Page-Turners & Big Ideas

12th Grade

Quarter Three

English 12

Themes *(Select one each for MP1 & MP2):*

- Gender Roles Across Cultures
- Good, Evil, and In Between
- Happiness and Fulfilment
- Resilience and Resignation
- Responsibility—To Self, Others, and the World

Texts

- *Angela's Ashes*
- *Balzac and the Little Chinese*
- *Seamstress*
- *Behind the Beautiful Foreverers*
- *Beowulf*
- *The Boy Who Harnessed*
- *the Wind*
- *Cat's Eye*
- *A Doll's House*
- *Grendel*
- *Hamlet, Prince of Denmark*
- *The Handmaid's Tale*
- *The Joys of Motherhood*
- *King Lear*
- *The Kite Runner*
- *Monkey Bridge*
- *The Plague*
- *Pygmalion*
- *Reading Lolita in Tehran*
- *Rosencrantz and*
- *Guildenstern Are Dead*
- *Siddhartha*
- *So Long a Letter*
- *The Sorrow of War*
- *The Things They Carried*
- *A Thousand Splendid Suns*

**Note: Teachers choose one or more of the anchor texts to use during each unit.*

Math

2Yr Algebra 2 CD

Unit 5: Conditional Probability and the Rules of Probability

- **Key Terms:** Probability, sample space, event, conditional probability, independent events, dependent events, two-way frequency table, Venn diagram, tree diagram, addition rule, multiplication rule, general multiplication rule (Honors), union of events, intersection of events, complement of an event, compound events, real-world probability applications, decision-making using probability.

***No core instructional textbook*

Precalculus and Honors Precalculus

Unit 3: Trigonometric Functions

- **Key Terms**: trigonometric functions, circular functions, cotangent, secant, cosecant, integral multiples, unit circle, circular motion, radian measures, symmetry (odd/even), periodicity, amplitude, cycle, vertical shift, midline, frequency

Unit 4: Vectors, Parametrics, and *Polars (Honors)*

- **Key Terms**: Vectors, magnitude, direction, directed line segment, vector components, vector notation, vector addition, vector subtraction, scalar multiplication, dot product, velocity vectors, vector magnitude, vector direction, parametric equations, parametrically defined functions, vector-valued functions, motion in the plane, rectangular coordinates, parametric form, *polar coordinates, polar equations, polar graphs, complex numbers, complex plane, rectangular form, polar form, modulus, argument, complex conjugate, DeMoivre's Theorem, systems of polar equations, conversion between polar and rectangular form.*

***MCPS uses two textbooks county-wide in Precalculus:*

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- **Key Terms:** analyze, evaluate, synthesize, infer, determine, assess, interpret, delineate, integrate, examine, critique, justify, cite, summarize, paraphrase, compare, contrast, develop, refine, extend, qualify, support, evidence, reasoning, claim, counterclaim, rebuttal, concession, perspective, point of view, theme, central idea, rhetoric, rhetorical strategy, rhetorical situation, tone, purpose, diction, syntax, structure, cohesion, coherence, bias, credibility, validity, fallacy, ambiguity, nuance, complexity, context, historical context, philosophical context, intertextuality, figurative language, symbolism, irony, satire, paradox, allusion, analogy, archetype

**Please note: AP Language & AP Literature courses follow a different scope and sequence and may use texts listed on the supplemental text list for core instruction.*

- *"Precalculus: Graphical, Numerical, Algebraic," Addison Wesley, Copyright 2007*
- *"Advanced Mathematical Concepts, " Glencoe, Copyright 2006*

Statistics and Math Modeling

Unit 7: Probability

- **Key Terms**: Probability, sample space, outcomes, events, theoretical probability, experimental probability, union of events, intersection of events, complement of an event, mutually exclusive events, Venn diagrams, expected value.

Unit 8: Conditional Probability

- **Key Terms**: Two-way tables, conditional probability, independence, dependent events, without replacement, multiplication principle, addition principle, tree diagrams, Bayes' Rule, probability of at least one event.

