



Curriculum Guide

**ENGLISH LANGUAGE ARTS**  
**MATHEMATICS**  
**SCIENCE**  
**SOCIAL STUDIES**  
**COMPUTER SCIENCE**  
**ART & DESIGN**

# ENGLISH LANGUAGE ARTS

## Language Foundations

Block Style sentence writing

Slant Style sentence writing

Number writing

Actions and Tense

Description of Objects

Information and Background Knowledge

Instructional Words and Problem-Solving Concepts

Classification

Problem-Solving Strategies and Applications

## Writing I

Reporting

Past Tense

Sentence Analysis

Pronouns

Run-ons

Capitalization

Verb Agreement

Sentence Writing

## Reading I

Where the Wild Things Are by Maurice Sendak

Mr. Popper's Penguins by Florence Atwater and Richard Atwater

The Courage of Sarah Noble by Alice Dalgliesh

Pippi Longstocking by Astrid Lindgren

Zita the Spacegirl by Ben Hatke

Zathura by Chris Van Allsburg

June 29, 1999 by David Wiesner

## Writing II

Verbal Preparation for Paragraph Writing

Editing

Paragraph-Writing

Sentence Writing

Pronoun Clarity

Quotations

Verbal Preparation for Paragraph Writing

Paragraph Conventions

Editing

Passage-Writing

## Reading II

Aliens Love Underpants by Claire Freedman

Interstellar Cinderella by Deborah Underwood

Shiloh by Phyllis Reynolds Naylor

There's Nothing to Do on Mars by Chris Gall

Oh No!, Or How My Science Project Destroyed the World by Mac Barnett

Oh No!, Or How I Built a Time Machine to Save History (Or at Least My History Grade) by Mac Barnett



# ENGLISH LANGUAGE ARTS

## Reading Mastery

Peter Pan by J.M. Barrie  
20,000 Leagues Under the Sea by Jules Verne  
The Call of the Wild by Jack London  
Hatchet by Gary Paulsen  
Treasure Island by Robert Louis Stevenson  
The Hobbit, Or, There and Back Again by J.R.R. Tolkien  
My Brother Sam is Dead by James Lincoln Collier  
Where the Red Fern Grows by Wilson Rawls  
A Wrinkle in Time by Madeleine L'engle  
Around the World in Eighty Days by Jules Verne  
A Christmas Carol by Charles Dickens  
The Boy Who Reversed Himself by William Sleator

## Writing Mastery

Rule about sentences  
Basic Rule about Writing  
Sentences with work and works  
Rule about he, she, or it  
Sentences with give and gives  
Sentences with sit and sits  
Contradictions Rule  
Sentences with do and does  
Present Time, Past Time, Future Time  
Verb Tense  
Sentences with am, is, and are  
Sentences That Tell What to Do  
Adding a Comma When You Move Part of a Sentence  
Sentences Joined with and, but, or or  
Verb Tense  
Sentences with has and have  
Rule about Sentences with has and have  
Rule about Commas in Sentences  
Rule for Commas in a Series  
Retelling  
Evidence and Conclusions  
Commas in a Series  
Using a Fact List  
Retelling  
Rule for Comma in Combined Sentences  
Using an Outline Diagram  
Essay Questions  
Writing on Topics  
Three Rules about Paragraphs  
Paragraph Summaries  
Sample Passages  
Writing on Topics  
Sorting by Topic  
Missing Evidence  
Writing about Experiences  
Checking Your Passage



# ENGLISH LANGUAGE ARTS

## Writing Mastery (continued)

Misleading Statements  
Using Fact Lists  
Thesaurus  
Insufficient Evidence  
Retelling  
New Comma Rule  
Rules about Commas  
Using Evidence  
Persuasion  
Four-Paragraph Essay  
Opinion  
Using Evidence from a Story  
Opinion Letter  
Four-Paragraph Essay  
Retelling Using Category Labels  
Position Paper  
Block Quote  
Citing Evidence  
Story Questions  
Parallel Morals  
Position Paper  
Retelling  
Citing Evidence  
Debate  
Position Paper  
Evidence  
Using a Fact Table  
Identifying Misleading Statements  
Position Paper  
Retelling  
Persuasion - Information Table  
Final Project

