas.
  o “The Declaration of Independence” (excerpt)
  o Letter to Thomas Paine
• Poe, Edgar
  o “Poetic Principle” (excerpt)
• Smith, John
  o A True Relation (excerpt)
• Steele, Richard
  o The Spectator (excerpt)

Poetry

• Browning, Elizabeth Barrett
  o “Sonnet 43”
• Dickinson, Emily
  o “The Snake”
  o “Success is counted sweetest”
• Frost, Robert
  o “Birches”
• Lowell, James Russell
  o “Ode Recited at the Harvard Commemoration”
• Poe, Edgar
  o “Annabel Lee”
• Shakespeare, William
  o “A Lover and a Lass”
  o “Sonnet 130”
• Whitman, Walt
  o “Young Grimes”
• Wilde, Oscar
  o “To My Wife—With a Copy of My Poems”

• Browning, Robert

  • “My Last Duchess”
English 12 A&B

COURSE OVERVIEW

Students will master the integration of communication skills in four major areas: reading, writing, speaking, and listening. Students will strengthen an increasingly advanced understanding of the structure of language and grammar, and use this knowledge to write literary analyses, professional career documents, poetry, advanced essays, and a focused research project. In addition, students will read and comprehend a variety of literature, including Shakespearean drama, literary fiction, seventeenth and eighteenth-century literature, and a wide variety of poetry spanning several centuries. As a result of the reading, writing, speaking, and listening students will do in this course, they will grow their vocabulary and their understanding of how to communicate effectively by making skillful choices when expressing themselves with language.

- **Unit 1: The Worth of Words**: Students will develop a mastery of word use, including understanding word form and meanings, jargon, spelling, mechanics, and the structure of grammatically correct sentences.
- **Unit 2: The Structure of Language**: Students will complete a thorough review of all parts of speech, sentence structure, and methods of subordination expected at this senior grade level, and are expected to demonstrate this mastery in a culminating writing project.
- **Unit 3: Reading, Researching, and Listening Skills**: Students will master the skills necessary for successful reading, listening, and research, including the identification of main ideas and supporting details, the definition of unknown words, the use of research sources, documentation and citation of research sources, and active listening skills.
- **Unit 4: Studying Language**: Students will study the advanced foundations of grammar, demonstrating their understanding through a variety of projects based on semantics, usage, and analogies.
- **Unit 5: Medieval English Literature**: Students will examine texts from Medieval England, including excerpts from *Beowulf* and *Canterbury Tales*, interpreting language, characters, events, settings, and themes.
- **Unit 7: Elizabethan Literature**: Students will analyze texts from Elizabethan literature, including a variety of sonnets and William Shakespeare’s *Hamlet*, interpreting language, characters, events, settings, and themes with a critical eye.
- **Unit 8: 17th- and 18th-Century English Literature**: Students will examine excerpts from foundational texts from this era, including John Milton’s *Paradise Lost*, and other classical authors such as Alexander Pope and Jonathan Swift, interpreting language, characters, events, settings, and themes with a critical eye, culminating in a comparative essay examining social criticism in works of the era.
- **Unit 9: Romantic and Victorian Poetry**: Students will read and interpret foundational poems from the Romantic and Victorian Eras, including works by William Wordsworth, Percy Shelley, and John Keats; students will conduct external research about the era to build an understanding of historical context, as well as compose an advanced comparative essay focused on two pivotal poems of the era.
- **Unit 10: Creative Writing**: Students will enrich their knowledge of the tools of writing, advancing their skills, including those related to characterization, narration, and writing both narratives and poetry.
- **Unit 11: Review**: Students will complete a robust review of key concepts learned in the course to ensure mastery; topics include grammar and semantics, writing strategies, and literature spanning from Medieval England through the Victorian era.

CURRICULUM CONTENT AND SKILLS FOCUS

Reading Comprehension Skills

- Context, denotation, connotation, and symbolism
- Phrase recognition drills
- Reading drama
- Reading poetry: recognizing scansion
- Reading skills: analysis, evaluation, and interpretation
- Strategies for comprehension: making inferences, identifying main ideas, and reading for details

Composition

- Diction errors: trite expressions and stilted/vague language
- Essays: planning, outlining, writing, and revising
- Sentence construction errors—fragments, dangling construction, parallelism, reference, agreement, and logical errors
- Paragraph construction: coherence, transition, and unity
- Paragraph construction errors: coherence, transition, shift in person, shift in tense, and shift in number
- Subordination
- Writing a brief biography
- Writing about British history
- Writing a character study
- Writing a character sketch
- Writing a compare/contrast essay
• Writing about literary forms
• Writing a literary critique
• Writing poetry
• Writing about poetry: analysis, interpretation, and evaluation
• Writing a short story

Grammar and Usage

• Approaches to grammar: generative, structural, transformational, and traditional
• Levels of language use: slang and colloquialisms
• Linguistic theory
• Mechanics: abbreviations, capitalization, hyphens, italics, and numbers
• Parts of speech: adjectives, adverbs, infinitives, nouns, pronouns, and verbs
• Semantics
• Sentence structure: clauses, conjunctions, interjections, and phrases
• Word choice

Literature Studies

• Drama
  o Elements: structure, theme, setting, style, character, and literary devices
  o Genre/type: medieval drama and Elizabethan drama

• Fiction
  o Elements: structure, theme, mood, point of view, character, dialogue, setting, style, satire, and literary devices
  o Literary devices: alliteration, allusion, imagery, metaphor, and personification

• History of English literature: from 1000-1800

• Poetry
  o Elements: structure, meter, rhyme, symbolism, and subject matter
  o Literary devices: alliteration, apostrophe, assonance, caesura, consonance, hyperbole, kenning, metonymy, metaphor, onomatopoeia, paradox, personification, simile, sprung rhythm, and synecdoche
  o Genre/type: sonnet, dream vision, ballad, elegy, Breton lay, epic, free verse, blank verse, dramatic monologue, mock-heroic, and satire

Special Topics

• Listening skills
• Origin/development of language: Old and Middle English
• Research skills: Internet, library, and reference materials
• Study skills: note-taking

LITERATURE LIST

Following are literary works students will encounter in English IV.

Drama

• Shakespeare, William.
  o *Hamlet*

Fiction

• Swift, Jonathan.
  o *Gulliver's Travels* (excerpts)

Poetry

• *Beowulf* (excerpts)
• Browning, Elizabeth Barrett.
  o "Sonnet 43"
  o "A Child Asleep"
• Browning, Robert.
"Home Thoughts, from Abroad"
"My Last Duchess"

Byron, Lord (George Gordon).
"Chide Harold's Pilgrimage" (excerpt)

Campion, Thomas.
"The Third and Fourth Book of Ayres" (excerpt)

Chaucer, Geoffrey.
Canterbury Tales (excerpts)

Chesterton, G.K.
"The Donkey"

Coleridge, Samuel.
"Kubla Khan"

Dekker, Thomas.
"Golden Slumbers Kiss Your Eyes" from The Pleasant Comedy of Patient Grisill

Donne, John.
"Death, Be Not Proud"

Goldsmith, Oliver.
"The Deserted Village"

Jonson, Ben.
"The Triumph of Charis"

Keats, John.
"Ode on a Grecian Urn"
"On First Looking into Chapman's Homer"
"When I Have Fears"

Milton, John.
"Lycidas" (excerpt)
Paradise Lost (excerpts)
"Sonnet XIX"

Pope, Alexander.
"The Dunciad" (excerpt)

Shakespeare, William.
"Song" from Cymbeline
"Song" from Much Ado about Nothing
"Angel's Song" from The Tempest
"Sonnet XVII"
"Sonnet XXIX"
"Sonnet CXVI"

Shelley, Percy.
"Ode to the West Wind"

Spenser, Edmund.
"Sonnet XV"
"Sonnet XXXIV"

Sydney, Sir Phillip.
"Sonnet XXXI"
"Sonnet XLI"

Tennyson, Alfred.
"Break, Break, Break"
"Crossing the Bar"

Wordsworth, William.
"Lines Composed a Few Miles Above Tintern Abbey"
"London, 1802"
"She Dwelt Among the Untrodden Ways"
MATHAMATICS

Algebra I A&B

COURSE OVERVIEW

Algebra I Fundamentals is a full year, high school credit course that is intended for the student who has successfully mastered the core algebraic concepts covered in the prerequisite course, Mathematics 800 Fundamentals. Within the Algebra I Fundamentals course, the student will explore basic algebraic fundamentals such as evaluating, creating, solving and graphing linear, quadratic, and polynomial functions.

- **Foundations of Algebra**: Student will identify different real number properties, and how to use them to solve algebraic expressions.
- **Linear Equations**: Student will translate word problems into algebraic equations, and solve them using real number properties, converting between fractions, decimals, and percents.
- **Functions**: Student will understand the characteristics of functions, how to plot them, how to derive their equations, and determine what type of function a graph represents.
- **Inequalities**: Student will write, graph, and solve inequalities using real number properties.
- **Linear Systems**: Student will determine the solution of a pair of linear equations, using the addition method, substitution method and matrices.
- **Polynomials**: Student will add, subtract, multiply, and divide monomials and polynomials, as well as factor polynomials, using several different methods.
- **Exponential and Radical Functions**: Student will simplify powers of products, a power raised to a power, and quotients of powers, using the rule of exponents, and add, subtract, multiply, and divide radical expressions to solve equations.
- **Quadratics**: Student will identify, write, and graph various triangle, circle and quadratic equations and inequalities using the Pythagorean theorem, and by factoring, completing the square, and using the square root method.
- **Rational Expressions**: Student will add and subtract fractions with like and unlike denominators, solve proportions, equations and inequalities containing rational expressions, and solve different word problems using rational equations.
- **Probability and Statistics**: Student will determine the central tendencies of a given data set, as well as evaluate probability of possible outcomes using multiple methods.

**Curriculum Content and Skill Focus**

**UNIT 1: FOUNDATIONS OF ALGEBRA**

- Identify a variable expression and its components: variable, coefficient, constant.
- Translate expressions written as English phrases into algebraic expressions, and interpret algebraic expressions.
- Convert terminating, or repeating decimals to fractions.
- Identify the additive identity and multiplicative inverse of a number.
- Add, subtract, multiply, or divide signed numbers.
- Identify the commutative and associative properties of addition and multiplication, and the distributive property.
- Simplify algebraic expressions by using real number properties, absolute value symbols, order of operations, removing parentheses and combining like terms.

**UNIT 2: LINEAR EQUATIONS**

- Translate sentences into algebraic equations.
- Use the addition and multiplication properties of equality to solve equations.
- Solve two-step equations by using both the addition and multiplication properties of equality.
- Solve multi-step equations by combining like terms on one or both sides of the equation first.
- Solve a word problem by writing and solving a related equation.
- Solve word problems with more than two unknowns using an equation.
- Convert between fractions, decimals, and percents.
- Calculate percent increase and decrease.
- Solve investment word problems, and mixture word problems.
UNIT 3: FUNCTIONS

- Write an equation to express a relationship between coordinates in the plane, and find the domain and range of a relation.
- Identify and evaluate a function for a value of the dependent variable using a function rule, graph, or table, and find the value of the independent variable of a function given the dependent variable.
- Identify the graph of a function, and graph a function from its equation.
- Identify an arithmetic sequence, find the common difference, extend an arithmetic sequence, and find the nth term.
- Identify a function as being a direct variation, determine the constant of variation, and write the equation of a direct variation.
- Write a linear equation in general form, in slope-intercept form, and graph it by finding solutions of the equation.
- Identify the graph of an absolute value function in the form \( y = |x| + c \), and \( y = |x + c| \).
- Find the slope of, and write an equation for, a line parallel, or perpendicular, to a given line.

UNIT 4: INEQUALITIES

- Use set builder notation to express a set.
- Graph a set of numbers on the number line, and write the set that is represented by a graph.
- Solve an inequality, and graph the solution set of an inequality.
- Determine if a value is a solution of an inequality.
- Translate phrases into inequality statements, and solve an inequality using the multiplication property of inequality.
- Write a compound inequality as a union or intersection, graph it, and solve it.
- Solve and graph the solution sets of absolute value equations, and inequalities.

UNIT 5: LINEAR SYSTEMS

- Identify, and determine, a solution of a linear system graphically, and determine the number of solutions of a linear system.
- Identify if a linear system is consistent, inconsistent, or equivalent.
- Determine if a point, or ordered pair lies in the solution set of a system of linear inequalities.
- Solve a system of two linear equations by the addition method, and substitution method.
- Find the system determinant, x determinant, and y determinant for a system of two linear equations.
- Solve a system of two linear equations algebraically using determinants, and containing fractional coefficients.
- Write a system of linear equations to represent and solve a word problem, and coin and pricing problems.

UNIT 7: POLYNOMIALS

- Recognize a polynomial and the number of terms it has, and write a polynomial in descending order.
- Add or subtract polynomials using a horizontal or vertical format.
- Find products of binomials using the FOIL method, and Use shortcuts for squaring a binomial and finding the difference of two squares.
- Divide monomials by monomials.
- Multiply and divide polynomials with more than one term by a monomial, and using long division.
- Find the greatest common factor of two or more monomials, or a polynomial, using prime factorization, and factor out the GCF of a polynomial.
- Factor four-term polynomials by grouping, and trinomials into a product of binomials.
- Factor perfect square trinomials, the difference of two perfect squares, and a polynomial into prime factors.

UNIT 8: EXPONENTIAL AND RADICAL FUNCTIONS

- Evaluate and simplify expressions with zero, negative, and integer exponents.
- Convert between numbers in standard form and scientific notation.
- Simplify powers of products, a power raised to a power, and quotients of powers, using the rule of exponents.
- Identify, find the common ratio, and extend to the nth term a geometric sequence.
- Simplify square roots that have a perfect square factor, and radicals with fractional radicands.
- Rationalize a fraction.
- Add, subtract, multiply, and divide radical expressions.
- Solve equations with irrational solutions.
UNIT 9: QUADRATICS

- Determine if the given sides form a right triangle, and use the Pythagorean theorem to find the missing length of a side of a right triangle.
- Find the distance between two points, and find the coordinates of the midpoint of a line segment given the endpoints.
- Write the equation of a circle whose center is at the origin, determine if a point lies on a circle with center at the origin, and find the center of a circle given the endpoints of a diameter.
- Identify a quadratic equation, and write a quadratic equation in general form.
- Find ordered pairs on the graph of a quadratic function, and identify the solutions of a quadratic equation from the related parabola.
- Write the vertex form of a quadratic equation from the given graph, and identify the vertex of a parabola from the equation.
- Identify and graph the solution set of a quadratic inequality, and determine if a point is a solution of a quadratic inequality.
- Solve quadratic equations having rational or irrational roots by factoring, completing the square, and using the square root method.

UNIT 10: RATIONAL EXPRESSIONS

- Reduce, multiply, and divide rational expressions.
- Add and subtract fractions that have a common denominator.
- Determine the lowest common denominator of rational expressions.
- Add rational expressions with unlike denominators.
- Solve proportions, and complex fractions.
- Solve equations containing rational expressions by clearing fractions.
- Solve inequalities containing rational expressions with variables in the numerators.
- Solve time, distance, mixture, and rate problems using rational equations.
- Solve work and pipe flow problems.

UNIT 11: PROBABILITY AND STATISTICS

- Find the mean, median, mode, the range and inter-quartile range of a given set of data.
- Calculate quartiles of a data set, identify outliers of a data set and determine how they affect a measure of central tendency.
- Interpret data presented in a histogram, a frequency table, a stem-and-leaf plot, box-and-whisker plot, or a graph.
- Collect, organize, and analyze data, and make predictions based on data.
- Determine the number of outcomes, or sample space, of an event using a table, a tree diagram, or using the multiplication principle.
- Evaluate numeric expressions containing factorial notation.
- Evaluate and apply the permutation formula, and combination formula.
- Determine the theoretical probability of a single event, or compound events.
Geometry A&B

COURSE OVERVIEW

Geometry is a full year, high school math course for the student who has successfully completed the prerequisite course, Algebra I. The course focuses on the skills and methods of linear, coordinate, and plane geometry. In it, students will gain solid experience with geometric calculations and coordinate plane graphing, methods of formal proof, and techniques of construction.

- **Introduction**: Student will solve problems using set theory and operations, identify characteristics of postulates and relate geometric theorems on points, lines, and planes.
- **Logic**: Student will use inductive reasoning to draw reasonable conclusions, or deductive reasoning to prove basic theorems, and write conditional statements, converses, inverses and contrapositives.
- **Angles and Parallels**: Student will identify types of angles, categorize a shape as a polygon or non-polygon, identify different kinds of polygons, and find angle measures of polygons.
- **Congruent Triangles and Quadrilaterals**: Student will identify corresponding parts of congruent triangles, prove congruent parts using different theorems and postulates, and solve for angle measures of congruent polygons.
- **Similar Polygons**: Student will use facts about similarity to calculate side and angle measures in similar polygons, and use sine, cosine, and tangent values to solve for missing values in triangles.
- **Circles**: Student will identify different parts of a circle, and angles and arcs created by different lines interacting with circles, and calculate their measures.
- **Area and Volume**: Student will calculate the area, surface area, and volume of varying polygons by breaking them down into smaller and recognizable shapes.
- **Coordinate Geometry**: Student will graph linear equations and inequalities, use the distance and mid-point formulas to find lengths of segments and perimeters of geometric shapes, and find the equation of a line in various ways.
- **Transformations**: Student will understand rotations, reflections, dilations and translations in terms of angles, circles, perpendicular lines, and line segments, and find the result of combining multiple transformations.

Curriculum Content and Skill Focus

UNIT 1: INTRODUCTION

- Identify finite and infinite sets
- Find the intersections and unions of sets (set operations), and solve word problems using set theory and set operations
- List properties and characteristics of the undefined term ‘point’, ‘line’, and ‘plane’
- Identify and name examples of segments, rays, and collinear items when prompted
- Identify characteristics of postulates, and review properties of algebra
- Recall and relate geometric theorems on points, lines, and planes

UNIT 2: LOGIC

- Define and identify types of logical statements
- Use a truth table to analyze conjunctions and disjunctions, and to judge conditional statements
- Identify the converse, inverse, and contrapositive of conditional statements
- Identify statements as inductive or not inductive, and the major and minor premises of a syllogism
- Use inductive reasoning to draw reasonable conclusions, or deductive reasoning to prove basic theorems
- Identify the essential parts of a two-column proof, and match statements with reasons
- Prove some simple statements using the indirect method, or contradiction

UNIT 3: ANGLES AND PARALLELS

- Name an angle and its parts, use a protractor to measure angles, and find the sum of angle measures
- Define and identify acute, right, obtuse angles, adjacent angles, complementary and supplementary angles, vertical angles, exterior and interior angles.
• Copy a figure, and bisect figures by using mathematical construction techniques
• Name the angles formed by a transversal, and calculate their angle measures
• Complete proofs by applying properties and theorems of parallels and transversals
• Construct a line that is perpendicular to another line at a given point, and one that is tangent to a circle at a given point
• Identify triangles as acute, obtuse, equiangular, scalene, isosceles, or equilateral
• Categorize a shape as a polygon or non-polygon, identify different kinds of polygons, and find angle measures of polygons

UNIT 4: CONGRUENT TRIANGLES AND QUADRILATERALS

• Define congruent triangles, and identify corresponding parts of congruent triangles
• Prove that triangles are congruent using side and angle postulates, the Hypotenuse-Leg Theorem, and the ASA Theorem
• Prove that line segments, and angles are congruent using triangle congruence theorems on non-overlapping triangles, and properties of isosceles triangles
• Construct 30-60-90 right triangles, triangles given three sides, triangles given two sides and the included angle, 45-45-90 right triangles, and a median and an altitude of a triangle
• Use angle measures to prove when one side of a triangle is longer than another side, and use side lengths to prove when one angle of a triangle is larger than another angle
• Determine when one side of a triangle is greater than or less than another side, and when sides of two different triangles are equal
• Prove statements involving the rectangle, trapezoids, parallelograms, or the rhombus

UNIT 5: SIMILAR POLYGONS

• Solve proportions in one variable, including in the context of word problems, and in two variables
• Identify the means and extremes of a proportion, and the geometric mean of two numbers
• Identify similar triangles, and state key properties of similarity
• Use facts about similarity to calculate side measures of similar polygons
• Find the side measures of right triangles by applying special properties of 30-60-90 right triangles, and 45-45-90 right triangles
• Apply the Pythagorean theorem when solving for parts of rectangular solids
• State the sine ratio, cosine ratio, or tangent ratio of a given angle
• Use a table of sine values, cosine values, or tangent values to solve for a missing value

UNIT 7: CIRCLES

• Identify and define the parts of a circle, and calculate measures of parts of a circle
• Practice finding the measures of major and minor arcs, and segments and angles.
• Prove theorems that relate to tangents, arcs, and chords of a circle.
• Use properties of inscribed angles and intercepted arcs to solve problems and complete proofs
• Identify and define inscribed angles and intercepted arcs, and angles formed by intersecting secants
• Solve for angle and arc measures when secant lines intersect inside, or outside, a circle
• Find the lengths of chords, secants, and tangents

UNIT 8: AREA AND VOLUME

• Recognize that polygons can be broken into non-overlapping triangles
• Find the area of a rhombus, triangle, trapezoid, parallelogram, rectangle, circle, or any other regular polygon.
• Find area and linear measures such as side length of regular polygons that are similar
• Find the circumference of a circle when given the radius, and find the radius of a circle when given the circumference
• Find the arc length of a sector, the area of a sector, or a segment of a circle
• Find the area of unusual shapes using the areas of sectors and segments
• Find the surface area and volume of a prism, pyramid, cylinder, cone, sphere

UNIT 9: COORDINATE GEOMETRY

• Find points, lines, and planes of symmetry
• Review and practice graphing linear equations and inequalities
• Review and practice using the distance formula to find the distance between two points, and finding the midpoint of line segments, and find the lengths and perimeters of geometric shapes
• Find equation for a circle in the coordinate plane
• Calculate slope of a line, and determine if lines are parallel, perpendicular, or neither (skew)
• Find properties and measures of shapes using the coordinate plane
• Find the equation of a line, in standard form, given two points, and given a point on the line and the slope
• Prove theorems about plane figures using coordinate geometry

UNIT 10: TRANSFORMATIONS

• Define isometry and the three types of rigid motion
• If A is not on the line n, then n is the perpendicular bisector of AA'
• If A is on the line n then A = A
• Find the image of a shape after a rigid motion, translation, rotation, or dilation
• Tell the difference between a contraction and an expansion
• Find the result of combining multiple transformations
• Identify the inverse of a transformation
Algebra II A&B

COURSE OVERVIEW

Algebra II Fundamentals is a full-year, high school math course intended for the student who has successfully completed the prerequisite course Algebra I. This course focuses on algebraic techniques and methods in order to develop student understanding of advanced number theory, concepts involving linear, quadratic and polynomial functions, and pre-calculus theories. This course also integrates geometric concepts and skills throughout the units, as well as introducing students to basic trigonometric identities and problem solving.