## English I

The Iliad by Homer  
The Odyssey by Homer  
Romeo and Juliet by Shakespeare  
To Kill a Mockingbird by Harper Lee  
Civil Disobedience by Henry David Thoreau  
Letter from a Birmingham Jail by Dr. Martin Luther King Jr.  
The Glass Castle by Jeannette Walls  
Night by Elie Wiesel  
Animal Farm by George Orwell  
Of Mice and Men by John Steinbeck



# ENGLISH LANGUAGE ARTS

## English II

A Midsummer Night's Dream by William Shakespeare

Oedipus Rex by Sophocles

Jane Eyre by Charlotte Bronte

The Catcher and the Rye by JD Salinger

The Epic of Gilgamesh by Sin-Leqi-Unninni

All the Pretty Horses by Cormac McCarthy

Lord of the Flies by William Goldberg

Common Sense by Thomas Paine

Alas, Babylon by Pat Frank

The Allegory of the Cave, Plato

## AP Language and Composition

The Great Gatsby by F. Scott Fitzgerald

1984 by George Orwell

A Streetcar Named Desire by Tennessee Williams

The Scarlet Letter by Nathaniel Hawthorne

Adventures of Huckleberry Finn by Mark Twain

Othello by Shakespeare

The Crucible by Arthur Miller

Crime and Punishment by Fyodor Dostoevsky

## AP Literature and Composition

Antigone by Sophocles

The Tempest by Shakespeare

The Kite Runner by Khaled Hosseini

Heart of Darkness by Joseph Conrad

Emma by Jane Austen

Fahrenheit 451 by Ray Bradbury

And Then There Were None by Agatha Christie

Emily Dickinson

Edgar Allan Poe

Walt Whitman

Langston Hughes

Robert Frost



# MATHEMATICS

## **Mathematics I**

Reciting Counting Numbers (Rote Counting)

Counting Objects

Counting Events (claps, pennies)

Count On: Next Number

Counting Backward

Ordinal Numbers

Symbol Identification

Symbol Writing

Numbers and Counters

Equality and Equations

Place Value

Addition (One-digit numbers)

Addition (Two-digit numbers)

Commutative Property

Addition Facts (+1, +10, +Teen)

Algebra Addition

Subtraction

Column Problems

Money: Coins and Bills

Shapes and 3D Objects

Relative Position and Size

Grouping, Ordering, and Patterns

## **Mathematics II**

Column Addition

Carrying

3 Addends

Column Subtraction

Zero as First Digit

Different Digit Problems

Number Families

Number Family Strategy

Facts

Mental Math

Fact Relationships

Number Families with 2 and 3-Digit Numbers

Fractions

Counting by 1s, 10s, 100s, 5s, 25s, 2s

Counting Backward by 1s, 10s, 100s

Word Problems

Action and Classification Word Problems

Comparison Word Problems



# MATHEMATICS

## **Mathematics III**

Counting  
Place Value  
Expanded notation, renaming  
Number Families  
Addition - Subtraction Facts  
Word Problems  
Column Addition - Subtraction  
Mental Math  
Money  
Multiplication  
Measurement  
Lines, perimeter, area  
Inequality and equivalence  
Geometry  
2D, 3D, Decomposition, Angles  
Missing Addend  
Estimation  
Clock Time  
Data  
Tables, Graphs, Line Charts  
Fractions

## **Mathematics IV**

Addition and subtraction facts  
Multiplication and division facts introduction  
Carrying addition and borrowing subtraction column problems  
Word problems for addition, subtraction, multiplication, and division  
Fractions  
Area and perimeter  
Counting  
Time  
Bar and picture graphs  
Rounding/Estimating

## **Mathematics V**

Multiplication and division facts review  
Fractions (including addition, subtraction, multiplication, and equivalence)  
Area and perimeter  
Carrying addition and borrowing subtractions column problems  
Multi-digit multiplication and division  
Decimals (including addition and subtraction)  
Angles  
Rounding/Estimating  
Ratios  
Multiples, factors, prime, and composite



# MATHEMATICS

## Mathematics VI

Fraction operations (addition/subtraction with unlike denominators, multiplication, and division)

Word problems involving addition, subtraction, multiplication, and division of whole numbers and fractions

Fraction simplification

Area of rectangles, parallelograms and circles, and perimeter

Volume of rectangular prisms and cylinders

Multi-step word problems involving volume, ratio, and proportion, classification, probability, and percent

Multi-digit whole number, mixed number, and decimal operations (including 2-digit divisors and decimal division)

Place value and rounding whole numbers and decimals (including millions and thousandths)

Coordinate system (points, lines, and ratio word problems)

Exponents

Unit conversion

## Survey of Mathematics

What's the Point of Math?

Addition

Subtraction

Multiplication

Division

Basic Fractions

Fractions, Decimals, and Percents

Ratios and Equations

Humble Pi: When Math Goes Wrong in the Real World

## Algebra I

Short Division

Decimal Rounding

Decimal Operations

Fraction Operations

Fraction, Decimal, Percent Equivalences

Abbreviations

Problem Solving: Add/Subtract

Fraction Simplification

Problem Solving: Rate Equations

What is Algebra?

Problem Solving: Algebra Translation

Coordinate System

Signed-Number Operations

Straight-Line Equations

Exponents

Geometry

Pythagorean Theorem

Similar Triangles

Probability

Scientific Notation

Proportion

Box and Whiskers

Final Project





# MATHEMATICS

## **Algebra II**

Coding and Math

Coding Basics

Fundamentals of Algebra

Algebra and problem-solving

Polynomials

Factoring

Solving an Equation

Quadratic Equations

Probability and Statistics

Data Science

## **Pre-Calculus**

Functions

Linear Functions

Polynomial and Rational Functions

Exponential and Logarithmic Functions

Trigonometric Functions

Periodic Functions

Trigonometric Identities and Equations

Further Applications of Trigonometry

Systems of Equations and Inequalities

Analytic Geometry

Sequences, Probability, and Counting Theory

Introduction to Calculus

## **Computational Mathematics**

Drawing Polygons

Arithmetic with Lists and Loops

Guessing and Checking with Conditionals

Transforming and Storing Numbers with Algebra

Transforming Shapes with Geometry

Creating Oscillations with Trigonometry

Complex Numbers

Using Matrices for Computer Graphics and Systems of Equations

Building Objects with Classes

Creating Fractals Using Recursion

Cellular Automata

Solving Problems Using Genetic Algorithms



# SCIENCE

## **Botany**

The World of Plants  
Nonflowering Plants  
Flowering Plants  
Living with Plants

## **Zoology**

Invertebrates  
Fish  
Amphibians  
Reptiles  
Birds  
Mammals

## **Earth Science**

The History of Earth  
The Anatomy of the Earth  
The Changing Earth  
Mountains and Volcanoes  
Rivers and Lakes  
Glaciers  
Deserts  
Forests  
Wetlands  
Grasslands and Tundra  
Agricultural Areas  
Urban Areas  
Industrial Areas  
Oceans and Seas  
Coasts  
Climate  
Weather  
The Earth's Plates

## **Astronomy**

The Solar System  
Stars  
Galaxies  
Exploring Space  
The Night Sky

## **Anatomy and Physiology**

Body Systems  
Head and Neck  
Abdomen and Pelvis  
Chest and Back  
Legs and Feet  
Arms and Hands  
Body Science



# SCIENCE

## **Fundamentals of Engineering**

The Mechanics of Movement  
Harnessing the Elements  
Working with Waves  
Electricity and Automation  
The Digital Domain  
Eureka: The Invention of Machines

## **Survey of Science**

Scientific Investigation  
Matter, Chemical Reactions, and Solutions  
Motion, Forces, and Work  
Energy  
Outer Space: The Universe and the Solar System  
The Earth, Weather, Atmosphere, and Climate  
Life: Classification and Cells  
Plants and Animals  
The Human Body and Body Systems  
History of Life: Heredity, Evolution, and Fossils  
Ecology: Habitats, Interdependence, and Resources

## **AP Physics**

Introduction: The Nature of Science and Physics  
Kinematics  
Dynamics  
Circular Motion and Gravitation  
Energy  
Momentum  
Simple Harmonic Motion  
Torque and Rotational Motion  
Electric Charge and Electric Force  
DC Circuits  
Mechanical Waves and Sound