- **Set, Structure, and Function**: Student will review the properties of sets and functions, determine the domains, ranges and inverses of functions, and simplifying expressions by combining like terms, exponent rules for multiplication and division and exponents.
- **Numbers, Sentences, and Problems**: Student will solve linear equations and inequalities using multiplication, addition, and distributive properties, graph absolute value, and compound equations and inequalities, and problems involving rate, distance, and time.
- **Linear Equations and Inequalities**: Student will determine the slope of a line and use that information to write an equation, compare lines, and solve a system of equations using the addition property of equality, the substitution property of equality, and graphical methods.
- **Polynomials**: Student will factor trinomials using the difference of two squares, the product of the sum of two perfect cubes, perfect square trinomials, and the difference of two cubes, and solve problems involving direct variation, inverse variation and joint or combination variation.
- **Algebraic Fractions**: Student will reduce fractions, add and subtract fractions, and change mixed numbers and complex fractions to simple algebraic fractions, and solve equations that contain algebraic fractions, variables in the denominator of a fraction, and mixture problems.
- **Real Numbers**: Student will evaluate and simplify radical expressions and fractional exponent expressions, and solve quadratic equations by the factoring method, and by completing the square.
- **Exponential Functions**: Student will evaluate and simplify equations in logarithmic form, exponential form, graph them, and use matrices to solve a system of equations.
- **Counting Principles**: Student will differentiate between a finite and an infinite series, and between an arithmetic and a geometric series, calculate the number of permutations or combinations of r elements from a set of n elements, and use the counting principle, conditional probability, and multiplication principle to calculate the probability of complex events.

Curriculum Content and Skill Focus

UNIT 1: SET, STRUCTURE, AND FUNCTION

- Count the number of elements in a set, find the subsets of a set, and find the intersection or union of two sets.
- Review the axioms and properties of Algebra, the mathematical operations. (+, - ,*, /), the distributive property, and order of operations.
- Identify functions and relations, and tell the difference between them.
- Find the domain and range of a function, and determine whether or not a given graph represents a function.
- Evaluate a function at any point, and find the inverse of a function or set of ordered pairs.
- Evaluate expressions, including negative and zero exponents, and simplify them, combining like terms.
- Review exponent rules for multiplication and division of like bases, and exponentiation of powers.

UNIT 2: NUMBERS, SENTENCES, AND PROBLEMS

- Review addition and multiplication of signed numbers.
- Solve linear equations and inequalities using multiplication, addition, and distributive properties.
- Differentiate between the multiplication property of inequality and the multiplication property of equality.
- Express the solutions of single variable inequalities using a line graph.
- Solve and graph absolute value, and compound equations and inequalities.
- Solve problems involving rate, distance, and time.

UNIT 3: LINEAR EQUATIONS AND INEQUALITIES

- Identify linear and nonlinear equations.
• Determine if two lines are parallel or perpendicular, or if a line is horizontal or vertical.
• Write the point-slope form of parallel lines, perpendicular lines, a line given the slope and a point on the line, and a line that passes through two given points.
• Write equations of a line in general form, point-slope, and slope-intercept form.
• Find the x and y intercepts by inspecting the general form of a line.
• Solve a system of two equations by using the addition property of equality, the substitution property of equality, and graphical methods.
• Graph the solution sets for linear equations or inequalities.

UNIT 4: POLYNOMIALS

• Multiply binomials and trinomials.
• Find special products such as the perfect square trinomial.
• Factor trinomials using the difference of two squares, the product of the sum of two perfect cubes, perfect square trinomials, and the difference of two cubes.
• Add and subtract polynomials, and perform long division of polynomials.
• Use shorthand 'synthetic' division to divide two polynomials.
• Solve word problems that involve direct variation of two quantities, inverse variation of two quantities, and joint or combination variation of three quantities.

UNIT 5: ALGEBRAIC FRACTIONS

• Simplify and evaluate algebraic expressions
• Reduce fractions, add and subtract fractions, and change mixed numbers and complex fractions to simple algebraic fractions.
• Add, subtract, multiply and divide algebraic expressions.
• Find the common denominator of algebraic fractions.
• Solve equations that contain algebraic fractions, variables in the denominator of a fraction, and mixture problems.
• Solve proportions of algebraic equations that have one variable.

UNIT 7: REAL NUMBERS

• Write the fractional equivalent of a rational decimal number.
• Change a radical expression to the equivalent expression with fractional exponents.
• Evaluate and simplify radical expressions and fractional exponent expressions.
• Use conjugates to rationalize the denominator of an algebraic expression.
• Solve quadratic equations by the factoring method, and by completing the square.
• Determine the sum and product of the roots of a quadratic equation.
• Find the discriminant of a quadratic equation, and use it to determine what kinds of solutions a quadratic equation has.

UNIT 8: QUADRATIC RELATIONS AND SYSTEMS

• Use the distance formula to find the distance between two points.
• Find the radius and center of a circle from its equation, and write the equation of a circle, given its center and radius.
• Find the length of the major axis, length of the minor axis, foci, and equation of an ellipse, and graph an ellipse given an equation.
• Find the directrix, and focus of a given parabola, and graph it.
• Write the equation of a hyperbola, and graph it.
• Identify a quadratic equation as a circle, parabola, hyperbola, or ellipse.
• Solve and graph a system of equations or inequalities.
• Find the conic section, and its equation, that represents a physical situation.

UNIT 9: EXPONENTIAL FUNCTIONS

• Evaluate and simplify exponential functions, and expressions with fractional exponents.
• Express an exponential equation in logarithmic form, and a logarithmic function in exponential form.
• Evaluate logarithmic functions.
• Express decimal numbers in scientific notation.
• Use change of base formula to evaluate common logarithms, solve exponential equations and graph them.
• Identify entries in a matrix by row and column, and use the matrix method to solve a system of equations.
• Perform addition or subtraction of matrices.

UNIT 10: COUNTING PRINCIPLES

• Indicate the general term of a sequence, and find the nth term.
• Differentiate between a finite and an infinite series, and between an arithmetic and a geometric series.
• Use summation notation, and evaluate factorial expressions.
• Calculate the number of permutations or combinations of r elements from a set of n elements.
• Demonstrate knowledge of the pattern of Pascal's triangle, and use it to find powers of binomials.
• Use the counting principle, conditional probability, and multiplication principle to calculate the probability of complex events.
• Define independent and dependent events.
Pre-calculus is a full-year, high school credit course that is intended for the student who has successfully mastered the core algebraic and conceptual geometric concepts covered in the prerequisite courses: Algebra I, Geometry, and Algebra II. The course primarily focuses on the skills and methods of analytic geometry and trigonometry while investigating further relationships in functions, probability, number theory, limits, and the introduction of derivatives.

- **Relations and Functions**: Student will examine functions, inverses of functions and combine functions to verify inverses, as well as distinguish between linear and quadratic functions.
- **Functions**: Student will solve polynomials using the quadratic theorem, remainder theorem and factor theorem, identify graphs of different polynomial equations and inequalities, and understand complex numbers.
- **Trigonometric Functions**: Student will identify and solve for missing components of trigonometric functions, calculating trigonometric values for different angles and relate degrees to radians, and radians to degrees.
- **Circular Functions and their Graphs**: Student will use parametric equations with trigonometric operations to model and solve problems, and calculate amplitude, period, and phase shift for graphed trigonometric functions.
- **Identities and Functions of Multiple Angles**: Student will simplify trigonometric expressions utilizing trigonometric identities, and double and half-angle formulas, and combine the identities and angle formulas learned in this unit to prove trigonometric relationships.
- **Application of Trigonometric Functions**: Student will solve problems using trigonometric functions, and combine trigonometric functions and vectors to solve incline plane problems and navigation problems.
- **Inverse Trigonometric Functions and Polar Coordinates**: Student will solve for unknowns using inverse trigonometric functions, recognize their graphs, and convert equations from Cartesian to polar coordinates, and from polar to Cartesian coordinates.
- **Quadratic Equations**: Student will identify properties and equations of circles, ellipses, parabolas and hyperbolas, and calculate point rotations and apply them to equations.
- **Counting Principles**: Student will distinguish between mutually exclusive, independent and dependent events, and between combination and permutation, and use the explicit formula and the recursive formula to find the nth term as well as the general term of an arithmetic sequence, or geometric sequence.
- **Calculus**: Student will solve functions involving numbers and conditions, understand limit notation, and evaluate limits using the limit theorems, and find the slope of curves, and calculate the angle between two curves.

**Curriculum Content and Skill Focus**

**UNIT 1: RELATIONS AND FUNCTIONS**

- Identify relations between ordered pairs.
- Solve for the domain and range of ordered pairs.
- Determine if a relation is a function, find the inverse of a function, and determine whether or not the inverse is a function.
- Distinguish between linear and quadratic functions, and write their equations.
- Utilize function notation to solve for dependent variable values.
- Apply arithmetic operations to equal functions.
- Combine functions via composition, and use composition of functions to verify that two functions are inverses of each other.
- Distinguish between zero, constant and identity functions.

**UNIT 2: FUNCTIONS**

- Solve linear polynomials, and second degree polynomials using factoring and the quadratic equation, the remainder theorem and the factor theorem.
- Relate how a quadratic equation can define the shape and location of parabolic curves.
- Solve for the roots of quadratic inequalities, and use them to identify their graphs.
- Identify factors, upper and lower limits of Nth degree polynomials.
- Convert complex numbers from rectangular form to polar form, and from polar form to rectangular form.
UNIT 3: TRIGONOMETRIC FUNCTIONS

- Identify the trigonometric functions, and solve for missing components.
- Identify acute, right and obtuse angles, positive and negative angles in standard position.
- Reduce angles using reductions formulas.
- Determine the values of trigonometric functions at reduced and quadrantal angles.
- Calculate the values of trigonometric functions at special angles
- Understand how radians relate to degrees, and convert between radians and degrees.

UNIT 4: CIRCULAR FUNCTIONS AND THEIR GRAPHS

- Understand how the unit circle can be used to solve for components of trigonometric functions.
- Describe movement around the unit circle.
- Use reduction formulas for radian angles.
- Identify graphs of the sine, cosine, tangent, cotangent, secant and cosecant functions.
- Use parametric equations with trigonometric operations to model and solve problems.
- Calculate amplitude, period, and phase shift for graphed trigonometric functions.

UNIT 5: IDENTITIES AND FUNCTIONS OF MULTIPLE ANGLES

- Reduce trigonometric expressions.
- Simplify trigonometric expressions utilizing trigonometric identities, and double and half-angle formulas.
- Utilize cosine identities to simplify trigonometric expressions.
- Simplify expressions for adding and subtracting angles relative to the sine and tangent functions
- Derive double and half-angle formulas for cosine, sine and tangent functions
- Combine the identities and angle formulas learned in this unit to prove trigonometric relationships

UNIT 7: APPLICATION OF TRIGONOMETRIC FUNCTIONS

- Review basic trigonometric functions, and properties of right triangles.
- Combine known angles and distances to solve for right triangle unknowns.
- Relate scalars, vectors, forces and resultants.
- Solve applied resultant problems using trigonometric functions.
- Perform the mathematical operations of addition, subtraction, scalar multiplication and the dot product.
- Use the dot product to determine if two vectors are orthogonal, parallel or neither.
- Combine trigonometric functions and vectors to solve incline plane problems
- Define and utilize navigational terms to solve navigation problems

UNIT 8: INVERSE TRIGONOMETRIC FUNCTIONS AND POLAR COORDINATES

- Define the inverse of a function
- Explain how arcsin functions and square root functions are related
- Understand when the arccos function or inverse tangent is a function
- Solve for unknowns using the arccos function, or inverse tangent function
- Solve inverse trigonometric functions
- Recognize the equations, graphs and valid domains and ranges for inverse trigonometric functions
- Convert equations from Cartesian to polar coordinates, and polar coordinates to Cartesian coordinates
- Graph equations on the polar graph

RETURN
UNIT 9: QUADRATIC EQUATIONS

- Distinguish between circles, hyperbolas, ellipses and parabolas
- Find the equation of a circle that passes through three given points
- Use basic algebra to determine a circle's midpoint, center and radius, and proximity to lines
- Find properties of ellipses, parabolas that are not centered at the origin, using general equations
- Identify properties of ellipses, parabolas, hyperbolas
- Write general and standard parabolic equations based on a set of givens
- Understand why points can be rotated on graphs, and equations can be translated
- Calculate point rotation, and apply the rotation to an equation

UNIT 10: COUNTING PRINCIPLES

- Combine probabilities by addition or multiplication
- Distinguish between mutually exclusive, independent and dependent events, and between combination and permutation
- Combine combinations, and probabilities including multiple conditions
- Calculate permutations involving distinct (n) different things, or where some of the items are the same things.
- Calculate circular permutations, and combinations with one variable
- Use Pascal's triangle to expand binomials, and find combinations.
- Use the explicit formula and the recursive formula to find the nth term as well as the general term of an arithmetic sequence, or geometric sequence.
- Use sigma notation to represent arithmetic series and geometric series, and to evaluate finite sums, and infinite geometric series.

UNIT 11: CALCULUS

- Recognize and utilize function notation
- Solve functions involving numbers and conditions
- Identify the difference quotient
- Understand limit notation, and evaluate limits using the limit theorems
- Understand why limits are used to find the slope of curves
- Find the slope of curves, and calculate the angle between two curves
Integrated Math I is a mathematics course for high school students who have successfully completed either general mathematics for grade 8 or pre-algebra. The materials in this course integrate the topics of algebra, geometry, probability, and statistics.

Throughout the course, students will practice algebraic thinking and use algebra to model and solve real-world problems. Students are exposed to several branches of mathematics and will explore ways in which each one can be used as a mathematical model in understanding the world.

The course seeks to help students expand their knowledge and skills so that they may achieve the following goals:

- Gain an increased awareness of math as a life skill.
- Understand how math is like a language, with a set of conventions.
- Realize that while mathematical models are useful in studying the world, they have limits.

In attaining these goals, students will begin to see the "big picture" of mathematics and understand how numeric, algebraic, and geometric concepts are woven together to build a foundation for higher mathematical thinking.

- FOUNDATIONS OF ALGEBRA
- THE LANGUAGE OF ALGEBRA
- GEOMETRY
- COORDINATE GEOMETRY
- LINEAR EQUATIONS
- EQUATIONS AND INEQUALITIES
- LINEAR SYSTEMS
- PROBABILITY AND STATISTICS
Consumers Math

COURSE OVERVIEW

Consumer Math is an introduction to the many ways in which math can be used in everyday life. The course gives practical advice on how to handle situations that involve money and math principles. Consumer Math focuses on the basic skills and methods of arithmetic and provides students the opportunity to develop experience with algebraic techniques of evaluating variables and equations, including geometric formulas and interest equations. Students will also be introduced to topics in statistics.

- **Basic Math Review**: Student will apply the rules of adding, subtracting, multiplying, and dividing to signed numbers, fractions with like and unlike denominators, mixed numbers and improper fractions, as well as convert between fractions, decimals and percents.
- **Personal Finance**: Student will recognize various forms of compensation for employment, identify other methods to earn money, and calculate tips, pay, income needs, and deductions from a paycheck.
- **Statistics**: Student will calculate central tendencies, variances, standard deviations, and distribution curves for a set or sets of data, determine probabilities, and analyze balance sheets.
- **Taxes and Insurance**: Student will differentiate between the kinds of insurance, how to calculate costs, deductibles, and out of pocket costs, as well as understanding the different types of taxes and tax rates.
- **Banking Services and Investments**: Student will become familiar with the different services of a bank, know about estates, wills and trusts, and calculate different types of interest.
- **Banking and Credit Costs**: Student will understand credit, how it affects your financial life, how to calculate different types of interest, and determining your account balance in a number of ways.
- **Purchase and Sale of Goods**: Student will calculate prices, discounts and rebates on items, understand insurance premiums, deductibles, and discounts, and determine the cost of renting, leasing, or purchasing a vehicle or home, and other expenses those entail.
- **Leisure, Travel, and Retirement**: Student will consider the expenses involved in traveling, different recreations and hobbies, and necessary funds for retirement.
- **Jobs Related Services**: Student will use ratio and proportions to solve problems involving electricity, pulley problems, and fulcrum problems, calculate expenses involved in certain jobs, and use area formulas and trigonometric functions to solve real world problems.

Curriculum Content and Skill Focus

**UNIT 1: BASIC MATH REVIEW**

- Apply the rules of adding, subtracting, multiplying, and dividing signed numbers.
- Compute the lowest common multiple, or greatest common factor, of two or more numbers.
- Identify the differences between a proper and improper fraction and mixed numbers.
- Add, subtract, multiply and divide fractions with like and unlike denominators.
- Add and subtract mixed numbers by converting them to improper fractions.
- Convert percents to decimals and fractions, decimals to percents and fractions, and fractions to decimals or percents.
- Use a proportion to find the percent of a number, the rate between two numbers, and the base of a percentage and a number.
- Solve application problems using patterns, and problem-solving techniques by recognizing symbols representing the four operations, and converting words to numbers.

**UNIT 2: PERSONAL FINANCE**

- Evaluate and change dollars to cents and vice versa.
- Recognize other questions you must ask yourself when looking for a job
- Convert between metric and standard units of length, area, volume, weight, and temperature.
- Recognize various forms of compensation for employment.
- Identify other methods to earn money.
- Calculate a tip on purchased goods, commission of sales, retirement income needed, pay with overtime hours, deductions and net pay from paycheck.
UNIT 3: STATISTICS

- Compute the mean, median, and mode from a set of data.
- Use frequency tables to determine probability.
- Determine the union and intersections of sets.
- Use a stem and leaf plot or a box-and-whisker plot to represent data.
- Calculate averages of expenses, and percentage of every item in a budget.
- Compute the variance and standard deviation of data.
- Use the standard normal distribution, bell curves, and z-scores to interpret data.
- Analyze and interpret balance sheets

UNIT 4: TAXES AND INSURANCE

- Differentiate between the kinds of life insurance.
- Calculate premiums of life insurance based on age, gender, type of policy, and amount of benefit.
- Calculate annual, semiannual, quarterly, and monthly premiums, and the cash value of a whole life policy.
- Analyze deductibles, coinsurance and total out-of-pocket costs to an individual and the insurance company.
- Calculate the amount of federal tax, FICA tax, and Medicare tax deducted using a tax rate table.
- Calculate state tax withholdings from a state tax table.
- Assess sales tax on items purchased.
- Determine the tax rate for property tax, and the amount of property tax paid using that rate.

UNIT 5: BANKING SERVICES AND INVESTMENTS

- Recognize the difference between checking and savings accounts.
- Reconcile a bank account using a check register and bank statement.
- Calculate simple interest and compound interest compounded monthly, quarterly, semi-annually, or annually, using a table or formula.
- Become familiar with the different services a bank offers.
- Define the terms associated with stocks, bonds and mutual funds.
- Calculate dividends and dividends per share, the value per share and shares purchased, and cost and yields of bonds.
- Know the five basic ways to dispose an estate, how a will works, and the difference between a trust and living trust.

UNIT 6: BANKING AND CREDIT COSTS

- Understand overdraft policies at individual banks.
- Calculate overdraft fees on returned checks, simple interest for large purchases, interest for a student loan or discount loan, carrying charges of installment loans, the APR of a loan using a simple interest formula, a compound interest formula, simple interest on a mortgage, and average daily balance of a credit card.
- Determine whether paying cash or paying over a period is the better choice.
- Use the Rule of 78 to calculate interest on a loan.
- Understand credit and how it can affect your financial life.
- Recognize the advantages and dangers of owning a credit card.
- Find the interest rate and new account balance using the previous balance method, and unpaid balance method.

UNIT 7: PURCHASE AND SALE OF GOODS

- Calculate the percent discount on an item, the retail price using percent discounts, and compare prices using discounts and rebates.
- Calculate the discount for a credit extension.
- Analyze and interpret data using a bar graph, or a line graph.
- Calculate automobile insurance premiums, deductibles, and discounts.
- Determine the slope and y-intercept from a linear equation, and a linear equation given a graph.
- Calculate the total operating costs of a vehicle, depreciation of an automobile using a proportion, and using the estimated mileage.
- Determine the cost of renting or leasing a vehicle vs. buying one.
• Calculate payment increase due to an adjustable interest rate, closing costs when purchasing a home, and property tax on a home using mills.

UNIT 8: LEISURE, TRAVEL, AND RETIREMENT

• Calculate the cost of recreation or hobbies.
• Use a scale to convert actual lengths to model lengths, and model lengths to actual lengths.
• Find the degree of an angle using a protractor, and classify angles as acute, right, or obtuse.
• Calculate distance using rate and time, the Pythagorean Theorem, and the distance formula.
• Determine how many calories are consumed by eating specific foods, and by exercises.
• Compute the percentage increases and decreases of the cost of air and boat travel.
• Calculate the cost of traveling to foreign countries, purchasing goods, and converting foreign and U.S. currency.
• Consider the expenses involved in traveling, and investigate ways to cut costs.

UNIT 9: JOB RELATED SERVICES

• Use ratio and proportions to solve problems involving electricity, pulley problems, and fulcrum problems.
• Estimate number of guests, and amount of food served using ratios and proportions.
• Calculate caloric intake and weight of individuals, and calories burned using specific exercises.
• Calculate the overhead cost of a job, and compute total cost of a job using overhead cost.
• Compute the area or circumference of a circle given the radius or diameter.
• Use knowledge of area formulas for three-dimensional figures to solve practical applications.
• Find the perimeter, area, lateral and surface area, and volume of three-dimensional figures.
• Calculate side lengths and angles of triangles using knowledge of supplementary and complementary angles, and trigonometric functions.
Personal Finance Literacy

COURSE OVERVIEW

Personal Financial Literacy is a semester-length elective designed to help high school students prepare for success in making financial decisions throughout their lives. Topics in the course address the advantages of making sound financial decisions in both the short and long term, income planning, money management, saving and investing, and consumer rights and responsibilities.

- **Financial Responsibility and Decision-making:** This unit helps students gain knowledge about money and what they can do with money. Students will learn that it's important to become financially literate so they can make smart financial decisions about sales and purchases, credit, investments, and budgets.
- **Careers and Income:** This unit introduces students to information about careers, concepts to know before starting a business, sources of income, and paying income taxes.
- **Money Management:** Budgets and spending as well as financial institutions and the tools they offer are the focus of this unit. Students will also learn about financial risks and strategies to manage them.
- **Saving and Investing:** Students will learn about the benefits of opening a saving account, types of interest, investing, and financial planning and the elements a plan should include.
- **Credit, Debt, and Consumer Skills:** This unit discusses credit, loans, and consumer rights. Students will learn about credit cards and the costs and hazards of using them. Loans and mortgages will also be reviewed as will consumer rights and protections.

Curriculum Content and Skills Focus

**UNIT 1: FINANCIAL RESPONSIBILITY AND DECISION MAKING**

- Define financial literacy and identify the importance of becoming financially literate.
- Identify ways to be a financially responsible individual.
- Give examples of the benefits of financial responsibility and the costs of financial irresponsibility.
- Recognize the characteristics of reliable and relevant financial resources to evaluate a resource.
- Calculate net worth.
- Identify good financial goals and describe how to prioritize and evaluate them.
- Apply a systematic decision-making process to a financial decision.

**UNIT 2: CAREERS AND INCOME**

- Describe methods used to make career decisions, and identify factors that should influence you career decisions.
- Identify risks, costs, and rewards of starting a business.
- Identify sources of income.
- Identify factors affecting take-home pay, and identify deductions and withholdings on a paycheck stub.
- Identify examples of employee benefits.
- List taxes that adults pay and the purpose of the taxes.
- Identify the purpose of specific tax forms and complete a tax form.

**UNIT 3: MONEY MANAGEMENT**

- Identify the components of a personal financial plan: net worth statement, financial goals, budget, insurance plan, and a saving and investing plan.
- Recognize a budget, identify the steps for creating a budget, and identify the benefits of having one.
- Identify examples of spending wisely.
- Identify tools that will help manage money, and decide which tool is best for certain situations.
- Identify and compare the major types of financial institutions.
- Identify banking services, tools, and resources that will benefit you.
- Identify the purpose and features of deposit accounts and special savings accounts, including savings bonds, CDs, 529 plans, and IDAs.
- Describe the roles of the bank’s customer service representative, teller, loan officer, and branch manager.
UNIT 4: SAVING AND INVESTING

- Calculate the amount in a savings account given specific information, such as interest rate.
- Use the Rule of 72 to estimate savings returns.
- Identify the factors you should consider when selecting a savings account.
- Given a situation, select the appropriate type of account or investment.
- Identify the steps for buying and selling stock and the role of a stock broker.
- Read stock market quotes and a stock table.
- Identify factors, principals, and strategies that should be using when saving and investing.
- Identify the relationship between risk and return.
- Given a situation, create a diversified saving and investing plan.

UNIT 5: CREDIT, DEBT, AND CONSUMER SKILLS

- Calculate finance charges using different interest rates.
- Recognize how making minimum payments on credit card balances increases the total cost and repayment time.
- Select the most cost-effective option for making a purchase by calculating the total cost based on APR, grace period, and fees.
- Given a situation, select the appropriate type of account or investment.
- Identify the factors and tools that lenders look at when making credit decisions.
- Recognize excessive debt and describe possible consequences.
- Recognize the relationship between the interest rate, the principal, the loan repayment period, and the total cost of the loan.
- Calculate a mortgage payment.
- Identify various types of loans, including mortgages, student loans, home equity loans, small-business loans, and car loans.
- Given a situation, calculate whether an individual is ready to rent and can afford the upfront and the ongoing costs associated with renting.
- Identify rights, laws, and regulations that protect consumers when making purchases, banking, or applying for a loan.
- Identify advertising, sales techniques, deceptive sales techniques, and scams.
- Read and understand the terms of a warranty.
Trigonometry

COURSE OVERVIEW

Trigonometry is a five-unit elective course for high school students who have successfully completed Algebra I, Geometry, and Algebra II. The materials cover a development of trigonometry from right triangle trigonometry to oblique triangles and the polar plane. Throughout the course, students will develop trigonometric formulas and use them in real-world applications, evaluate trigonometric proofs using complex trigonometric identities and solving trigonometric equations with regard to the unit circle.

The course seeks to help students expand their knowledge and skills so that they may achieve the following goals:

• Use trigonometry as a tool for indirect measurement.
• Model natural phenomenon with trigonometric functions.
• Perform operations with complex numbers using trigonometry.
• Use trigonometric identities to evaluate trigonometric proofs and solve trigonometric equations with regard to the unit circle.
• Solve for unknown sides and angles of right and oblique triangles using right triangle trigonometry, law of sines and law of cosines.

In attaining these goals, students will begin to see the "big picture" of mathematics and understand how numeric, algebraic, and geometric concepts are woven together to build a foundation for higher mathematical thinking.

• RIGHT TRIANGLE TRIGONOMETRY
• GRAPHING AND INVERSE FUNCTIONS
• ANALYTIC TRIGONOMETRY
• TRIGONOMETRIC APPLICATIONS
• POLAR COORDINATES
Advanced Algebra A&B

COURSE OVERVIEW

Advanced Algebra is a full year high school mathematics course intended for the student who has successfully completed Analytic Geometry. This course is designed to prepare students for college-level and real-world mathematical reasoning. The concepts covered in this course integrate the topics of Statistics, Algebra II, and Trigonometry. Throughout the course, students will perform operations with rational, radical, and exponential expressions, explore higher order strategies necessary for analyzing multi-level logarithmic, exponential, linear, quadratic and polynomial functions and equations. Students are exposed to several branches of mathematics and will explore ways in which each one can be used as a mathematical model in understanding the world.

- **Inferences and Conclusions from Data**: Student will understand random and non-random sampling and the biases they may cause, and determine normal distributions and calculate variance and standard deviations from a data set.
- **Polynomial Functions**: Student will simplify algebraic expressions using several properties and operations, understand the graphic solutions to linear systems, and begin to understand complex numbers.
- **Rational and Radical Relationships**: Student will solve multi-step equations, write equations of a line given various information, use conjugates to rationalize the denominator of an algebraic expression, and solve different types of problems using rational equations.
- **Exponents and Logarithms**: Student will understand common and natural logarithms, exponential equations, and graphs of logarithms, square and cube roots, and exponential functions.
- **Trigonometric Functions**: Student will evaluate trigonometric and reciprocal trigonometric functions in degrees and radians, and identify their graphs and specific parts of their graphs, and solve trigonometric equations using Pythagorean identities and substitution.
- **Mathematical Modeling**: Student will calculate the common difference of an arithmetic sequence, the common ratio of a geometric sequence, and extend them to the nth term, graph quadratics and analyze them as they are changed using different methods, and use ratios or proportions to be able to calculate unit scales and solve problems.

Curriculum Content and Skill Focus

**UNIT 1: INFERENCE AND CONCLUSIONS FROM DATA**

- Find the mean, median, mode, and standard deviation of a given set of data.
- Present and interpret data presented in a histogram, dot plot, frequency table, stem-and-leaf plot, box-and-whisker plot, or graph, and make predictions.
- Understand how sampling is used to gather information about an entire population, and how a normal distribution can be used to make decisions.
- Distinguish between non-random and random samples of a population, and understand how non-random samples increase bias and random samples decrease bias.
- Determine normal distribution from a histogram and/or a data table, and calculate the variance and standard deviation of a data set.
- Find the sample mean of data that is used to model a population mean, and decide if the margin of error justifies the use of the sample mean to represent the population mean.

**UNIT 2: POLYNOMIAL FUNCTIONS**

- Use real number properties, the distributive property, commutative and associative properties of addition and multiplication, exponents, order of operations, and removing parentheses and combining like terms to simplify algebraic expressions.
- Identify a solution of a linear system graphically, determine the number of solutions, whether a linear system is consistent, inconsistent, or equivalent, or if a point is a solution of a system of linear equations.
- Learn the relationship of the numbers in Pascal's Triangle to binomial coefficients, and combinations.
- Find the discriminant of a quadratic equation, and use it to determine what kinds of solutions a quadratic equation has.
- Define the Fundamental Theorem of Algebra.
- Understand that imaginary roots of a polynomial equation occur in conjugate pairs.
- Understand the definition of a complex number as the sum of real number and an imaginary number, a + bi.
- Understand and perform operations with complex numbers including using FOIL to multiply, division, and finding multiplicative inverses using complex conjugates.
UNIT 3: RATIONAL AND RADICAL RELATIONSHIPS

- Solve multi-step equations that have the variable term on both sides, by combining like terms on one or both sides of the equation first, and by using both the addition and multiplication properties of equality.
- Write the equation of a line given the graph, slope and y-intercept, y-intercept and another point on the line, the slope and a point on the line that is not the y-intercept, two points on the line where neither is the y-intercept, parallel to a given line, and perpendicular to a given line.
- Find the slope of a line parallel, and perpendicular, to a given line.
- Solve time, distance, work, mixture, pipe flow, and rate problems using rational equations.
- Change mixed numbers, and complex fractions, to simple algebraic fractions
- Evaluate and simplify radical expressions and fractional exponent expressions
- Use conjugates to rationalize the denominator of an algebraic expression
- Determine whether or not a radical equation has solution(s)

UNIT 5: EXPONENTS AND LOGARITHMS

- Evaluate expressions with fractional exponents
- Solve exponential equations
- Find common logarithms and natural logarithms
- Graph the square root, cube root, or logarithmic functions, and understand the effects upon these graphs when adding, subtracting and multiplying by constants.
- Express an exponential equation in logarithmic form, and a logarithmic function in exponential form
- Identify linear and nonlinear equations
- Interpret key features of the graphs of quadratic polynomials.
- Complete ordered pairs for an exponential or logarithmic function

UNIT 6: TRIGONOMETRIC FUNCTIONS

- Express a trig function of a non-acute angle in terms of an acute angle.
- Evaluate the reciprocal trig functions for the 30°, 45°, and 60° angles, and for angles having reference angles of 30°, 45°, and 60°.
- Express a trigonometric function, or reciprocal trig function of a non-acute angle measured in radians as a function of an acute angle.
- Evaluate trigonometric functions of angles measured in radians.
- Identify the graphs of the sine and cosine curves, and determine the amplitude, frequency period, vertical and phase shifts of a trig function from an equation or graph.
- State the domain and range of sine, cosine, and tangent curves of the form y = Asinx, y = Acosx, and y = Atanx.
- Use the Pythagorean identities to determine the remaining trigonometric function values of an angle in standard position when one trigonometric value and sign of another, or one trigonometric value and quadrant the angle lies in, are known.
- Solve trigonometric equations using identities and substitution.

UNIT 7: MATHEMATICAL MODELING

- Identify an arithmetic or geometric sequence, and find the common difference of an arithmetic sequence, or the common ratio of a geometric sequence.
- Extend an arithmetic or geometric sequence, and find the nth term of an arithmetic or geometric sequence.
- Use translations and reflections of the graph of y = x² to graph parabolas whose equations are in standard form, and use translations, reflections, and dilations of graphs of f(x) = ax² to analyze exponential functions whose equations are in standard form.
- Find the average rate of change of a quadratic or exponential function over an interval in the function's domain.
- Understand inverse functions using tables, graphs, descriptions, and equations.
- Determine population density using the formula
  \[
  \text{Population Density} = \frac{\text{#people}}{\text{unit area}}.
  \]
- Use density to calculate mass or volume using
  \[
  \text{Density} = \frac{\text{mass}}{\text{Volume}}.
  \]
- Use ratios or proportions to be able to calculate unit scales of certain objects, and solve real-world applications.
SCIENCE

Biology A&B

COURSE OVERVIEW

Biology is intended to expose students to the designs and patterns of living organisms and their interactions with the environment. In preceding years, students should have developed a foundational understanding of life sciences. Expanding on that, this Biology course will incorporate more abstract knowledge. The student’s understanding should encompass both the micro and macro aspects of life, and this biology course includes both. The major concepts covered are taxonomy, the chemical basis of life, cellular structure and function, genetics, microbiology, plant structure and function, animal structure and function, and ecology and the environment.

Students at this level should show development in their understanding of scientific inquiry. The units contain experiments and projects that seek to develop a deeper conceptual meaning for students and that actively engage them. The continued exposure of science concepts and scientific inquiry will serve to improve the students’ skills and understanding.

Biology should be preceded or accompanied by an Algebra I course.

- **Biology: The Study of Life**: Students will define the steps of, and apply, the scientific method, identify the characteristics of life, and how living organisms are classified.
- **Biochemistry**: Students will investigate the chemicals and reactions of life processes.
- **Cells**: Students will identify the structure and functions of plant and animal cells.
- **Cell Energy**: Students will identify how energy flows in cells and ecosystems, including photosynthesis and cellular respiration, and compare patterns between plant and animal cells.
- **Cell Division and Reproduction**: Students will compare and relate the processes involved in cell division and reproduction.
- **Genetics and Heredity**: Students will explore the basics of genetics, heredity, and the patterns and evidence of evolution.
- **Microbiology and Biodiversity**: Students will be able to describe the characteristics of the different kingdoms, Protista, fungi, plantae, and Animalia
- **Plants**: Students will recognize that plants create their own energy via photosynthesis, how plants grow and reproduce, and their uses.
- **Animals and Humans**: Students will interpret the body systems of animals and humans, and their functions.
- **Ecology and the Environment**: Students will explore the interactions between living organisms and the environment.

**Curriculum Content and Skill Focus**

**Unit 1: Biology: The Study of Life**

- explain that an organism exhibiting all of the characteristics of life is considered to be alive
- illustrate the scientific method is an inquiry process
- describe taxonomy, and how living things are organized into logical groups, and the modern taxonomical groups
- distinguish between systematic plant and animal classification, identify, use, and construct dichotomous keys

**Unit 2: Biochemistry**

- distinguish among elements, atoms, compounds and molecules, identify subatomic particles, and write molecular formulas
- identify examples of ionic, covalent, polar covalent and hydrogen bonding
- identify unique properties of water
- distinguish among acids, bases, and salts
- distinguish between carbohydrates and lipids
- recognize amino acids as the building blocks or proteins and identify enzymes and nucleic acids as types of proteins

**Unit 3: Cells**

- identify cells as the basic building blocks of life and distinguish between cell theory and organismal theory
- identify the levels of cellular organization
- distinguish between interior and exterior cellular structures
- identify membrane material transportation methods
- identify mechanisms for maintaining homeostasis at the cellular and system levels
• distinguish between positive and negative feedback loops

Unit 4: Cell Energy
• conclude that all living things require and use energy with concrete examples
• investigate oxidation, and explain why it is the primary mechanism of cellular metabolism
• identify the steps in the photosynthetic process
• distinguish between aerobic and anaerobic respiration
• distinguish between food chains and food webs

Unit 5: Cell Division and Reproduction
• identify the advantages and disadvantages of sexual and asexual reproduction
• recognize that higher animals and plants undergo both meiosis and mitosis
• compare budding to binary fission as a means of asexual reproduction
• list the stages and purposes of mitosis
• list the stages and purposes of meiosis
• identify differences in plant and animal differentiated cells

Unit 7: Genetics and Heredity
• describe the DNA replication process
• explain how genetic mutations occur
• recognize the principles of heredity derived from Mendel’s experiments
• use a Punnett square to calculate probability of genotype inheritance
• compare and contrast four mechanisms for evolution
• identify three sources of evidence supporting the theory of evolution

Unit 8: Microbiology and Biodiversity
• compare and contrast organisms in the Archaea and Eubacteria kingdoms
• relate how bacterial diseases are transmitted
• describe the characteristics of protists, protozoa, algae, and fungi
• describe characteristics similar to all plants
• distinguish between invertebrates and vertebrates
• identify characteristics common to all animals

Unit 9: Plants
• describe the functions of plant cell features and organelles
• distinguish between flowers and fruits
• discover how plants create their own energy via photosynthesis
• compare different plant life cycle stages
• examine evidence for plant evolution
• recognize the contribution of plants to world food supply

Unit 10: Animals and Humans
• recognize the five types of specialized animal cells
• identify organ systems and the organs they contain
• compare differences in animal body plans that are considered evidence for evolution
• differentiate the role chemical transmitters play in sensory reception
• identify the components of the digestive, respiratory, circulatory, and excretory systems
• describe the function of the immune system
Unit 11: Ecology and the Environment

- distinguish between ethologists and comparative behaviorists
- describe the effects population density, growth rate, and carrying capacity have on ecosystems
- identify ways that ecosystems fall out of balance, and ways that balance can be restored
- recognize that all organisms within an ecosystem are dependent upon biotic and abiotic factors
- extrapolate that individual actions have a large impact on global pollution
- recognize ethical concerns about the development and use of biotechnology

Additional Resources

All of the default activities in this course can be completed with online resources. There are also instructions and materials for hands-on versions of most of the experiments that can be found in the Teacher Only tags in those lessons. Biology also includes extra alternate assignments, experiment/projects and tests for use in enhancing instruction or addressing individual needs.
Chemistry A&B

COURSE OVERVIEW

Chemistry is intended to provide a more in-depth study of matter and its interactions. In preceding years students should have developed an understanding for the macroscopic properties of substances and been introduced to the microstructure of substances. This chemistry course will expand upon that knowledge, further develop the microstructure of substances and teach the symbolic and mathematical world of formulas, equations, and symbols.

The major concepts covered are measurement in chemistry, atomic structure, chemical formulas and bonding, chemical reactions, stoichiometry, gases, chemical equilibrium, and organic chemistry. Students at this level should show development in their ability and understanding of scientific inquiry. The units contain experiments and projects that seek to develop a deeper conceptual meaning for the student and actively engage the student. The continued exposure of science concepts and scientific inquiry will serve to improve the student’s skill and understanding.

Chemistry should be preceded by an Algebra I course and preceded or accompanied by an Algebra II course.