## **AP Chemistry**

Essential Ideas  
Atomic Structure and Properties  
Molecular and Ionic Compound Structure and Properties  
Intermolecular Forces and Properties  
Chemical Reactions  
Kinetics  
Thermodynamics  
Equilibrium  
Acids and Bases  
Applications of Thermodynamics



# SCIENCE

## **AP Biology**

Chemistry of Life

The Cell

Genetics

Evolutionary Processes

Biological Diversity

Plant Structure and Function

Ecology

## **Research Capstone**

Independent research project



# SOCIAL STUDIES

## **Greek Mythology**

Introduction to Myths

Titan Children

Who's Who and What's What

The War of Beauty and the Trojan Horse

Pandora's Box

The Chariot of the Sun

Atalanta and the Great Race

Odysseus Escapes the Cyclops

Greedy King Midas

Perseus and Medusa

Persephone and the Four Seasons

Orpheus and Eurydice

The Twelve Labors of Heracles

Echo and Narcissus

The Flying Horse

The Tangled Web of Arachne

Eros and Psyche

Daedalus and Icarus

Theseus and the Minotaur

## **Geography, Cultures, and People**

Where am I?

Map Reading

Who are we?

The Continents

North America

South America

Europe

Asia

Africa

Australia

Antarctica and the Arctic Regions

## **World History**

The First Humans: Prehistory - 3500 BCE

First Civilizations: 3500 BCE - 300 CE

The Middle Ages: 400 CE - 1500 CE

Renaissance and Reformation: 1350 - 1650

The Age of Exploration: 1400 - 1800

Revolution and Enlightenment: 1500 - 1865

The Era of Imperialism: 1800 - 1914

World Conflicts in the Early Twentieth Century: 1914 - 1945

Post-World War II: The World from 1945 to Today



# SOCIAL STUDIES

## **AP U.S. History**

1491-1763

1763-1800

1800-1844

1844-1877

1877-1898

1898-1945

1945-1980

1980-Present

## **AP U.S. Government**

Foundations of American Democracy

Interactions Among Branches of Government

Civil Liberties and Civil Rights

American Political Ideologies and Beliefs

Political Participation

Create a State Project

## **AP Microeconomics**

Welcome to Economics

Choice in a World of Scarcity

Demand and Supply

Labor and Financial Markets

Elasticity

Consumer Choices

Production, Costs, and Industry Structure

Perfect Competition

Monopoly

Monopolistic Competition and Oligopoly

Monopoly and Antitrust Policy

Environmental Protection and Negative Externalities

Positive Externalities and Public Goods

Poverty and Economic Inequality

Labor Markets and Income

Information, Risk, and Insurance

Financial Markets

Public Economy

International Trade

Globalization and Protectionism



# COMPUTER SCIENCE

## Scratch Programming

Getting Started

Motion and Drawing

Looks and Sound

Procedures

Variables

Making Decisions

Repetition: A Deeper Exploration of Loops

String Processing

Lists

Sharing and Collaboration

## Computer Science Foundations

Computing Systems

Data and Analysis

Universal Programming Principles

Programming with Scratch

Programming in Python

Web Development

## AP Computer Science

Primitive Types

Using Objects

Boolean Expressions and if Statements

Iteration

Writing Classes

Array

ArrayList

2D Array

Inheritance

Recursion

## CS Certification (Must complete at least one)

Responsive Web Design

Data Visualization

Scientific Computing with Python

Data Analysis with Python

Information Security

Machine Learning with Python



# ART & DESIGN

## **Drawing**

Line  
Texture  
Shape  
Color  
Light and Space  
Representational  
Non-representational  
Perspective  
Figure Drawing

## **Music Theory I**

Pitch  
Notation  
Octave Registers  
Half Steps and Whole Steps  
Major Scale  
Major Key Signatures  
Minor Scales  
Minor Key Scales

## **3D Printing and Design**

3D Printing Revolution  
Getting Started with TinkerCAD  
Manipulating Parts and Scaling  
Grouping, Holes, and Align Tool  
Patterns and Slicing  
Final Project

## **Music Theory II**

Time Signatures  
Duration Symbols  
Dots and Ties  
Meter  
Tuplets  
Chords  
Triads

## **Design Certification**

Getting Started  
Introduction to Sketching  
Part Design Using Part Studios  
Multi-Part Part Studios  
Onshape Assemblies  
Detailed Drawings  
Final Project