- **Measurement and Analysis:** Students will identify and relate different types of laboratory measurements.
- **Starting the Investigation: How to Identify Elements, Compounds, and Mixtures:** Students will differentiate between the chemical and physical properties of elements, compounds, and mixtures.
- **Exploring Laws for Gases and Conservation of Mass:** Students will solve problems using the kinetic molecular theory, the gas laws and the conservation of mass.
- **The Discovery of Atoms: Nature’s Building Blocks:** Students will describe the history and current atomic theory.
- **Molecular Structure:** Students will calculate stoichiometry, chemical bonding, and polar properties of different substances.
- **Chemical Reactions, Rates and Equilibrium:** Students will analyze chemical changes, reaction rates, and factors that affect equilibrium.
- **Equilibrium Systems:** Students will define parameters of solutions and equilibrium systems.
- **Carbon Chemistry: Hydrocarbons:** Students will describe organic compounds and distinguish between saturated and unsaturated hydrocarbons.
- **Carbon Chemistry: Functional Groups:** Students will describe and explain the purpose of functional groups in hydrocarbons.

Curriculum Content and Skill Focus

**Unit 1: Measurement and Analysis**

- convert between English and metric units utilizing dimensional analysis
- do mathematical operations with numbers in scientific notation while maintaining significant figure rules
- describe the relationship between mass, volume, and density
- differentiate between hypotheses, theories, and laws
- differentiate between graphs depicting direct and inverse relationships between variables
- demonstrate an awareness of the many opportunities in the career fields relating to chemistry

**Unit 2: Starting the investigation: How to Identify Elements, Compounds, and Mixtures**

- differentiate between physical and chemical properties
- use density measurements to help identify an unknown substance
- distinguish between chemical and physical properties and changes in compounds
- relate differences between colloids, suspensions, and solutions, and give examples of each

**Unit 3: Exploring Laws for Gases and Conservation of Mass**

- explain that the random motion of molecules causes the diffusion of gases
- describe the relationship between average kinetic energy and particle temperature, mass, and speed.
- solve problems using Boyle’s Law
- solve problems using Charles’s Law
- describe how Charles’s Law and Boyle’s Law were combined to form the Combined Gas Law
• calculate the molecular or atomic mass and number of particles in a given mass of a substance and its chemical formula

Unit 4: The Discovery of Atoms: Nature’s Building Blocks

• discuss the history of the atomic theory
• relate the position of an element in the periodic table to its atomic number and its atomic mass
• compare and contrast two different atomic models
• explain, based on properties of atoms, why periodic trends in ionization energy exist
• describe how the release of energy in a nuclear reaction (fission or fusion) is much larger than in a chemical reaction

Unit 5: Molecular Structure

• evaluate a balanced chemical reaction to determine the yield of a certain product given appropriate information (mass, number moles, number atoms) about the reactants
• determine now a particular atom will gain stability by gaining or losing valence electrons to obtain the noble gas (octet) structure
• determine ionic charges based on valence electron structure
• define ionization energy and electronegativity and relate their trends on the periodic table
• relate the difference between ionic, covalent, and metallic bonds based on atomic valence electron structure
• determine if a compound is polar based on symmetry

Unit 7: Chemical Reactions, Rates and Equilibrium

• distinguish between exothermic and endothermic processes given appropriate information in the balanced equation
• determine if a reaction is exothermic or endothermic based on its enthalpy of reaction
• use the Gibbs free energy equation to determine if a reaction will be spontaneous
• determine mole fraction, molarity, molality, and percent solute of a solution
• apply LeChatelier’s Principle in cases where equilibrium is stressed by concentration, temperature, pressure or volume

Unit 8: Equilibrium Systems

• solve problems concerning moles, gram formula weights, and balanced equations
• calculate the concentration of the solute in terms of molarity
• list factors that influence the solubility of a solute in a solvent
• differentiate that strong acids/bases fully dissociate while weak acids only partially dissociate
• do calculations using the method of titration in determining the concentration of an unknown acid/base
• determine the oxidized and reduced species and oxidizing and reducing agents in a reaction

Unit 9: Carbon Chemistry: Hydrocarbons

• relate the historical and modern meaning of “organic compound”
• describe the valence structure of carbon and how this influences it's tendency to enter into covalent bonds
• determine if a bond is likely to be ionic or covalent based on electronegativity differences or valence electron structure
• explain that saturated hydrocarbons have all carbons bonded to 4 other atoms
• relate that alkanes are chemically fairly unreactive
• explain that unsaturated hydrocarbons are very reactive with the major reaction being an addition process which occurs at the site of the double or triple bond

Unit 10: Carbon Chemistry: Functional Groups

• relate that substitution by halides is the most common reaction of saturated hydrocarbons other than combustion
• recognize the hydroxyl functional group and explain the basic process by which alcohols are manufactured
• state the functional groups contained in aldehydes, carboxylic acids, ketones, and esters
• State that the functional group of amides and explain that amides provide the structural link in proteins
• Explain that proteins are made by the polymerization of amino acids

Additional Resources

All of the default activities in this course can be completed with online resources. There are also instructions and materials for hands-on versions of most of the experiments that can be found in the Teacher Only tags in those lessons. Chemistry also includes extra alternate assignments, experiment/projects and tests for use in enhancing instruction or addressing individual needs.
Physics A&B

COURSE OVERVIEW

Physics is intended to provide a more in-depth study of the physical universe. In preceding years students should have developed a basic understanding for the macroscopic and microscopic world of forces, motion, waves, light, and electricity. The physics course will expand upon that prior knowledge and further develop both. The curriculum will also seek to teach the symbolic and mathematical world of formulas and symbols used in physics. The major concepts covered are kinematics, forces and motion, work and energy, waves, sound and light, electricity and magnetism, and nuclear physics.

Students at this level should show development in their ability and understanding of scientific inquiry. The units contain experiments and projects that seek to develop a deeper conceptual meaning for students and actively engage them. The continued exposure to science concepts and scientific inquiry will serve to improve the students' skill and understanding.

Physics should be preceded by Algebra I and II courses and geometry.

- **Kinematics**: Students will illustrate how to use scalars and vectors to visualize and calculate concepts of motion.
- **Work and Energy**: Students will demonstrate an understanding of how energy is transferred and changed from one form to another.
- **Introduction to Waves**: Students will describe wave characteristics such as amplitude, velocity, wavelength, and frequency.
- **Light**: Students will describe phenomena that characterize light as a wave and phenomena that characterize it as a particle.
- **Static Electricity**: Students will demonstrate that all electric charges produce an electric field around them.
- **Electric Currents**: Students will apply and solve problems using Ohm’s Law and Watt’s Law for both series and parallel circuits.
- **Magnetism**: Students will describe the relationship between magnetism and electricity.
- **Atomic and Nuclear Physics**: Students will acquire a general understanding of atomic theory, including fusion and fission.

**Curriculum Content and Skill Focus**

**Unit 1: Kinematics**

- explain how the use of models, graphs, diagrams, and equations helps to analyze relationships and to understand physical concepts in physics
- differentiate between scalars and vectors and distinguish between displacement and distance
- differentiate between speed and velocity
- solve problems concerning average and instantaneous speed and velocity
- determine the relationship between acceleration and velocity
- resolve vectors into components and apply the kinematic equations to solve problems involving projectile motion

**Unit 2: Dynamics**

- articulate Newton’s first and second laws of motion and calculate the distance an object will travel when acted upon with force, and the acceleration, velocity, and momentum of an object
- draw and interpret free body diagrams for objects
- use the Inverse Square law to calculate force, velocity, and displacement
- explain that in centripetal acceleration and centripetal force, the vector is directed toward the center of the circular motion
- state Newton’s Third Law and that the total momentum of a system is conserved
- identify Kepler’s first and second law conceptually and apply Kepler’s third law mathematically

**Unit 3: Work and Energy**

- solve problems involving work, kinetic and potential energy, and the concept of conservation of energy
- solve problems using power equations, involving efficiency and related ratios, such as IMA and AMA
- give examples of the advantages and disadvantages of using a simple machine
- solve problems involving specific heat and calorimetry
- state the First and Second Laws of Thermodynamics
- review the concepts of kinetic and potential energy, power, and efficiency and solve problems concerning all these ideas
Unit 4: Introduction to Waves

- describe wave characteristics such as amplitude, velocity, wavelength and frequency
- describe wave characteristics such as reflection, refraction, diffraction and interference
- describe sound wave characteristics such as beats, resonance, the Doppler Effect and shock waves
- solve problems concerning beats, the Doppler Effect and the speed of sound

Unit 5: Light

- evaluate the impact of technology on the advance of scientific research
- describe properties of light such as reflection, refraction, polarization, dispersion and scattering
- use ray diagrams to demonstrate the path of reflected light from a mirror
- use ray diagrams to demonstrate the path of light through a lens
- explain the significance of the Young Two Slit experiment, the photoelectric effect, and the Taylor experiment to the definition of light

Unit 7: Static Electricity

- describe the historical development of the understanding of electric charge as originating in the atom
- use Coulomb’s Law to solve problems
- differentiate between a conductor and an insulator
- demonstrate that all electric charges produce an electric field around them
- extrapolate that when a change moves through an electric field, energy is expended and work is done
- solve problems concerning potential energy, capacitance, and work

Unit 8: Electric Currents

- interpret that a source of electromotive force (emf), such as a battery or generator, must do work to raise electrons to a state of relatively high potential so that they, in turn, can do work
- solve problems concerning conductance
- solve problems involving resistance and conductance
- use Ohm’s Law to solve problems
- differentiate between circuit diagrams of series and parallel circuits

Unit 9: Magnetism

- extrapolate that if a current carrying wire is coiled into a loop so that it forms a structure called a solenoid, that its magnetic field will be shaped similar to that of a bar magnet
- use the right hand rules to determine the direction of force on a moving charge in a magnetic field
- determine, using Lenz’s law, how to determine the direction of the induced current in a loop of wire experiencing a change in flux
- distinguish that the direction of the electron beam in a CRT is determined by the interplay of two magnetic fields that are perpendicular to each other which, in turn, control where the beam will hit the screen to produce an image

Unit 10: Atomic and Nuclear Physics

- use the photoelectric and Planck’s equation to solve problems
- explain the difference between the production and appearance of continuous, emission and adsorption spectra
- justify that energy is emitted from the atom in the form of electromagnetic radiation when an electron moves from a higher to lower energy level
• describe how the conversion of mass to binding energy in the nucleus was predicted in Einstein’s equation, $E = mc^2$
• formulate that electrostatic repulsive forces are longer ranged, but not as strong as nuclear attractive forces between protons
• describe the basic structure of a fission nuclear power plant

Additional Resources

All of the default activities in this course can be completed with online resources. There are also instructions and materials for hands-on versions of most of the experiments that can be found in the Teacher Only tags in those lessons. Physics also includes extra alternate assignments, experiment/projects and tests for use in enhancing instruction or addressing individual needs.
SCIENCE ELECTIVE
Earth Science A&B

COURSE OVERVIEW

Earth Science is a basic science course intended to further explore the designs and patterns of our planet. This course covers such areas as the origin, history, and structure of the earth. It also covers forces that cause change on the earth and features of the earth including the crust, water, atmosphere, weather, and climate. Earth science wraps up with astronomy and a study of all the planets, the solar system, and galaxies. The course strives to teach that each feature of the earth interacts with the others in many critical ways, and the study of these relationships is important to humanity.

Students at this level should show development in their understanding of scientific inquiry. Some of the units contain experiments and projects that seek to develop meaning and to actively engage the student. The continued exposure to science concepts and scientific inquiry will serve to improve the students' skill and understanding.

- **Origin of the Earth:** Students will explore the theories of the origin of the universe and the Earth.
- **History of the Earth:** Students will explore methods for determining the age of the Earth and its geologic history.
- **Dynamic Structure of Earth:** Students will explore the changes and cycles constantly affecting the Earth.
- **Forces and Features of Earth:** Students will explore the forces at work on the Earth, such as earthquakes and volcanoes and how to use maps.
- **Features of Earth’s Crust:** Students will explore rocks, minerals and other resources.
- **Shaping Earth’s Crust:** Students will explore the forces that shape the Earth’s crust, such as weathering and erosion, and other constructive and destructive forces.
- **Earth’s Water:** Students will explore the water cycle and the different bodies of water on the Earth.
- **Earth’s Atmosphere:** Students will explore the make-up of the Earth’s atmosphere and the impact of humans on the atmosphere.
- **Earth’s Weather and Climate:** Students will explore weather and climate and how to measure and predict weather.
- **Astronomy:** Students will explore the solar system and other celestial bodies in the universe.

Curriculum Content and Skill Focus

**Unit 1: Origin of the Earth**

- explain how earth science is based upon the four sciences of astronomy, geology, meteorology, and oceanography
- justify that the origin of the universe remains a question, but many scientific theories, such as the big bang theory, have supporting scientific evidence
- describe the nebular and condensation theories regarding the origin of the solar system
- describe Kepler’s three laws of planetary motion and use Kepler’s laws of planetary motion to make calculations
- examine the significance of Earth's orbital position, moon, and composition
- examine the qualities of Earth’s five spheres

**Unit 2: History of the Earth**

- explain geologic and biological evidence for the age of Earth
- describe the laws of stratigraphy and paleontology
- compare relative and absolute dating
- describe possible causes of mass extinctions
- describe fossils and how they form and explain how to interpret fossil records and their reliability
- describe the relationship of climate changes and living organisms

**Unit 3: Dynamic Structure of Earth**

- describe the internal structure of the Earth
- explain how scientists know what the center of the Earth is composed of and the causes Earth's magnetic field
- explain the theory of plate tectonics and the cause and effect of the Earth’s plates meeting at a convergent plate boundary, divergent plate boundary, or transform boundary
- describe the four main spheres of Earth’s exterior and how they are interdependent
• identify how Earth’s geochemical cycles support a balance of materials on Earth
• identify how Earth’s biochemical cycles create a balance of Materials

Unit 4: Forces and Features of Earth

• describe the forces involved with earthquakes and compare and contrast the types of seismic waves produced by an earthquake
• define faults, folds, and their features
• summarize the structure, force, and location of volcanoes
• distinguish the different types of volcanic mountains
• describe the basic features of map
• interpret the shape and elevation of surface features on a topographic map

Unit 5: Features of Earth’s Crust

• identify the five conditions that define a mineral and categorize minerals by chemical composition
• identify common characteristics if igneous, sedimentary, and metamorphic rocks
• describe the rock cycle and compare and contrast the processes that cause igneous, metamorphic, and sedimentary
• identify advantages and disadvantages of renewable energy source
• identify the advantages and disadvantages of nonrenewable energy sources

Unit 7: Shaping Earth’s Crust

• compare and contrast biological, physical, and chemical weathering
• describe the erosion process and compare and contrast water and wind erosion
• distinguish the four types of erosional forces and effects of rivers, waves, gravity and glaciers, and wind
• identify destructive forces in nature and how they change the Earth’s crust
• identify constructive forces in nature and how they change the Earth’s crust
• explain how the Earth system is changing

Unit 8: Earth’s Water

• explain the water cycle and describe evaporation, condensation, sublimation, transpiration, infiltration, and precipitation
• describe the basic chemical and physical properties of water and how it is affected by temperature, pH, and dissolved minerals
• describe the distribution of Earth’s water
• define groundwater, how it forms, and how it is located and compare and contrast the three types of aquifers
• describe the four main physical and chemical properties of ocean water and how it is used
• explain the effect of wind and Earth’s rotation on surface currents

Unit 9: Earth’s Atmosphere

• describe the evolution of Earth’s atmosphere and how it functions for living things
• identify the primary gases and distinguish among the layers of the atmosphere
• explain the impact biogeochemical cycles have on life
• discuss how heat is maintained and distributed in the atmosphere
• describe the causes and effects of air pollution and climate change
• explain the human impact on the earth

Unit 10: Earth’s Weather and Climate

• differentiate weather and climate and identify global weather patterns and climate zones
• distinguish between the different types of clouds and precipitation and how they relate to weather conditions
• distinguish between different types of fronts and relate air masses and fronts to weather conditions
• describe how the Sun influences weather conditions
• identify factors that determine climate zones and recognize factors that can change global climate
• describe how a meteorologist measures and forecasts the weather

Unit 11: Astronomy

• distinguish planets from other types of solar system objects and use Kepler’s laws of planetary motion to make calculations
• describe the earth’s orbit around the Sun and the relationship between the earth’s tilt on its axis and the seasons
• describe the solar nebular theory
• identify important characteristics of the Sun and other stars
• explain the role of stars in the creation of elements
• explore major areas of ongoing research in astronomy

Additional Resources

All of the default activities in this course can be completed with online resources. There are also instructions and materials for hands-on versions of most of the experiments that can be found in the Teacher Only tags in those lessons. Earth Science also includes extra alternate assignments, experiment/projects and tests for use in enhancing instruction or addressing individual needs.
Environmental Science A&B

COURSE OVERVIEW

Environmental Science is an interdisciplinary course covering a wide variety of topics including biology, physics, geology, ecology, chemistry, geography, astronomy, meteorology, oceanography, and engineering. The course also considers ways in which human populations affect our planet and its processes. Of special emphasis is the concept of sustainability as a means of using resources in a way that ensures they will always be around us.

The unifying concepts that tie the different areas of environmental science together are as follows:

- Science provides a way to learn more about the world and influences how we understand it.
- Energy conversions underlie all ecological processes.
- The Earth is one interconnected system.
- Humans change natural systems.
- Environmental issues have a cultural and social context.
- Human existence depends in part on increasing practices that will achieve sustainability.

Students at this level should show development in their understanding of scientific inquiry. The course provides hands-on labs and research to aid in arriving at a deeper understanding of the environment and the impact of humans on it today and in the past. The labs will call upon students to analyze many different processes and systems, arrive at conclusions, and determine ways in which every person can positively influence the environment.

- **Environmental Science Semester One:** Students explore the field of environmental science studies, including ecology, terrestrial biomes, and human impact on the environment.
- **Environmental Science Semester Two:** Students will explore energy resources, climate change and pollution.

Curriculum Content and Skill Focus

**Semester One**

- understand some environmental features of places all over the world
- describe the role of fossils in the discovery of the Earth’s history
- differentiate groups of time on the geologic timeline
- recognize the features of each layer of the Earth
- understand the role of oxygen in photosynthesis
- explain why water is an important natural resource
- explain how the majority of Earth’s water is not available for human use because it is either saltwater in the oceans or locked up in the polar ice caps
- explain that rocks and minerals are natural resources and describe the terms depletion time and mineral reserve
- identify and order the levels of organization from smallest to largest: organism, species, population, community, ecosystem, biome, biosphere
- summarize the importance of energy flow and cycling of matter in an ecosystem
- compare age structure diagrams for stable, expanding, and declining populations
- describe methods of sustainable agriculture
- discuss the origin and current problems of national parks, wildlife refuges, and nature preserves in the U.S. and other countries
- discuss various mining options by describing how they operate and their environmental advantages and disadvantages
- describe the basics of the aquaculture industry and its advantages and disadvantages

**Semester Two**

- understand energy transformation, energy efficiency, and the law of conservation of energy
- distinguish between renewable and nonrenewable energy sources
- describe the history and trends of energy use in the United States
- compare contrast oil and natural gas in terms of supply and environmental impact
- discuss some advantages and disadvantages to the use of coal
- discuss issues related to the use and development of synthetic fuels, including their advantages and disadvantages
- understand the basics of nuclear power
- describe some advantages and disadvantages of hydroelectric power
- describe the advantages and disadvantages of solar energy
- describe the advantages and disadvantages of wind power
• explain the advantages and disadvantages of geothermal energy
• describe the advantages of hydrogen fuel
• explain the effects of outdoor and indoor air pollution on human health
• explain the environmental effects of acid deposition
• explain global warming, its causes, and its effects
• describe some ways to prevent and reduce air pollution
• describe the effects of noise pollution on people and wildlife
• identify common water pollutants and their effects on the environment
• describe treatment and disposal methods for hazardous waste
• discuss the types and sources of hazards that humans face from their environment
• describe the major resource and environmental problems of urban areas
• contrast environmentally sustainable and unsustainable economic growth
• describe how economic tools can be used to improve environmental quality

Additional Resources

All of the default activities in this course can be completed with online resources. There are also instructions and materials for hands-on versions of most of the experiments that can be found in the Teacher Only tags in those lessons. Environmental Science also includes extra alternate assignments, experiment/projects and tests for use in enhancing instruction or addressing individual needs.
Integrated Physics and Chemistry A&B

COURSE OVERVIEW

Integrated Physics and Chemistry is a physical science course designed for high school students needing an entry-level science course covering basic concepts found in chemistry and physics. Topics included in this course are matter, motion and forces, work and energy, electricity and magnetism, and waves.

Throughout the course, students will have opportunities to observe simulations, investigate ideas, and solve problems, both online and away from the computer.

- **Explorations in Physical Science**: Students will employ the scientific method, measurements and calculations to conduct experiments.
- **The Structure of Matter**: Students will explore the structure of matter, including atomic structure, elements, compounds, and mixtures.
- **Matter and Change**: Students will explore the chemical changes that matter can go through.
- **States of Matter**: Students will explore the states of matter and the process that matter goes through for its state to change.
- **Motion and Forces**: Students will describe the motion of objects, Newton’s laws that predict that motion, and how the motion is measured.
- **Work and Energy**: Students will explore various types of energy, simple machines, and the work that they can do.
- **Heat Flow**: Students will describe heat, heat flow, and the laws of thermodynamics, as well as explore uses of heat flow.
- **Electricity and Magnetism**: Students will explore the relationship between electricity and magnetism.
- **Waves**: Students will explore the properties and characteristics of waves.
- **Chemistry and Physics in Our World**: Students will discuss how chemistry and physics are at work in our daily lives, and explore basic astronomical principles.

Curriculum Content and Skill Focus

**Unit 1: Explorations in Physical Science**

- define science, describe the steps of the scientific method, and make observations
- identify the units of measurement in the metric system
- use scales to arrive at precise measurements and describe the difference between accuracy and precision in measurements
- make measurements, convert between different units, and use measurements to calculate other quantities, such as density

**Unit 2: Structure of Matter**

- make and report measurements while using the metric system
- use graphs to present and analyze data and calculations
- calculate and measure volume, mass, and calculate density
- calculate buoyant force
- calculate specific gravity of a substance

**Unit 3: Matter and Change**

- identify the energy changes that cause a substance to change states
- describe the chemical make-up of an acid and of a base
- understand that bonding creates new substances with different physical and chemical properties
- state the law of conservation of mass and identify a balanced equation
- recognize the various types of chemical reactions
- predict the products of a nuclear decay reaction and the concept of half-life

**Unit 4: States of Matter**

- describe how bonding patterns determine some of the properties of solids
- state and describe some of the common characteristics of liquids
- give examples of phenomena that arise due to differences in pressure
- describe the motion of particles in gases and the statements of the kinetic molecular theory
- state the relationship between pressure and volume in a gas and use Boyle’s law to solve pressure/volume problems for gases
• state the relationship between the temperature of a gas and its kinetic energy and use Charles’s law to solve temperature/volume problems for gases.

Unit 5: Motion and Forces

• apply the concepts of distance and displacement
• explain the difference between speed and velocity and work problems using the velocity formula
• describe how a force must be applied to an object to cause acceleration and apply formulas for acceleration
• demonstrate an understanding of the law of conservation of momentum and perform calculations using the momentum formulas
• discuss how a force is a vector and demonstrate how to use vector drawing to analyze forces
• identify and give examples of each of Newton’s laws and use Newton’s second law in calculations

Unit 7: Work and Energy

• identify types and sources of energy
• describe the relationship between work and energy and do calculations using the equation for work
• explain the relationship between work and power and use the formula for power in calculations
• state the law of conservation of energy and use the law of conservation of mechanical energy in calculations
• identify the types of simple machines and use formulas to calculate IMA and efficiency

Unit 8: Heat Flow

• state and give examples of the zeroth, first, and second laws of thermodynamics
• describe the changes that occur to the molecules of a substance due to heat flow
• distinguish between and give examples of heat flow due to conduction, convection, and radiation
• distinguish between temperature and heat flow
• observe the volume effects of heat absorption and heat loss as water changes state
• describe the advantages and disadvantages of different types of refrigerants

Unit 9: Electricity and Magnetism

• identify and describe the charge carriers in an atom
• identify the parts of a complete circuit and distinguish between direct and alternating current
• do calculations using the formulas for power
• describe the properties of the magnetic field and perform calculations relating the strength of magnetic field and the distance to the magnet
• describe how to make a magnet from a conducting wire and electromagnetic induction

Unit 10: Waves

• describe how waves transmit energy
• identify the types of waves and describe the various properties of waves
• provide examples of reflection, refraction, and diffraction
• discuss how sound waves transmit energy and describe the relationship between the speed of sound and the temperature of a gas, such as air
• relate the frequency and wavelength of a given type of radiation to its energy and list sources and applications of various types of electromagnetic radiation
• describe the relationship between absorption, reflection, or transmission of light and color

Unit 11: Chemistry and Physics in Our World

• identify which solar energies are transmitted, absorbed, or reflected by Earth’s atmosphere
• compare some positive and negative effects of the use of fossil fuels
• describe how a spectrum can be analyzed to reveal the chemical make-up of a star
• list Kepler’s three laws
SOCIAL STUDIES

World History A&B

COURSE OVERVIEW

World History explores the people, events, and ideas that have shaped history from the beginnings of human society to the present day. Students will study such topics as ancient civilizations, empires, exploration, the world wars, and globalization. Students will also gain practice in research using technology and writing through various projects. In addition to the default course program, World History includes alternate lessons, projects, essays, and tests for use in enhancing instruction or addressing individual needs.

- **Unit 1:** Students will discover how history is studied and the methods that are used to gather information. They will identify the early humans, their characteristics, and lifestyles.
- **Unit 2:** Students will know the characteristics of a civilization and identify the early river valley civilizations in Mesopotamia, Egypt, India, and China. They will examine how those civilizations evolved, agriculture developed, and kingdoms emerged.
- **Unit 3:** Students will describe the classical traditions, development of major religions, and the growth of giant empires by looking at the Egyptians, Greeks, Romans, and the Chinese.
- **Unit 4:** Students will explain the reasons for the fall of early empires, examine changes in religions, and identify the effects of migration and trade on the New World.
- **Unit 5:** Students will identify the emergence of the Middle Ages in Europe. They will examine the dominant religions of Europe, Asia, and the Middle East, while also discovering the civilizations of Asia, Oceania, Africa, and the Americas.
- **Unit 7:** Students will know the reasons for and effects of exploration and colonization by European countries. They will examine the history of imperialism, the Renaissance, the Inquisition, and the Reformation.
- **Unit 8:** Students will evaluate the many revolutions and conflicts that took place from 1750-1914 in Europe, Asia, Africa, and Latin America. They will also identify the characteristics of the Industrial Revolution and European Imperialism in Asia and Africa.
- **Unit 9:** Students will compare and contrast the causes and results of the World Wars. They will also gain knowledge on the Boer War and the Russian and Chinese Revolutions.
- **Unit 10:** Students will understand the major events of the Cold War. They will also examine the effects of World War II including independence movements and globalization.
- **Unit 11:** Students will describe the major issues affecting nations today, including globalization, population growth, pandemics, and immigration. They will also examine types of economic systems and the history of capitalism.
U.S. History A&B

COURSE OVERVIEW

U.S. History Reconstruction to Present examines American history from the events leading up to the Civil War to the present day, placing special emphasis on the major political, economic, and social movements of the twentieth century. Additionally, students will gain practice in research and writing through various projects. In addition to the default course program, U.S. History Reconstruction to Present includes alternate lessons, projects, essays, and tests for use in enhancing instruction or addressing individual needs.

- **Unit 1:** Students will explain the causes of sectionalism and compromises in the years leading up to the Civil War. Students will also identify the major battles, and the end of the Civil War.
- **Unit 2:** Students will examine the goals and outcomes of Reconstruction, the outcomes of industrialization, and the causes and effects of western expansion.
- **Unit 3:** Students will describe the Spanish-American War and imperialism, reform movements of the Progressive Era, and the U.S. involvement in World War I.
- **Unit 4:** Students will acknowledge the social, cultural, educational, and religious issues of the 1920s, recognize the causes of the Great Depression, and analyze the programs and effects of the New Deal.
- **Unit 5:** Students will identify the major causes, events, and effects of World War II, the origins of the Cold War, and U.S. efforts to contain the spread of Communism in the Korean War.
- **Unit 6:** Students will know the social, cultural, and political events of the Eisenhower, Kennedy, and Johnson presidencies.
- **Unit 7:** Students will identify major individuals during the 1960s, significant details of the civil rights and anti-war movements, and describe the effects of the Vietnam War on Americans.
- **Unit 8:** Students will examine the social, political, and economic events of the 1970s.
- **Unit 9:** Students will describe the major issues and events of the Reagan and Bush presidencies.
- **Unit 10:** Students will evaluate the main events, issues, and policies of the Clinton, Bush Jr., and Obama presidencies. They will also understand the key challenges facing American society in the late twentieth and early twenty-first centuries, such as terrorism, conservation, government and big business, and education.
Government

COURSE OVERVIEW

The Government course focuses on American and international governments. Students will learn about the history of governments, the characteristics of the United States government, political parties, and the voting process. These areas of focus target two major content strands: History, and Government and Citizenship. Students will also gain practice in research, presentations, writing essays, and creating an argument in topics such as elected officials and the Supreme Court. In addition to the default course program, Government includes alternate lessons, projects, and tests for use in enhancing instruction or addressing individual needs.

- **International Governments:** Students will learn the basic philosophies and types of government while exploring historical political leaders from around the world.
- **History of Governments:** Students explore the different governments throughout history including ancient Greek democracy, feudalism, and totalitarian regimes.
- **American Government:** Examine the structure and functions of the U.S. government including the Constitution, branches of government, and how a bill becomes a law. Understand the effects technology and the economy have on the American government.
- **U.S. Party System:** Understand the development and role of political parties in the American party system. Students will look at the effect media and the public have on the political process.
- **The Citizen:** Describe the role of the citizen in the United States government. Identify methods of propaganda and how they are used to effect public opinion.
Economics

COURSE OVERVIEW

Students will examine the basic principles of economics, as well as investigate the effect those principles have on every aspect of society. Lessons and projects encourage students to examine a variety of problems from the viewpoint of an economist. They will be completing formal and informal writing using research, while also incorporating media and technology. Economics teaches real life skills that students will be able to apply to their lives every day.

- **Decisions:** Students explore economics as a social science focusing on decision making by looking at cost-benefit analysis, scarcity, marginal costs and benefits, and the allocation of resources. Students examine factors that influence the decision-making process and will be able to compare and contrast the efficiency of different market structures.
- **Economic Roles:** Learn to describe the roles of consumers, producers, and laborers in the economy, as well as examining how those roles and government regulations impact the economy.
- **The Market:** Students will examine the marketplace economy through the laws of supply and demand, the role that prices and competition play, and the laws of supply and demand are identified.
- **Macroeconomics:** Students are introduced to the study of the whole economy with a focus on how the choices of all firms and markets effects a country, including GDP, GNP, economic growth, and the role of government, money supply, and fiscal policy.
HEALTH/PHYSICAL EDUCATION

High school health

COURSE OVERVIEW

Health Education is a health science elective course that introduces students to what good health is, why good health is important, and what students should do in order to achieve good health.

- **Body Essentials**: This unit introduces the different systems in the human body, showing how the body develops.
- **Physical Health**: This unit demonstrates to students how they may develop good practices as they promote proper physical health.
- **Social and Mental Health**: This unit teaches how to establish strong social and mental health though true health wisdom.
- **Preventive Healthcare and First Aid**: This unit focuses instruction on safety, emergency care, and disease prevention.
- **Responsible Living**: This unit discusses how students may apply the principles of good stewardship, covering topics like pollution, drugs, alcohol, and tobacco.

Curriculum Content and Skills Focus

**Unit 1: Body Essentials**:

- Describe the role of cells, tissues, and organs in the body.
- Explain the functions of the circulatory, respiratory, and nervous systems.
- Explain how the immune system defends the body against illness and disease.
- Describe the mobility functions of the muscular and skeletal systems.
- Explain the protection features of the integumentary system.
- Describe the process of digestion.
- Examine the functions of the endocrine system.
- Identify the four main functions of the reproductive system.
- Explain fetal development from conception through the three trimesters of pregnancy.
- Explain the physical demands of childbirth.
- Describe the physical, mental, emotional, and social changes that occur during childhood development, adolescence, and adulthood.
- Discuss different ways to maintain physical health.
- Identify aspects of being a responsible adult.

**Unit 2: Physical Health**:

- Identify the components of proper health and nutrition.
- Explain the role of carbohydrates as the body's energy source.
- Describe the role of vitamins in maintaining a healthy body.
- Understand the importance of eating a balanced diet.
- Examine the nutritional value obtained from dairy products.
- Understand the information given on food labels.
- Explain the importance of eating regular meals.
- Distinguish between aerobic and anaerobic exercise.
- Identify the five components of physical fitness.
- Understand how to improve muscular endurance, strength, and flexibility.
- Evaluate your level of physical fitness.

**Unit 3: Social and Mental Health**:

- Differentiate between mental and emotional health.
- Describe types of mental health issues.
- Understand the concept and importance of social health.
- State the steps needed to make decisions.
- Explain the importance of discerning between information that is true and untrue.
- Understand how friendships can impact thoughts and decisions.
- Recognize the signs of prejudice, cliques, and peer pressure.
- Examine the importance of showing compassion to family members.
- Examine the practice and importance of good skin hygiene.
• Identify the structure of the mouth and teeth.
• Describe the practice of good oral hygiene.
• Describe the process of proper eye care.
• Identify the structures of the eye.

Unit 4: Preventive Healthcare and First Aid:

• Examine safety practices that help people live responsibly.
• Provide precautions to take to prevent house fires.
• Explain how to evacuate a burning building.
• Provide personal safety practices to avoid potentially harmful situations.
• Analyze strategies for preventing accidental injuries while using different modes of transportation.
• Describe water safety practices to be used around the home.
• Describe safety precautions that should be taken during lightning storms, floods, hurricanes, and tornadoes.
• Identify ways to protect the body during extreme cold and hot weather.
• Explain first aid and why it is important to know first-aid procedures.
• Know the appropriate steps for responding to an emergency situation.
• Describe the six categories of soft tissue wounds and the first aid that should be given.
• Provide strategies for bleeding injuries and accidental dismemberment.
• Analyze strategies for responding to a shock victim.
• Classify burns as first, second, or third degree.
• Analyze strategies for responding to burn victims.
• Identify the signs of hypothermia and frostbite.
• Provide actions for responding to a hypothermia or frostbite victim.

Unit 5: Responsible Living:

• Differentiate between non-communicable and communicable diseases.
• Recognize the recommended immunizations for prevention of disease.
• Describe the different types of circulatory system diseases.
• Describe available health-related services, such as primary and preventive care.
• Understand the roles of different health care professionals.
• Identify symptoms and treatments for some common STDs.
• Understand how a variety of drugs functions.
• Classify and explain the four categories of abused drugs.
• Describe the effects of commonly abused drugs.
• Describe the harmful effects of alcohol and tobacco on the body.
• Describe the harmful substances found in tobacco.
• List the five layers of the atmosphere in order from the troposphere to the exosphere.
Physical education

COURSE OVERVIEW

Physical Fitness is a semester-length elective designed for high school students. The course focuses on the health benefits of regular physical activity and of a long term exercise program.

As students work through the course, they will learn about the many aspects of physical fitness, including basic nutrition, the importance of flexibility, cardiovascular health, muscle and strength training, and realistic goal setting. Along the way, students will be required to maintain and submit an activity log in order to measure progress in course exercises, as well as in personal fitness goals.

Upon completion of Physical Fitness, students should possess the knowledge and skills needed to do the following:

- Analyze the key components of successful physical activity and use this analysis to determine if a program is reasonable and effective.
- Describe the three main types of physical activity that should be included in an exercise regime and the health benefits of each.
- Perform basic fitness exercises associated with the three main types of physical activity discussed in this course.
- Identify the main motivational strategies that can be used to help the student continue in positive fitness habits once this course is completed.
FINE ARTS
Art history A&B

COURSE OVERVIEW

Students will develop knowledge of the history and theory of art and the relationship between artist, artwork, and society, including researching and critiquing periods, styles, and works of art from early civilizations through modern and contemporary art. Additionally, students will complete extended, focused projects that will challenge their research, writing, and analysis skills.

- **Semester 1:** Students will conduct an in-depth examination of art history, beginning with prehistoric art and ending with the Romantic era of the early nineteenth century; students will understand the impact that historical and cultural context has on art, and will closely examine specific visual examples of key concepts.

- **Semester 2:** Students will continue an advanced exploration of art history, beginning with early photography and ending with contemporary art, including art from cultures and countries around the world; students will complete research and writing projects to demonstrate their learning of key ideas.

Please note that throughout the course, students may be asked to answer questions or to reflect on what they’ve read in their notes. The notes are not graded. Rather, they are a way for students to extend their thinking about the lesson content. Students may keep handwritten or typed notes.
Music Appreciation

COURSE OVERVIEW

Students will build a strong foundation of knowledge focused on basic musical elements and the development and growth of classical music, and will acquire a greater appreciation of music. Additionally, students will examine music in the world around them and discover how they experience music. They'll be introduced to the basic elements and sounds of music and instruments, learn the names and backgrounds of several famous musical composers, and learn how and where classical music began, how it developed over the centuries, and the ways in which music and culture affect each other. Lastly, students will examine the ways modern music has been influenced by classical music.

- **Discovering Music**: Students will learn the basics of listening to, responding to, and participating in music, including completing independent projects that utilize engaged listening skills; students will also understand music from other cultures.
- **Music Fundamentals**: Students will understand the fundamentals of music, including key concepts such as rhythm, melody, harmony, form, expression, and the types and categories of musical instruments.
- **Beginnings of Music**: Students will examine early music history, spanning from medieval times to the Baroque era, and complete focused research and writing projects on the topic.
- **Developing Music**: Students will explore a variety of classical and romantic music, continuing to participate in independent engaged listening projects to continue advancement of key skills.
- **Modern Music**: Students will focus on music of the twentieth-century, including popular, Broadway, and film music, culminating in project requiring students to attend and critique a classical concert in their community.
- **Course Review and Exam**: Students will complete a full review of key course concepts, and demonstrate their mastery through a final examination.

Please note that this course provides students with lessons in engaged listening. These special lessons allow students to listen and respond to music. A template for how to listen and respond is provided.
Music Theory

COURSE OVERVIEW

Students will explore the nature of music, integrating the key concepts of rhythm and meter, written music notation, the structure of various scale types, interval qualities, melody and harmony, the building of chords, and transposition. Throughout the series of assignments, ear training exercises are interspersed with the bones of composition technique, building in students the ability not only to hear and appreciate music, but step-by-step, to create it in written form as well. This highly interactive course culminates in the students producing original compositions, which while based on standard notation, demonstrate facets of personal expression. As the students’ ability to perform increases in the future, they will better understand music and therefore better demonstrate its intrinsic communication of emotion and ideas.

- **Rhythm and Meter:** Students will build a foundational understanding of the elements of musical rhythm and meter, including the measure of different notes, time signatures, and special rhythms; additionally, students will participate in ear training exercises to build their skill in this area.
- **Notation and Pitch:** Students will identify musical symbols, intervals, and instrumentation, and will be able to use this knowledge to compose and original melody.
- **Scales and Key Signatures:** Students will examine scaled and both major and minor keys; projects include ongoing ear training exercises, the transposition of a melody to a new key, and the composition of original, non-diatonic melodies.
- **Harmony:** Students will construct an understanding of the key aspects of harmony including the various categories of intervals and triads, and participate in ongoing ear training exercises; this unit culminates in the independent composition of a simple accompaniment.
- **Making Music:** Students will actively participate in the interpretation and composition of music, utilizing their knowledge of musical elements such as rhythm, pitch, key, harmony, and expression.
- **Course Review and Exam:** Students will complete a full review of key course concepts, and demonstrate their mastery through a final examination.
Media Studies

COURSE OVERVIEW

This course is part of a worldwide educational movement called media literacy. The goal of the media literacy movement is to educate people about how the media impacts both individuals and society. Students will examine media such as magazines, the Internet, video games, and movies. They'll learn the kinds of strategies that advertisers use to persuade people to buy products. They'll also explore how news broadcasters choose which stories to air. Lessons and projects encourage students to examine ways in which media helps shape our culture and the ways in which our culture shapes the media. While many media literacy courses focus upon learning how to make media, this one will focus exclusively on analyzing the media.

This course has 1 semester-length unit containing 31 instructional lessons and 20 projects. Most lessons in this course are designed to take 1-2 days to complete, while most projects take 2-3 days.

Curriculum Content and Skills Focus

- Discuss the significant portion of time people spend using media.
- Identify the corporations that control the media.
- Explain how the media powerfully impacts people's behavior, attitude, and socialization.
- Identify the misconceptions people have about how the media affect us.
- Explain how the media affect people's behavior.
- Describe how the media affect people's attitudes.
- Discuss how the media affect people's socialization.
- List the types of media people use as equipment for living to make sense of their lives.
- Explain how people use the Internet as a form of interpersonal communication.
- Discuss media involvement with politics and how it can be used to make political statements.
- Discuss who owns the media in the United States.
- Describe how the corporate media system works.
- List arguments that some people make in favor of the corporate media system.
- Explain why some people are against the corporate media system.
- Explain the different kinds of news media.
- Discuss the strengths and weaknesses of each kind of news media.
- Explain the concept of newsworthiness.
- Evaluate whether a story is newsworthy based on certain criteria.
- Discuss the importance of determining newsworthiness in a fair and impartial way.
- Explain the concept of objective journalism.
- Compare objective journalism with older forms of journalism.
- Describe how an objective news story is written.
- Evaluate difficulties with maintaining objectivity in journalism.
- Discuss personal bias.
- Explain political bias.
- Describe organization bias.
- Create a timeline on the history of advertising.
- Discuss the three types of advertising – traditional, product placement, and pro-consumer programming.
- Explain the techniques used by the advertising industry.
- Discuss the strategies that advertisers use to market products to both children and teenagers.
- Explain the ethical issues related to advertising geared toward children and teenagers.
- Define public relations.
- Explain how television shaped the culture of the 1960s.
- Identify ways in which television shaped the culture of the 1980s.
- Explain how television ratings work.
- Discuss the problems the television ratings system creates.
- Create a timeline of Internet history.
- Define cyber bullying.
- Discuss the history of movies in the United States.
- Define the movie ratings system.
- Define cultivation research.
- Explain the catharsis effect.
- Discuss media coverage of World War II.
• Discuss the media coverage of the 9/11 terrorist attacks.
• Explain the ethical issues that surrounded the media coverage of 9/11.
WORLD LANGUAGES

French 1 A&B

COURSE OVERVIEW

In French 1, students begin to develop competence in four basic skill areas: listening, speaking, reading, and writing. While developing communicative competence in French, students gain and expand their knowledge of francophone countries and cultures. In addition to the default course program, French I includes extra alternate lessons, projects, and tests for use in enhancing instruction or addressing individual needs.

Emphasis is placed on learning the present tense, the near future and the past tense in French I through thematically designed units. Topics include home, school, family, holidays, and daily and leisure activities.

- **Unit 1:** Students will be introduced to French by learning greetings, the alphabet, numbers, how French has been influenced by other cultures, and how nouns are affected by gender.
- **Unit 2:** Students will learn school-related vocabulary words and classroom expressions, the days of the week, months, and time. They will also learn how to conjugate certain verbs.
- **Unit 3:** Students will study the French names for family members and possessive adjectives. They will then learn how to describe someone’s hair and eye color and ask questions for information in French.
- **Unit 4:** Students will explore the sports and activities of France, the verbs and adverbs of those activities as well as the temperature and seasons in French.
- **Unit 5:** Students will learn about colors and expressions, holidays celebrated, stem-changing verbs, and direct-object nouns and pronouns.
- **Unit 7:** Students will identify modes of transportation and buildings, use prepositions of place, and conjugate regular and irregular “-re verbs”.
- **Unit 8:** Students will learn words that pertain to food and beverages, analyze French cuisine and regional dishes, and use partitive articles and expressions of quantity.
- **Unit 9:** Students will identify words pertaining to clothes and parts of the body, gestures and expressions. They will also conjugate reflexive verbs and explain routines in France.
- **Unit 10:** Students will examine words pertaining to computers, the Internet, and television. They will also identify direct and indirect objects and replace them with direct and indirect pronouns.
- **Unit 11:** Students will learn vocabulary words related to travel, the beach, and trains. They will also examine grammar and words relating to French customs about vacations.

Students develop the ability to:

- greet and respond to greetings
- introduce and respond to introductions
- engage in conversations on several themes
- express likes and dislikes
- make requests
- obtain information
- understand some ideas and familiar details
- begin to provide information.

By the end of French I, students will:

- communicate minimally by using short sentences, learned words and phrases, and simple questions and commands when speaking and writing.
- understand some ideas and familiar details presented in clear, uncomplicated speech when listening.
- understand short texts enhanced by visual clues when reading.
French II A&B

COURSE OVERVIEW

French II is a high school foreign language course that builds on and reviews skills and concepts taught in French I through further exposure to communication, cultures, connections, comparisons, and communities.

Course materials are designed to support students as they work to gain a basic proficiency in speaking, listening, reading, writing, and cultural competency. In addition to the default course program, French II includes extra alternate lessons, projects, and tests for use in enhancing instruction or addressing individual needs.

This course gives students practice using the mechanics of the French language, acquaints them with the cultural differences of francophone countries, and helps them gain a keen awareness of their own culture.

- **Unit 1:** Students will explore how to shop in France through vocabulary, grammar, and pronunciation of products, markets, and bakeries.
- **Unit 2:** Students will examine different professions and trades through vocab, grammar, and pronunciation.
- **Unit 3:** Students will learn cultural information, vocabulary, and grammar relating to French films.
- **Unit 4:** Students will learn vocabulary and grammar related to living in the city, the countryside, and traveling by train. They will also learn how to conjugate a list of past tense verbs.
- **Unit 5:** Students will examine all topics of health and illness by using vocab, grammar, and pronunciation.
- **Unit 7:** Students will study the vocabulary, grammar, and pronunciation relating to travel and visiting Quebec.
- **Unit 8:** Students will study all about the influences that have affected clothing through the last 100 years while using grammar and pronunciation.
- **Unit 9:** Students will learn about art-related vocabulary, historical and cultural connections to art, France’s influence on the art of other cultures, as well as some new grammatical elements.
- **Unit 10:** Students will explore an overview of three francophone regions: Mauritius, in the Indian Ocean, Guadeloupe, in the Caribbean Sea, and French Polynesia, in the South Pacific. They will learn pronunciation, grammar, and vocabulary associated with these regions and travel.
- **Unit 11:** Students will discover life events that francophone cultures consider significant. They will then review these events and the grammatical structures that enable people to talk about them.
Spanish I A&B

COURSE OVERVIEW

Spanish I is an entry level high school foreign language course that explores the Spanish language through communication, culture, connections, comparisons, and communities. Spanish I introduces students to the mechanics of the Spanish language, acquaints them with the cultural differences of Hispanic countries, and helps them gain a keen awareness of their own culture.

Course materials are designed to support students as they work to gain a basic proficiency in speaking, listening, reading, and writing Spanish, and in cultural competency. In addition to the default course program, Spanish I includes extra alternate lessons, projects, and tests for use in enhancing instruction or addressing individual needs.

During this course

- **Unit 1:** Students will practice language patterns when they use words and phrases in Spanish. They will also review vocabulary words and parts of grammar.
- **Unit 2:** Students will study parts of grammar, and practice pronunciation. They will also learn how to tell time, say numbers, and say dates in Spanish.
- **Unit 3:** Students will learn more grammar including how to conjugate verbs, history and cultural traditions of Mexico, and vocabulary words associated with the beach.
- **Unit 4:** Students will discover Argentina through its geography, culture, and activities. They will also learn verbs and adjectives associated with Argentina, and how to form questions.
- **Unit 5:** Students will explore the geography and culture of Honduras while continuing to learn parts of speech and basic weather terms in Spanish.
- **Unit 7:** Students will learn about all aspects of Puerto Rico while also learning how to respond to questions, different parts of speech, and vocabulary words.
- **Unit 8:** Students will examine the history and culture of Spain while learning different parts of speech that relates to aspects of this country.
- **Unit 9:** Students will study the history and culture of Cuba. They will also learn how say and use different parts of the body and clothes.
- **Unit 10:** Students will explore aspects of the Dominican Republic while continuing to learn parts of speech. They will also study vocabulary associated with shopping.
- **Unit 11:** Students will examine the history, culture, and activities of Panama. They will also learn phrases and vocabulary associated with transportation while still focusing on parts of speech.
Spanish II A&B

COURSE OVERVIEW

Spanish II is a high school foreign language course that builds upon skills and concepts taught in Spanish I, emphasizing communication, cultures, connections, comparisons, and communities. This course gives students practice using the mechanics of the Spanish language, acquaints them with the cultural differences of Hispanic countries, and helps them gain a keen awareness of their own culture.

Course materials are designed to support students as they work to gain a basic proficiency in speaking, listening, reading, and writing Spanish, and in cultural competency. In addition to the default course program, Spanish II includes extra alternate lessons, projects, and tests for use in enhancing instruction or addressing individual needs.

During this course

- **Unit 1:** Students will identify all of the Spanish speaking countries, translate key words related to those countries, learn food and travel related vocabulary words, and study different parts of speech.
- **Unit 2:** Students will concentrate on all aspects of Chile and memorize Spanish speaking countries and capitals. They will also examine verbs, adjectives, vocabulary, and punctuation dealing with school systems and classrooms.
- **Unit 3:** Students will explore the geography, culture, and history of Venezuela. They will also focus on the following parts of speech: prepositions, intonation and accents, rules of superlatives, pronouns, and vocabulary words.
- **Unit 4:** Students will study the geography, history, and culture of Peru as well as the causes and symptoms of culture shock. They will learn different verbs, pronouns, idioms, and vocabulary words.
- **Unit 5:** Students will focus on all aspects of Colombia, careers, and jobs. They will practice conjugating verbs, studying the different meanings of sentences, and vocabulary words.
- **Unit 7:** Students will examine multiple aspects of Guatemala. They will also learn about conjugating verbs along with travel and transportation vocabulary.
- **Unit 8:** Students will concentrate on the history and culture of Bolivia and Ecuador. They will also practice place vocabulary, verbs, and conjugating verbs.
- **Unit 9:** Students will explore the history, geography, and customs of Costa Rica. They will demonstrate understanding of preterit and imperfect tenses and vocabulary regarding news and media.
- **Unit 10:** Students will examine the history and culture of Peru and Uruguay. They will also learn different forms of verbs, creating formal and informal commands, and using object pronouns.
- **Unit 11:** Students will focus on characteristics of life and history in Nicaragua, traveling in Latin America, the vocabulary and commands relating to health and medical topics, verb tenses, and prepositions.
Spanish III A&B

COURSE OVERVIEW

Spanish III is a high school foreign language course that builds upon skills and concepts taught in Spanish II, emphasizing communication, cultures, connections, comparisons, and communities. Students will be able to speak and write accurately in Spanish, as well as become acquainted with the cultural differences of Hispanic countries while helping them gain a keen awareness of their own culture.

Course materials are designed to support students as they work to gain a basic proficiency in speaking, listening, reading, and writing Spanish, and in cultural competency.

During this course

- **Unit 1:** Students will identify all of the Spanish speaking countries and their history, explore Hispanic food, music, and festivals. They will also practice conjugating verbs and using different forms of tenses.
- **Unit 2:** Students will explore different characteristics of Spanish speaking cultures, adjectives and pronouns, and reflexive verbs and pronouns that are associated with multiple aspects of Spanish life.
- **Unit 3:** Students will identify Spanish language sources of news and examine the role of sports, television, politics, upper class, celebrities, and climate. They will also conjugate verbs and practice preterit and imperfect tenses.
- **Unit 4:** Students will examine different methods of communication and technology in Spanish speaking countries. They will also learn pronouns, different forms of tenses, and adjectives associated with communication and technology.
- **Unit 5:** Students will learn about cities and characteristics of life in Spanish-speaking cities. They will continue to practice different parts of speech in Spanish.
- **Unit 7:** Students will study travel and tourism in Spanish-speaking countries and use present subjunctives with multiple topics.
- **Unit 8:** Students will learn different aspects of medicine including exercise, nutrition, and alternative medicine in Spanish-speaking countries. They will practice present subjunctives and conjunctions.
- **Unit 9:** Students will explore the causes and effects of pollution, environmental issues, hunting, conservation, and oil production in Spanish-speaking countries. They will practice present-perfect subjunctives, adjective clauses, and vocabulary.
- **Unit 10:** Students will learn about archaeology, history, and the beliefs of Spanish-speaking countries while using subjunctive verbs and preterit tense forms.
- **Unit 11:** Students will concentrate on the history of government, elections and voting, the economy, and immigration in Spanish-speaking countries. They will also demonstrate different forms of subjunctives.
BCIS is a high school elective that explores the use of technology applications in both business and personal situations. The course provides key knowledge and skills in the following areas:

- communication skills
- business technology
- word processing applications
- spreadsheet applications
- database applications
- telecommunications technology
- desktop publishing technology
- presentation technology
- computer networks
- computer operating systems

The course is intended to help students arrive at the following understandings:

- Effective communications skills and productive work habits can increase employees’ success.
- Technology solutions can help employees be more productive and effective.

Keyboarding is a stated prerequisite for this course. While there are some keyboarding reviews in the course, there is no keyboarding instruction.
Technology & You

COURSE OVERVIEW

Technology and Business is a year-long, high school elective that teaches students technical skills, effective communication skills, and productive work habits needed to make a successful transition into the workplace or postsecondary education. In this course, students gain an understanding of emerging technologies, operating systems, and computer networks. In addition, they create a variety of business documents, including complex word-processing documents, spreadsheets with charts and graphs, database files, and electronic presentations.

This course provides key knowledge and skills in the following areas:

1. Emerging Technologies
2. Operating Systems
3. Word Processing
4. Spreadsheets
5. Databases
6. Communication Skills
7. Telecommunications
8. Electronic Presentations
9. Computer Networks
10. Project Management

By the end of the course, the student should be able to do the following:

- Select the appropriate technology to address business needs.
- Describe and compare types of operating systems.
- Use the computer's operating system to execute work responsibilities.
- Identify the purpose and style of various business documents.
- Create complex word-processing documents with columns, bulleted lists, tables, and graphs.
- Improve speed and accuracy of keyboarding.
- Use spreadsheets to calculate, graph, solve business problems, and make predictions.
- Perform data-management procedures using database technology.
- Demonstrate communication skills for obtaining and conveying information.
- Send and receive information using electronic mail, following appropriate guidelines.
- Describe and identify components of the telecommunications industry.
- Create and deliver an effective presentation following presentation guidelines.
- Describe the components required to establish a network.
- Identify the information management requirements and business needs of an organization.
- Use project-management tools and processes to manage a business project successfully.

BELOW IS A LIST OF GENERIC RESOURCES REQUIRED TO COMPLETE THE COURSE:

- word-processor software
- spreadsheet software
- database software
- presentation software
- e-mail
Introduction to Agriculture, food, and natural resources

COURSE OVERVIEW

This semester-length high school elective introduces students to the basic scientific principles of Agriculture and Natural Resources. Students will be recognizing and researching plant systems, animal systems, government policy, “green” technologies, agribusiness principles, and sustainability systems.

In this course, students will apply understanding of ecosystems and systems thinking to the management of natural resources to maximize the health and productivity of the environment, agriculture, and communities. Students will also analyze community practice or policy development related to sustainability in agriculture, food, and natural resources.

Communicating the impact of “green” and sustainability principles on agriculture, food, and natural resource systems will also be taught through the course, and students will learn to recognize the social, health, environmental, and economic costs and benefits of renewable energy production (e.g., solar, wind, and biofuels) in comparison to non-renewable energies (e.g., coal, oil, and natural gas).

Analyzing energy usage, renewable energy options, and renewable materials options to promote sustainable practices across AFNR will also be part of the course, and students will learn to use “green” technologies and sustainability practices to maintain safe and healthful working environments that sustain the natural environment and promote well-being in the AFNR workplaces.

Students will also demonstrate an understanding of “green” and sustainability trends that are influencing processes and markets in AFNR.

Finally, students will apply adaptive ecosystem management to a common pool resource (e.g., an irrigation system or fishing grounds) problem in a manner that addresses ecological (data, models, concepts, understanding, and scientific responsibilities), socioeconomic (values, interests, information, assets, private sector responsibilities), and institutional (law, policies, authority, assets, public sector responsibilities) contexts.

- **Unit 1: Nature and Scope of AFNR and their Role in Society and Economy**: In this unit, students will learn about the ways that early societies met the people’s need for food and other items. They will also learn about the development of agriculture and about now disputes over agriculture have led to war as well as how war has led to advances in technology that have benefited agriculture. Students will learn about the development of different agricultural equipment, including wooden and metal plows, and the thresher. Sustainable farming practices will also be investigated, as will the complexity of food distribution systems.

- **Unit 2: Agriculture, Food, and Natural Resources and The Environment**: In this unit, students will explore ecosystems, food chains, and the important cycles in nature. They will also examine the impacts of damaging those three things, including direct human causes, chemical causes, and physical causes. Demand on natural resources due to population increases will also be explored, as will how advances in technology have had an impact on both agriculture and natural-resource management. Other topics in this unit cover how historical events have made an impact on the agriculture industry in the United States, sustainable agricultural practices, and the impact of the use of pesticides, herbicides, fungicides, and rodenticides in agriculture and their regulation by the EPA.

- **Unit 3: Safety and Health in Agriculture, Food and Natural Resources Systems**: Safety in the workplace is the theme of this unit. Students will learn about the powers that the Occupational Safety and Health Administration (OSHA) has when it comes to setting guidelines that help ensure a safe working environment, whether it’s a farm field, processing plant, mine, or forest. Students will also learn that workers have rights to safety training and a safe workplace and the ability to exercise their rights without penalty. Students will also explore workplace plans for disasters, such as storms, floods, biological outbreaks, and radiation exposure. Students will also learn about logistics, which is the management of all aspects of moving products from their origin to their destination. They will also explore the federal departments that oversee the transportation of goods.

- **Unit 4: Introduction to Plant Science**: The nature and composition of soil and its role in plants is the foundation for lessons in this unit. Students will explore how soil forms and how it’s used. Students will also learn how it can be augmented with fertilizers, and about the composition of fertilizers. Also in this unit, students will learn about how soil and water can become polluted by both natural and human means, such as agriculture and mining. Students will also explore the parts of plants, and plant reproduction. Plant classification will also be taught, as will the benefits of plants and how they deal with predators.

- **Unit 5: Animal Agriculture**: In this unit, students will learn how animals provide, food, companionship and jobs, and that the purpose of the animal agriculture industry is to raise animals to produce meat, milk, eggs, or other dairy products. Students will explore how farmers and governmental agencies can track farm animals to quickly and easily locate the source of contamination or disease caused by contaminated animal products. Taxonomy, a way that scientists classify living things, will also be explored. Students will also learn about animal genetics, cloning, and the human consumption of cloned meat. Animal behavior will also be explored, as will the different ways that animals are confined, whether in pens or in their natural, free-range environment. The impacts of confinement will also be taught. Protection of animals against cruelty will also be discussed, as will how animal waste is dealt with. Finally, students will explore different careers related to animal care and breeding.
Curriculum Content and Skills Focus

Unit 1: Nature and Scope of AFNR and Their Role in Society and Economy

- Students will need to describe the history and development of farming.
- Students will need to know how severely World War II affected those left at home. With much of production and funds going to the war, families and farmers were often left without money to keep their crops fresh and edible. Those at home needed to save everything they could because they did not know when they would get another chance to have food or supplies.
- Students will need to know about the different agricultural clusters and how their functions translate into applicable real-world job descriptions.
- Students will need to know the difference between the older, more traditional methods of sustainable agriculture as well as the modern ways that have been discovered due to technological advances.
- Students will need to understand how the government stepped into the agricultural industry and began offering subsidies and incentives, allowing the farms to lower their prices while expanding their companies.

Unit 2: Agriculture, Food, and Natural Resources and the Environment

- Students will need to know the different levels of the food chain and be able to identify the functions and give examples of each.
- Students will need to know about runoff and how it impacts not only soil but farms and crops as well.
- Students will need to know the difference between renewable and nonrenewable energy, as well as the types of energy sources.
- Students will need to understand how emerging countries play a role in the future of agriculture as well as the reasons sustainable agricultural techniques are not always practiced.
- Students will need to understand renewable energy sources, especially biofuels and what can be used to create biofuels.
- Students will need to understand the different types of pesticides as well as which types of pests each kills.
- Students will need to understand the government’s precautionary measures concerning chemical pesticides and fertilizers, as well as the negative effects of pesticides and fertilizers on the environment and people.

Unit 3: Safety and Health in Agriculture, Food, and Natural Resources Systems

- Students will need to know what rights are given to employees by OSHA.
- Students will need to understand the purpose of risk management officers and how they function within a company.
- Students will need to understand the difference between a disaster and bad experiences on a farm, as well as specific examples of disasters.
- Students will need to know which natural resources can be harvested easily as compared to natural resources that are difficult to harvest or extract.
- Students will need to understand the careers associated with the natural resource industry and the duties associated with these careers.
- Students will need to understand the prevention techniques for each of the environmental hazards associated with transporting natural resources.
- Students will need to know the agencies associated with the transportation industry.

Unit 4: Introduction to Plant Science

- Students will need to know the difference between grassland, forest, and desert soils and should be able to give examples of plants that can live in each.
- Students will need to know the types of fertilizers and how they have changed since the beginning of farming.
- Students need to understand the connection between soil and water, and how soil can affect the quality of water.
- Students will need to understand the structure of a plant’s reproductive system.
- Students will need to know the difference between angiosperms and gymnosperms.
- Students will need to know about the reproductive cycle of plants.

Unit 5: Animal Agriculture

- Students will need to understand the possible effects of having exotic species as pets or display animals.
- Students will need to know the definitions of cloning, genetics, and taxon.
- Students will need to describe and give examples of different types of animal behaviors.
- The student will need to know what domesticated livestock are and be able to give examples.
- Students will need to know the difference between what animal welfare activists and animal rights activists believe and be able to provide examples of animal cruelty.
- Students will need to know what documents are needed to complete transcripts for various colleges and schools.
- Students will need to know about improving waste management systems and how they relate to each other.
Construction Careers

COURSE OVERVIEW

This course in Construction Technology introduces students to the basics of construction, building systems, engineering principles, urban planning, and sustainability. Students will learn the key techniques in building all types of buildings, as well as the key individuals involved in each step of the process. Many lessons present information on green building techniques and concepts that are becoming a standard part of the construction industry. Safety practices are emphasized in several lessons because construction is one of the most dangerous industries; students will learn that there is no way to be successful in construction without taking such issues seriously. Toward this end, the lessons also explore regulatory agencies and guidelines established for the purpose of protecting not only construction workers but also the occupants of a building.

- **Unit 1: Introduction to Careers in Construction Technology:** This unit introduces students to the construction process before it discusses careers in detail. Students are introduced to current trends in technology and the types of drawings—floor plan, site plan, and elevation view—that nearly all construction workers need to be able to read. Students then explore various construction careers such as those of civil engineers, general contractors, excavators, masons, ironworkers, electricians and others. We discuss how many of these workers learn their skills through an apprenticeship that moves to a journeyman position before they finally earn master status.

- **Unit 2: Building Life-Cycle Assessment and Regulation:** This unit puts the buildings front and center. First, students learn to apply the life-cycle assessment process to buildings, which helps them see how their work and the decisions they make affect a building’s longevity and functionality. This is the course’s introduction into issues of sustainability and energy efficiency. This unit also focuses on job-site safety and building codes. Students also explore building codes, inspection procedures, and construction risk management along with the duties of a building inspector and the home inspector. Finally, students are introduced to urban planning and zoning, and learn about the history of urban sprawl. Students will learn about regional planning and the New Urbanism, which seeks to shape the built environment into something more sustainable and less taxing on our limited natural resources.

- **Unit 3: Building Materials and Methods of Construction 1:** This is the first of two units that focus on building materials and methods of construction. First students explore building foundations. Different buildings need different types of foundations, and knowing how to properly construct them all is the work of the concrete worker and the mason. In lessons on steel frame construction, we take a brief look at the history of mass-produced steel. Students also explore jobs such as that of the ironworker, the individual often perched many floors above street level, welding and riveting steel beams into place. Turning from commercial to residential construction, the next few lessons focus on heavy timber-frame construction and light-frame construction. Finally, students learn about builders and labor-management relations.

- **Unit 4: Building Materials and Methods of Construction 2:** The second unit of building materials and methods of construction is divided between lessons on roofs, the building envelope, cladding, and the field of building science. Students learn about a roof’s structural importance to the building and its various components. Students also learn about roofing truss systems, based on the triangle, uniquely engineered for strength and durability. Finally, commercial roofs and roofing materials are explained, along with the duties of the professional roofers. The first chapter’s final lesson introduces students to green roofs and solar roofs. In the next chapter students explore the concept of the building envelope, the system that serves as a barrier between the interior and the exterior world. Next, a building’s skin—its cladding—is discussed, and students will learn that a structure’s cladding and its envelope are not one and the same. Finally, students explore the academic discipline of building science, especially its quest to make buildings stronger and more impervious to natural disasters such as hurricanes and earthquakes.

- **Unit 5: Green Technology, Sustainability, and Preservation:** The final unit focuses on green technology, sustainability, and preservation—all subjects that have been touched on before, but now they become the star of the show. Sustainable construction and green construction codes comes first. A close look at green building materials is next. Students also explore “green” jobs in the construction industry. The course’s last chapter focuses on historical preservation and adaptive reuse.

Curriculum Content and Skills Focus

**Unit 1: Introduction to Careers in Construction Technology**

- Identify and understand the four main categories of architectural plans and explain their importance to construction workers.
- Demonstrate the purpose of an environmental assessment and the role a civil engineer plays in it.
- Understand the duties of a foreman and how they differ from that of the construction manager and general contractor.
- Define foundation, formwork, and concrete.
- Explain the main components of a building’s plumbing system that are installed and maintained by a plumber.
- Describe the tasks unique to the general carpenter, the interior systems carpenter, a framing and residential carpenter, and a cabinetmaker.
- Explain three processes for making window glass and the difference between architectural glass and tempered glass.

**Unit 2: Building Life-Cycle Assessment and Regulation**

- Explain the purpose of an LCA and its four major steps, using concrete as an example building material.
- Explain how the construction worker can impact the LCA process.
- Explain how a building’s initial life-cycle stages, as outlined in an LCA, impact its final life-cycle stages.
• Compare the similarities and differences between the International Building Code and the International Residential Code and the purpose of each.
• Define several model building codes and their relation to a municipality’s building codes.
• Recount the evolution of urban planning in the United States over the past 100 years.
• Compare and contrast urban planning and regional planning.

Unit 3: Building Materials and Methods of Construction 1

• Explain the differences between several different types of shallow foundations.
• Explain the factors that determine what type of foundation a building should have.
• Understand the differences and the relationship between reinforced concrete and pre-stressed concrete and between tensile strength and comprehensive strength.
• Compare and contrast the properties and uses of structural steel and sheet steel.
• Illustrate some of the types of joints used in heavy-frame construction and their benefits.
• Compare and contrast the advantages and disadvantages of balloon framing and platform framing.
• Explain what a city planner does and how it differs from a building inspector.

Unit 4: Building Materials and Methods of Construction 2

• Explain the environmental benefits of green roofs.
• Describe the benefits of a solar roof.
• Explain the various components of a roof.
• Enumerate the steps involved in covering a flat roof.
• Describe the functions of the building envelope.
• Compare and contrast wood, aluminum, vinyl, and masonry cladding.
• Define building science and name some engineering disciplines associated with it.

Unit 5: Green Technology, Sustainability, and Preservation

• Describe the common building systems that are often the focus of sustainability efforts.
• Name some green building materials and their environmental implications.
• Explore how the rise of green construction will impact both design occupations and construction and trade occupations.
• Outline the rise of historical preservation in the United States, and name the main legislation and organizations devoted to it.
• Describe several successful adaptive reuse projects.
• Discuss three main assessment categories developers must consider in adaptive reuse projects.
• Describe how communities can encourage adaptive reuse.
Principles of Business and Finance

COURSE OVERVIEW

This course will introduce students to the fundamental structure of the American economy, the complexities of the global economy, and the principles, practices, and strategies associated with starting, managing, or simply working for a business.

Through a combination of lessons and projects, students will trace a trajectory of their potential role in the American economy as consumers, laborers, and executives. With lessons on everything from marketing to writing formal business correspondence, from the basic structures and legal definitions of business to the operations and importance of financial institutions, students will emerge from this course with a thorough introductory understanding of the business world.

Students will perform research, conduct interviews, and write papers on various topics designed to enrich their understanding of the American business environment. They will also navigate an interactive and creative project that spans the length of the course and asks students to engage their learning, imaginations and individual career motivation with the course material.

- **Unit 1: The Business Organization**: Unit 1 takes students to the front door of business, discussing the various structures these commercial enterprises might take, from a sole proprietorship with just one employee to immense multinational corporations. Students examine how, regardless of size, every business has an ethical responsibility to its customers, clients, and employees to provide them products and services that meet the highest standards for quality and integrity, and how a failure to meet these ethical responsibilities likely will result in a dramatic loss of customers and revenue. Students also investigate the roles and responsibilities of those starting, leading, and managing businesses.

- **Unit 2: Technology**: Gateway to International Business Opportunities: Students begin this unit discussing the benefits technology has brought to business, ranging from software that manages several “back office” functions such as inventory control, payroll, budgeting, taxes, and communication and then examine how this technology also opens up new markets down the street and across the globe. Today, small business owners in Baltimore can do business with customers in Bahrain, Bangkok, and Brasilia as easily as they can with the family living in the apartment down the street. To be successful, however, that business owner must first understand the cultural and social differences from one country to another and apply the proper business etiquette; how to do this effectively using technology or in face to face meetings is a further topic of investigation in this unit.

- **Unit 3: Economics and Business**: Business success depends on a healthy economy, and this unit delves into the nature of the U.S. free-market economy that relies on consumers to influence critical decisions about what to produce and at what price to sell a variety of goods and services. As part of this exploration, we delve into supply and demand, the difference between goods and services, government controls over the economy, needs and wants, and the role of private enterprise in meeting the basic needs of a population. Further, we relate these macroeconomic concepts to the responsibility business leaders have to carefully manage their capital and assets so that they provide the greatest benefit to the greatest number while maintaining a profitable and successful enterprise.

- **Unit 4: Marketing, Markets, Sales and Consumers**: Connecting businesses and consumers is in many respects the business of business. This unit begins with an introduction to marketing and advertising, with opportunities for learners to understand the differences between the two and the very distinct roles marketers and advertisers play in bringing products and services to market. We then take a closer look at the traditions of advertising, what changes have been introduced since the Colonial era when merchants would post lists of inventory outside their shops, and how the Internet has opened additional opportunities for businesses to advertise their products and services. We have a frank discussion about the role of the consumer and how the government will step in to protect consumers from products that can cause physical harm as well as services that defraud consumers. The unit concludes with opportunities for students to explore sales techniques and careers and to gain insight into how group dynamics may influence decision making.

- **Unit 5: The Language of Business and Expressing your Career Interests**: This final unit of Principles of Business and Finance provides students an opportunity to develop the basic skills they will need to succeed in a business environment, beginning with a discussion of appropriate and inappropriate forms of communication in the business setting. Students are encouraged to try their hand at formatting formal business letters, memoranda, and e-mail messages using the suggestions and guidelines presented in this lesson. They have opportunities to become familiar with PowerPoint and other presentation software and to look at the changes these products have made to the business. The unit concludes with encouragement to the student to quite literally, “Get out there!” and use the skills and insight they have garnered in their efforts to land a great job in the business community.

Curriculum Content and Skills Focus

**Unit 1: The Business Organization**

- Discuss one of the six areas of human resource management and explain its importance.

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• Determine the scope of government regulation over commercial enterprise.
• Understand the role entrepreneurship plays in building the economy.
• Be able to define the steps in starting a business.
• Research several areas of management.
• Be able to define the steps in starting a business.
• Determine your role in the business world.
• List and define the legal forms of business ownership.

**Unit 2: Technology: Gateway to International Business Opportunities**

• Explain how technology influences the business industry.
• List specific examples of e-commerce.
• Importance of financial management in business.
• Acquire an understanding of the impact of international business on the global economy.
• List specific examples of modern technology used in business today.
• Understand community service as a component of product promotion.
• Explain the importance of business etiquette in the business world.

**Unit 3: Economics and Business**

• State the differences between needs and wants.
• Identify the different types of budget used for business finances.
• Analyze the relationship between business and consumers.
• Learn the key steps in developing a strategic plan.
• Analyze the relationship between business and scarce resources.
• Explain the accounting equation and use it appropriately.
• Explain the difference between capital and collateral.
• Compare a market economy with a centrally controlled economy.

**Unit 4: Marketing, Markets, Sales and Consumers**

• Define product liability.
• Describe the four phases of group development.
• Define bait-and-switch advertising.
• Learn about the changes in marketing from standardization to customization.
• Identify the five sales stages.

**Unit 5: The Language of Business and Expressing your Career Interests**

• Understand and be able to explain the difference between a business proposal presentation and a business technical briefing.
• Explain what constitutes effective and efficient communication.
• Determine the necessary education and training.
• Illustrate what being a good listener means.
• Understand formal versus informal communication.
• Recognize the importance of balance in life.
Introduction to Careers in Education & Training

COURSE OVERVIEW

Introduction to Careers in Education and Training will introduce students to the field of education and training, and the opportunities available for early-childhood care, primary school, secondary school, higher education, vocational training, and adult and continuing education. The students will gain an understanding of the career options available in teaching, administrative work, and support services. They will also explore the education and background experience needed to succeed in these careers.

Students will learn about the evolution of the modern educational system in the United States, and the policies and laws that govern educational institutions. They will also discover the similarities and differences between the ethical and legal obligations of working with adults versus working with children.

Students will learn about the skills needed to be effective communicators. They will also learn how to differentiate between different types of learning theories, and they will explore how to implement current principles from educational psychology into the classroom.

Students will also learn how to create a safe and healthy learning environment. They will discover the federal laws and agencies that set health-and-safety standards, and they will learn how these regulations are enforced in the workplace.

The objective of this course is to introduce the student to the field of education and training, and to explain the career opportunities that are available in this field.

- **Unit 1: Education and Training: Historical Perspectives, Introduction, and Critical Skills**: In this unit students learn about the historical evolution of the American educational system and the social, political, and economic role that education currently plays in modern society. They also learn about the critical importance of strong communication skills to a successful career in education and training.
- **Unit 2: Learning Styles and Collaborative Learning**: In this unit students learn about the different theories that describe how people learn and the fundamentals of educational psychology. Students also investigate the ways in which group interactions can be used to enhance the learning process.
- **Unit 3: Educational Policy and Human-Resource Development**: Unit 3 examines the careers available in the field of educational research, policy development, and human resources. Students also discover some of the skills critical to these careers including conflict resolution, leadership, and management skills.
- **Unit 4: Ethical and Legal Policies of Careers in Education and Training**: Unit 4 examines the ethical and legal rights that govern behavior as it relates to training and education. Students also learn about the federal laws that are applicable to K–12 schools and higher educational institutions. They also explore career opportunities in the fields of social work and career counseling and those available in higher education.
- **Unit 5: Health and Safety in Education and Training**: In Unit 5, students examine the health and safety practices that are applicable to the educational setting. They also discover the career opportunities that are available in the field of health and safety.

Curriculum Content and Skills Focus

**Unit 1: Education and Training: Historical Perspectives, Introduction, and Critical Skills**

- Identify the purpose of education in both a historical and modern context; summarize the social, political, and economic goals of education and training.
- Evaluate advantages and disadvantages of careers in education and training.
- Categorize the different type of problems that can occur in the communication process, practice skills that lead to effective communication.
- Characterize different forms of communication including those involving the use of verbal and nonverbal signals.
- Define communication problems that can occur in culturally diverse settings and explain how these differences can be effectively resolved.
- Describe the steps required to analyze classroom data and draw conclusions about the effectiveness of a learning activity.

**Unit 2: Learning Styles and Collaborative Learning**

- Identify methods for applying the principles of learning theories to a classroom setting.
- Describe causes of human motivation.
- Define the process of metacognition and outline the steps involved in the process of developing metacognitive skills.
- Identify specific classroom activities that can be used to help students develop strong metacognitive skills.
- Describe the categories used by psychologists to classify groups.
- Define the precise vocabulary that psychologists use to describe groups.
- List strategies that can be used to implement collaborative learning in the classroom.
- Describe several of the theoretical foundations of the field of instructional design and technology.
 Identify the role and responsibilities of an instructional designer.

Unit 3: Educational Policy and Human-Resource Development

- Distinguish between the different types of working environments in which an educational policy analyst might be employed.
- Identify current challenges for educational policies.
- Define the goals and scope of the Elementary and Secondary Education Act.
- List the federal civil rights policies that affect educational institutions.
- Identify the primary causes of conflict and the different ways in which individuals respond to conflict situations.
- Outline specific tactics that can be used during the conflict resolution process.
- Describe the three fundamental components of a good meeting.
- Outline the levels that can be used to evaluate a training program.
- List the responsibilities, educational requirements and median salary for various careers in the human resource field.

Unit 4: Ethical and Legal Policies of Careers in Education and Training

- Describe the legal battles that led to the desegregation of American public schools.
- Describe the national and state-wide efforts to end bullying in schools.
- List the boundaries of a professional student-teacher relationship.
- Identify ways in which an educator can create bonds with students in an appropriate and ethical manner.
- Evaluate advantages and disadvantages of careers in education and training.
- Identify the various career options available in the fields of social work, psychology, and school counseling.
- Identify the various federal financial aid programs available for higher education and their eligibility requirements.
- Identify the ethical responsibilities professors have to their students, colleagues, educational institutions, and the community.
- List the job responsibilities and educational requirements for a faculty career in higher education.

Unit 5: Health and Safety in Education and Training

- Identify the key features of a safe childcare environment.
- Describe the procedures that childcare providers follow in order to keep children healthy and prevent the spread of contagious diseases.
- Evaluate advantages and disadvantages of careers in education and training.
- List the job responsibilities of people who are employed as school security specialists, school nurses, food service assistants, and custodial staff.
- List the actions school personnel should take to protect the safety of students, staff, and visitors.
- Identify the steps schools can take to make sure that their buildings and grounds are safe.
- Identify the major topics covered by OSHA health and safety training programs for workers.
- Describe the federal standards that regulate the health and safety practices of many workplaces.
- Outline the process a compliance health and safety officer uses to investigate suspected health and safety violations.
- List the factors that should be considered when making career decisions.
Forensics: Using Science to Solve a Mystery

COURSE OVERVIEW

This course is the overview of modern-day forensic science careers at work using science concepts to collect and analyze evidence and link evidence to the crime and suspects in order to present admissible evidence in courts of law. Modern-day forensic science practices have come into being thanks to the contribution of science and legal professions seeking ways to study crime scenes and criminal activities in an effort to stop crime. Of particular interest in this course are the various applications of medicine in the field of forensic science. This course identifies science concepts and critical thinking in the area of forensic science. Following the presentation of the concepts, students are encouraged to conduct online research exploring examples and applying the concepts just learned. Links to case studies and interactive learning tools are supplied along with high-quality research sites. Projects are assigned throughout the course that allow students to actively apply the information just learned. These projects include simulated crime-scene investigation, actual DNA separation, development of a cybersecurity plan, and the identification of specific forensic skills used during the course of a very large murder case. The focus of this course is to assist students in making career choices. Secondary school students who complete this course will have gained an awareness of the diversity of careers available in the forensic field. In addition, attention is drawn to many similar careers in medicine and computer science. Included in this overview of careers is the consideration of job descriptions and availability, educational and training requirements, licensing and certification, and typical annual salaries. Students who take this class will become equipped to make more informed career choices in regards to the forensic and medical science fields. At the same time, students will survey the history and scope of present-day forensic science work.

- **Unit 1: History of Forensic Science and DNA Analysis:** The history of forensic science considers the contributions of many medical, legal, and law-enforcement professionals. Many early convictions were based on very little physical evidence. During the 1800s, crime-scene investigation and physical-evidence collection methods began to be developed. Many physical-evidence analysis methods depend on scientific innovations such as microscopes and gas chromatography. The personal identification of suspects and victims was based strictly on eyewitness accounts prior to the discovery of the uniqueness of individual fingerprints. The forensic role of modern-day personal identification is the backbone of valid suspect identification. Fingerprinting techniques and databases of the twentieth century have now been replaced with DNA profiling and searchable databases used to screen and identify individuals. This unit also surveyed the many uses of DNA for identification in both forensic and mass-disaster applications.

- **Unit 2: Crime Scene Investigation and Forensic Medical and Dental Professionals:** You have been introduced to crime-scene investigation, which is the heart of forensic science. The emergency medical first responders care for the injured found at the scene. The first responding police officers care for the safety of not only those affected by the crime but also all the first responders at the scene. You now know that the first responding police officers are also responsible for the protection of the crime scene until the crime-scene investigator arrives and secures the scene. You have learned there are very specific rules of protocol the entire investigation must follow. This includes the collection and preservation of the evidence as well as documenting the evidence and anyone having contact with the evidence or the crime scene. Following the protocol determines whether or not the evidence will be admissible to the courts. You have been introduced about the importance of understanding the elements of this protocol. Up to this point in the course, you have been introduced to many career forensic scientists trained to assist with the crime-scene investigation and present the evidence to the court. During this unit you have also been introduced to other types of forensic scientists working with the crime-scene investigation team. Some evidence investigators do not come to the crime scene itself; they remain in the crime lab, analyzing the evidence brought to them. Should there be a death connected to the crime, it must be investigated by those who have the training and authority to do so: a coroner, medical examiner, odontologist, or pathologist. Any related mental or emotional issues of the victims or perpetrators must also be addressed by a medical doctor who has psychiatric training.

- **Unit 3: Forensic Biologist, Forensic Chemist, Physical Anthropologist:** All crimes and crime scenes are unique. In this unit you learned about biology, chemistry, and anthropology professionals who perform needed services and analysis of crime-scene evidence. Most of these professionals do not work full-time in forensic science, but they do have valuable skills and tools sometimes needed to study the evidence. Although they are not full-time forensic scientists, they must still abide by the protocols of admissible evidence. You have also learned that these professions are often called to testify in court as expert witnesses. During these chapters, you were introduced to some of the most unusual forensic careers and methods. Who would have known that a forensic entomologist studying the insects on a dead body could furnish needed evidence? The various branches of anthropology study the remains of bodies long dead to gather evidence for the case. You now know the importance of specific bones and the science of osteology as it pertains to teaching us more about individuals.

- **Unit 4: Forensic Toxicologist, Computer Forensics, and Forensic Engineering:** Once again, you compared the careers and forensic job descriptions of these professionals, many of whom are not full-time forensic investigators. These fields all demand many years of training and experience. The toxicologist studies the poisons and toxins related to the crime. As you know, drugs and alcohol are toxic to the body. Toxicologists are involved in processing crime-related samples of these substances using specially designed equipment, and you reviewed their specific testing methods in this unit. The effects of drugs and alcohol on the body were also covered in these chapters. Forensic engineers and computer examiners, unlike most of the rest of the forensic careers, work with machines related to crimes. In this section, you have identified the specific methods and protocol related to these investigations. During the computer-related lessons, you studied and developed security plans for both personal and business computers. You now know that information assurance is a vital part of computer forensics.

- **Unit 5: Developing Careers in Forensic Science:** This unit studies some little-known forensic careers in nursing, linguistics, art, photography, and animation. All of these careers are rapidly developing and changing, pioneering new forensic applications. Forensic nursing, linguistics, and animation are very new careers. The incorporation of these professions in the fight against crime has begun within the last twenty years. Crime-scene photography and forensic applications of art are not new, but with the advent of digital technology, individuals trained...
in these skills are pioneering fields such as videography and digital facial reconstruction. The fields of forensic linguistics and animations are empowered by advancing technology. Forensic nursing developed in response to the trend of increased sexual and domestic violence. These nurses are specially trained to care for the victims of sexual and domestic violence.

Curriculum Content and Skills Focus

Unit 1: History of Forensic Science and DNA Analysis

- Examine the history of forensics and the contributions of individuals to the field of forensics as we know it today.
- Compare and contrast techniques used to evaluate physical evidence.
- Describe the development of DNA as a scientific analytical tool.
- Describe the importance of DNA to forensics.
- Determine the relationship of DNA to genes and to the genome.

Unit 2: Crime Scene Investigation and Forensic Medical and Dental Professionals

- Evaluate a crime scene using the protocol designed by crime-scene investigators.
- Describe the rules of forensics for securing and documenting a crime scene.
- Evaluate the importance of the chain of evidence in effective prosecution.
- Compare and contrast the careers of CSI, medical examiner/forensic pathologist, forensic odontologist, and forensic psychiatrist in terms of education and training, job description, and their specific roles in forensic science.
- Distinguish between the medical-examiner system and the coroner system.
- Examine the role of the forensic odontologist in the identification of victims of mass casualties such as 9/11 and the Asian tsunami.

Unit 3: Forensic Biologist, Forensic Chemist, Physical Anthropologist

- Compare and contrast the professions of the forensic biologist, forensic chemist, and forensic anthropologist in terms of job description, educational, and training requirements, licensing and certification, and legal and ethical considerations.
- Examine the life cycle of the blowfly and describe how this can be used to determine time of death.
- Evaluate the use of tandem techniques (gas chromatography and mass spectrometry) in identifying chemicals involved in the commission of a crime.
- Identify the major bones of the axial and appendicular skeleton, especially the bones of the skull.

Unit 4: Forensic Toxicologist, Computer Forensics, and Forensic Engineering

- Compare and contrast the professions in the field of forensic science in terms of job descriptions, educational and training requirements, licensing and certification, and legal and ethical considerations.
- Assess the contributions of medical professionals in the development of forensics as a science.
- Evaluate the quantitative and subjective changes in the body associated with alcohol, toxins, and drugs.
- Examine the importance of the field of computer forensics.
- Examine the significance of identity theft.

Unit 5: Developing Careers in Forensic Science

- Evaluate the profession of forensic nursing as to job description, educational and training requirements, licensing and certification, and legal and ethical considerations.
- Evaluate how human trafficking enslaves children in the U.S. and the rest of the world.
- Compare and contrast the professions of forensic linguist, forensic animator, forensic artist, and forensic photographer in terms of job descriptions, educational and training requirements, licensing and certification, and legal and ethical considerations.
- Evaluate the role of artistic disciplines such as animation, art, and photography in forensics.
Introduction to Hospitality & Tourism System

COURSE OVERVIEW

This course establishes a foundation for the concept of tourism, travel, and hospitality as a system. Students will learn about the various segments of the travel and tourism industry and how they are interrelated and integral to international and domestic travel and tourism. This discussion will include travel agencies, tour companies, the airlines and other transportation sectors, lodging facilities, cruise lines, and marketing companies.

- **An Introduction to the Travel Industry and the Places We Go**: This unit introduces students to the travel industry. It teaches about the different segments of the travel industry and how to satisfy different types of consumers. Geography also plays an important role, and this unit helps students learn about tourist destinations in various places throughout the world.

- **Explaining Agencies, Operators, and Instruments of Record**: The role of travel agencies and operators and how they can save money for travelers is investigated in this unit. It also teaches students about documents required for international travel, as well as about money exchanges and health alerts.

- **The Airlines and Other Modes of Transportation**: Air travel, different types of flights, itineraries, types of aircraft and their advantages are studied in this unit, which also looks at services offered in airports. This unit also teaches students about ground transportation, such as rail and car rental, that travelers use once they reach their destinations.

- **The Hospitality and the Cruise Industry**: Students will learn about the various types of lodging, ranging from luxury hotels to bed and breakfasts. They will also learn about the different services each offers, such as meal plans, restaurants, or just coffee and bagels. The cruise industry will also be explored, and students will learn about the many types, accommodations and price points offered.

- **Making Connections**: Marketing and Technology: Students will learn about the many aspects of marketing travel products, including how to analyze their effectiveness. Students will also learn about the impact of technology on travel, such as computerized reservation systems, sales of travel through the Internet, and the potential for space travel.

Curriculum Content and Skills Focus

**UNIT 1: AN INTRODUCTION TO THE TRAVEL INDUSTRY AND THE PLACES WE GO:**

- Define key terms related to the travel and tourism sector.
- Explain what each major segment of the travel industry represents.
- Analyze different kinds of consumers and what satisfies their travel needs.
- Understand how geographic principles related to travel concerns.
- Know some of the landforms and bodies of water that are popular tourist destinations, and be aware of the wind patterns that affect them.
- Define major geographic terms.
- Identify some of the major tourist destinations in North America, South America, Central America, and Europe.
- Understand the geography of North America, South America, Central America, and Europe.
- Identify some of the major tourist destinations in Africa, the Middle East, Asia, and Australia, New Zealand, and the South Pacific.
- Understand the geography of Africa, the Middle East, Asia, and Australia, New Zealand, and the South Pacific.

**UNIT 2: EXPLAINING AGENCIES, OPERATORS, AND INSTRUMENTS OF RECORD:**

- Understand why consumers use travel agents.
- Compare the skills of a leisure agent with a corporate travel agent.
- Describe the types of tours available in the travel industry.
- Describe the reasons why people take tours.
- Explain the procedures and required documents needed for border crossings.
- Understand the travel advisory warning system used by the Centers for Disease Control and Prevention.
UNIT 3: THE AIRLINES AND OTHER MODES OF TRANSPORTATION:

• Understand the difference between different types of flights.
• Identify the different types of aircraft used in commercial aviation.
• Understand how airports are managed.
• Understand the different types of airline fares.
• Describe how car rentals are priced.
• Describe the rail-travel industry and experience.

UNIT 4: THE HOSPITALITY AND THE CRUISE INDUSTRY:

• Classify the different types of lodging.
• Understand how hotels set their room rates.
• Understand new trends in the food-services industry.
• Describe the different kinds of cruise lines and ships.
• Identify the most popular destinations for cruises.
• Understand how cruises are priced.

UNIT 5: MAKING CONNECTIONS: MARKETING AND TECHNOLOGY:

• Understand what a SWOT analysis is used for.
• Understand the difference between transactional selling and consultative selling.
• Understand the economic impact of meetings and conventions.
• Identify what CRS and GDS systems do and how they support the travel industry.
• Understand the reasons why people are becoming medical tourists.

Course Project: Your Own Travel Destination.
COURSE OVERVIEW

Life in the twenty-first century would not be possible without police officers, paramedics, firefighters, attorneys, corrections officers or security guards. In this course, students will learn about the many careers that exist within the fields of law, law enforcement, public safety, corrections, and security. Besides learning about the training and educational requirements for these careers, students will explore the history of these fields and how they developed to their current state. Students will also learn how these careers are affected by and affect local, state, and federal laws. Finally, students will examine the relationships between professionals in these fields and how collaborations between professionals in these careers help to create a safer, more stable society.

- **Law Enforcement Career Paths, their History and their Role in Society:** This unit focuses on law enforcement careers, the history of law enforcement in the United States and the role that law enforcement plays in society.
- **Careers in Corrections:** This unit explores careers in the corrections fields, including the history of prisons and jails and the nature of probation and parole in the correction fields.
- **American Criminal Law and Legal Services:** This unit focuses on American criminal law and legal services, including historical aspects of this field and current career opportunities.
- **Public Safety Services:** This unit focuses on public safety services, including firefighters and emergency medical services (EMS) and the history of those fields.
- **Private Security Career Paths, their History and Legal Development of Security Services:** This unit focuses on the private security field, including the development of this field, the laws that pertain to it and the careers that are available in this field.

**Curriculum Content and Skills Focus**

**UNIT 1: LAW ENFORCEMENT CAREER PATHS, THEIR HISTORY AND THEIR ROLE IN SOCIETY**

- Recognize historical importance of law enforcement.
- Learn basic requirements for police work.
- Analyze how the law applies to making decisions.
- Recognize the importance of legal training in making arrests.
- Identify how events change law enforcement agencies.
- Identify history and jurisdiction of the DHS.
- Distinguish among five career paths for FBI Special Agents.

**UNIT 2: CAREERS IN CORRECTIONS**

- Describe issues that prompted different eras of prison reform.
- Identify reform that changed the structure and policy of prison and jails.
- Recall causes of and challenges of jail overcrowding.
- Recognize the importance of education and professional experience in corrections career.
- Identify roles of the probation officers.
- Identify role individuals played in establishing parole in the United States.
- Describe the most important skillset for both probation and parole work.

**UNIT 3: AMERICAN CRIMINAL LAW AND LEGAL SERVICES**

- Describe the origin of common law.
- Explain the purpose of the Constitution.
- Identify the role individual historical figures played in the adversarial system of due process.
- Explain the importance of Gideon v. Wainwright in the history of the American legal system.
- Describe the important qualities for the career path to a public defender.
- Know the role of prosecutors in the state and federal courts.
- Explore the duties and responsibilities of professionals of these legal careers.
UNIT 4: PUBLIC SAFETY SERVICES

- Explain the historical challenges and developments to firefighting in the United States.
- Identify the nature and demands of training for firefighting.
- Describe the differences between career and volunteer firefighters.
- Recognize the kinds of fires and emergency situations contained by specialized firefighters.
- Identify major historical developments that contributed to modern EMS.
- Explain the differences between EMTs and paramedics.
- Define the basic medical procedures used by EMTs.

UNIT 5: PRIVATE SECURITY CAREER PATHS, THEIR HISTORY AND LEGAL DEVELOPMENT OF SECURITY SERVICES

- Show how modern private security has always been tied to government offices in the United States.
- State the general requirements for private security officers.
- Explain the role of private security officers in protecting private property and individuals.
- Differentiate standards of training required by states with state-wide standards and those without state-wide standards.
- Explain why Constitutional law is different in private security work.
- List key components of sharing activities between private security and law enforcement.
- Describe legal complexities inherent in these partnerships.

Course Project: Researching a Career in Law, Public Safety, Corrections, and Security

This project takes place in six distinct parts. As a whole, the project provides students with the opportunity to apply what they have learned in the course in order to do an in-depth study of a career of their choice in the fields of law, public safety, corrections or security.

Part 1 requires students to identify a career of interest. In doing so, they will evaluate the work environment they would prefer and apply critical thinking and self-reflection to identify a career that would be a good match for their personal strengths and interests.

In Part 2, students conduct research into the physical, educational and training requirements for the career of their choosing. Doing research into the requirements for this career gives students the opportunity to evaluate the complexity and responsibility of doing work in this field.

In Part 3, students will evaluate the role that state and federal laws play in the career of their choosing. This requires students to think critically about the importance of law in these fields and asks them to evaluate the broader ethical implications of work in this field.

In Part 4, students conduct an interview with a professional in the career of interest. In conducting this interview, students will gain more understanding into the daily experience of work in this career. They will also benefit from the experience of a person currently working in this career.

In Part 5, students will design a career map, mapping out the career path that will lead them from their current academic status to the career of interest. They will complete this career map as a literal map and also as a written career path, giving them two ways to visualize, process and understand the complexities and challenges of the career path.

Finally, in Part 6 students will present a poster summarizing what they have learned in each of the previous parts. This poster serves as an opportunity for students to share what they have learned with their peers and to learn about other careers of interest, as researched by classmates.
Essentials of Communication: A Guide to Interacting Effectively in Today’s World™ is a five-unit elective course for high school students. The materials cover fundamentals of the communication process important for successful interaction in a variety of social and professional settings. Students can use the course to gain and apply knowledge about communication theories, characteristics of language and language use, interpersonal relationships, group dynamics, and public speaking in order to interact more effectively with others.

The course seeks to help students expand their knowledge and skills as communicators so that they may achieve the following goals:

- Know and understand aspects of communication theories and processes appropriate to both social and professional settings.
- Use interpersonal communication strategies appropriately in social and professional settings.
- Effectively communicate in social and professional group settings.
- Plan, prepare, deliver, and evaluate formal and informal personal and professional presentations.

In attaining these goals, students will be better equipped to use communication to hone other life skills, including exchanging information, fulfilling social obligations, developing relationships, and understanding and meeting the needs of others.
Essentials of Business

COURSE OVERVIEW

This semester-long course is an introduction to the goals, processes, and operations of business enterprises for students. The main focus is on the functions that a company – whether a multinational corporation or a corner grocery store – must manage effectively to be successful. These include accounting, finance, human resource management, marketing, operations management, and strategic planning. Attention is also given to the legal environment in which businesses operate, and the importance of business ethics and corporate citizenship.

Throughout the course, students may be asked to answer questions or to reflect on what they’ve read in their notes. The notes are not graded. Rather, they are a way for students to extend their thinking about the lesson content. Students may keep handwritten or typed notes.

- Principles of Training
- Your Role in Business
- Business Career Choices
- Project: Business Career Choices
- Selling Yourself
- Project: Selling Yourself
- Market-Based Economy
- Business Economics Wants vs. Needs
- Unlimited Wants vs. Limited Resources
- Project: Unlimited Wants vs Limited Resources
- Human Resources
- Marketing and Advertising
- Sales Techniques and Careers
- Project: Sales Techniques and Careers
- Business Structures
- Management
- Finance Options, Credit Use, and Banking
- Recordkeeping Money and Asset Management
- Consumer Rights
- Project: Consumer Rights
- Business Leadership Skills
- Group Dynamics in the Business Setting
- Team-Building Skills in Business
- Business Ethics
- Project: Business Ethics
Civil War

COURSE OVERVIEW

You are about to embark on the fascinating history of the Civil War. It is a story of human choices that linked the past to the present and influenced the future. It is a drama of how one nation changed through times of conflict and cooperation. It is a tale of two children (the North and South) living under the same roof (The United States) and how they disagreed over the issues of states' rights and slavery.

Students will also gain practice in research, using technology, and writing through various projects. In addition to the default course program, Civil War Elective includes alternate projects, essays, and tests for use in enhancing instruction or addressing individual needs.

- **Unit 1**: Students will compare and contrast the characteristics of the North and South, the development of slavery in the South, and the events that started the Civil War.
- **Unit 2**: Students will examine the war strategies, battles, and major events of the Civil War.
- **Unit 3**: Students will explore many aspects of the war including: the presidencies of Lincoln and Davis, the generals, turning points, role of women and African Americans, and the effects of the war on the U.S.
- **Unit 4**: Students will gain knowledge about the later years of the war including: Grant’s war of attrition, Sherman’s advances in the South, the life of a soldier, prisoners of war, and the last few months of Lincoln’s life.
- **Unit 5**: Students will describe the events that led to the end of the Civil War, examine the plans for Reconstruction, and identify three amendments that passed during this time.
Vietnam Era

COURSE OVERVIEW

What comes to mind when you think about the Vietnam Era? For many, that period represents a difficult time in U.S. history. It is defined by an unpopular war that claimed the lives of 58,000 Americans and some 3 million Vietnamese. In this course, you’ll look at the history of the Vietnam War. The roots of the conflict stretch further back than you might know. You’ll examine why the United States got involved in the conflict and why the United States failed to achieve its objectives.

- Unit 1: Students will learn about the history of Vietnam before the war and explain why the United States got involved in Vietnam.
- Unit 2: Students will study the growth of U.S. involvement in Vietnam following the 1954 Geneva Accords to the first American combat troops in 1965 after the Gulf of Tonkin incident.
- Unit 3: Students will describe fighting techniques and efforts by both the Vietnamese and Americans as well as the U.S. public opinion about the war.
- Unit 4: Students will explore the Tet Offensive, Vietnamization, and the end of the war.
- Unit 5: Students will identify the outcome of the Vietnam War, examine the 1973 Paris Peace Accords, and explain the impact of the Vietnam War on American foreign policy.
World Geography A&B

COURSE OVERVIEW

World Geography takes students on a journey around the world in which they will learn about the physical and human geography of various regions. They will study the history of each region and examine the political, economic, and cultural characteristics of the world in which you live. Students will also learn about the tools and technologies of geography such as globes, maps, charts, and global information systems.

Students will also gain practice in writing and note-taking. They will be asked to create graphic organizers, conduct research, analyze information, and write essays on topics such as current events, energy resources, and national parks.

- **Unit 1**: Students will discover the five themes of geography, describe earth’s major physical features, and describe the characteristics of the world’s ecosystems.
- **Unit 2**: Students will examine population growth, migration, economic systems, and sustainable development.
- **Unit 3**: Students will explore the human and physical geography of North America and address the environmental concerns facing Greenland, Canada, Mexico, and the U.S.
- **Unit 4**: Students will gain knowledge about the human and physical geography of Central America, South America, and the Caribbean. They will also address the environmental concerns facing these areas.
- **Unit 5**: Students will describe the human and physical geography of Oceania, Australasia, and Antarctica. They will also address the environmental concerns facing these areas.
- **Unit 7**: Students will examine the physical and human geography, environmental concerns and the major nations of Europe.
- **Unit 8**: Students will learn about the physical and human geography, environmental concerns and the major nations of Eastern Europe.
- **Unit 9**: Students will explore the physical and human geography, environmental concerns and the major nations of Sub-Saharan Africa.
- **Unit 10**: Students will describe the physical and human geography, environmental concerns and the major nations of North Africa and Southwest Asia.
- **Unit 11**: Students will explain the human and physical geography of Asia. They will also address the environmental concerns facing these areas.
World Civilization
Personal & Family Living

COURSE OVERVIEW

This semester-long high school elective takes students on an interactive exploration of the challenges they may face as they transition into adulthood, including constructive conflict resolution, nutrition and health, building healthy families, financial responsibility, and long-term employment.

OBJECTIVES

- Examine specific principles that will help develop their personal lives.
- Learn about proper nutrition, and demonstrate skill in preparing various food items.
- Prepare weekly and monthly budgets.
- Develop strategies for an employment search.
- Explore work and careers and how different interests, abilities and personalities influence employment decisions.
- Develop an understanding of relational dynamics with family members, friends, classmates, co-workers, and those encountered in the marketplace.
Psychology

COURSE OVERVIEW

Psychology is an introductory elective course for high school students. Throughout the course, students will examine influences on human actions and beliefs, factors influencing behavior and perception, and basic psychological theories. Students will develop and apply their understanding of psychology through lessons and projects that require interaction and observation of others.

- **Unit 1**: Students will be introduced to the beginnings of psychology, research methods, and ethics of the profession.
- **Unit 2**: Students will examine the biology of behavior, sensory processes, motivation, and stress.
- **Unit 3**: Students will learn about the stages of human development and personality.
- **Unit 4**: Students will discover the different methods of learning, aspects of memory, language, and levels of consciousness.
- **Unit 5**: Students will explore mental disorders and abnormal behaviors and how to treat them. They will also determine why people obey and influence other's behavior.
Twentieth Century American History is a history elective for high school students interested in examining American history during a century of change, continuity, and conflicts.

Students will examine America's economic, political, governmental, cultural, and technological growing pains during the twentieth century. They will also consider the causes and effects of national and international cooperation, competition, and conflict.

In attaining these goals, students will develop insight and perspective on the themes and patterns of history and a greater understanding of today's world.

- **Unit 1:** Students will examine the major economic, political, and social changes of the 1800s including: the Industrial Revolution, urbanization, and immigration.
- **Unit 2:** Students will explore the effects of the late 1800s by looking at all aspects of Progressivism.
- **Unit 3:** Students will study issues that occurred after World War I including the Russian Revolution, the Red Scare, and the three presidents following Woodrow Wilson.
- **Unit 4:** Students will obtain knowledge on World War II, the Cold War, Eisenhower, and post-war American society.
- **Unit 5:** Students will identify the Civil Rights Movement, the rise of conservatism, post-Cold War foreign policy, and the economic and social issues facing contemporary America.