Unit 9: Discrete Probability

- **Key Terms**: Factorials, counting principle, permutations, combinations, repetition, binomial distribution, binomial probability, exactly vs at least, probability distribution, Pascal's Triangle, geometric distributions.

***No core instructional textbook*

Honors Statistics

Unit 6: Sampling Distribution

- **Key Terms**: sampling distribution, sample statistic, population parameter, variability, randomness, dot plot, histogram, box plot, outliers, shape, center, spread, population mean, margin of error, simulation models, estimation process, confidence in estimates

Unit 7: Estimating a Parameter

- **Key Terms**: Confidence interval, point estimate, margin of error, confidence level, inference, population proportion, population mean, sample proportion, sample mean, interpretation in context, normal approximation conditions.

Unit 8: Testing a Claim

- **Key Terms**: Claim, statistical claim, population parameter, hypothesis, null hypothesis, alternative hypothesis,

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	significance level, p-value, test statistic, sampling distribution, standard error, random sample, assumptions, conditions, inference, statistical significance, margin of error, confidence level, confidence interval, one-sided test, two-sided test, evidence, decision rule, reject the null hypothesis, fail to reject the null hypothesis, conclusion in context, practical significance, Type I error, Type II error. ***MCPS uses a countywide textbook for Honors Statistics, "Statistics and Probability with Applications," BFW, 3rd edition.*
Social Studies - N/A	
Science** **Biology B** **Unit 3: Structure and Function** In this unit, students study how the human body maintains balance (homeostasis) while responding to internal and external changes, especially during athletic performance. Using athlete case studies, students explore how body systems work together, how injuries and illnesses disrupt balance, and how the body restores stability through feedback mechanisms or medical intervention. Students also examine how advances in athletic training and sports medicine help prevent injuries and protect long-term health. ● **Key terms:** homeostasis, equilibrium, feedback mechanism, stimulus, response, human body systems, structure and function, multicellular organism,internal environment, external environment	**Science** **Astronomy with Physics B** **Unit 3: Light and Stars.** Students explore the relationship between distance and electric and magnetic fields, and the relationship between electricity and magnetism. Students observe the behaviors of light. Students analyze light from stars to identify their composition and distance from Earth. ● **Key terms:** electrostatic forces, Newton's Laws, gravity/gravitational fields, attraction, repulsion, solar storms, electromagnetic spectrum, reflection, refraction, diffraction, waves, photons, reflection, absorption, transmission, nuclear fusion, nuclear fission **Earth Systems and Sustainability B** **Unit 3: Earth Systems and Water.** Students investigate properties of water and compare sources of water on Earth. Students explore how water interacts with all of Earth's other systems. Students will model how the carbon cycle is connected to water including the role of the ocean. Students will compare Earth's current atmosphere to its ancient atmosphere. Students will design a rain harvesting system. ● **Key terms:** evaporation, condensation, transpiration, oceanic circulation, thermohaline, energy, convection, weathering, erosion, carbon cycle, greenhouse effect, climate change

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Chemistry B	Physics B
Unit 3: Characterizing and Explaining Chemical Reactions. Students will observe chemical reactions, balance chemical equations, and analyze data from lab investigations. Students will observe and model the relationship between composition, energy, and bonds of chemical reactants versus their products. ● **Key terms:** conservation of mass, energy, equilibrium, reactants, products, atoms, molecules, endothermic, exothermic, bonds, kinetic molecular theory, collision	**Unit 3: Thermal, Waves, Earth Science, and Communities Facing Environmental Challenges.** Students will develop and use models that demonstrate the laws of thermodynamics, including in Earth's systems and Earth's climate. Students will examine waves as means of transferring energy. Students will interpret data related to human impacts on the environment and the challenges communities face. ● **Key terms:** heat transfer, energy, temperature, thermodynamics, conservation of energy, radiation, electromagnetic, conduction, convection, seismic waves, wavelength, frequency, plate tectonics ***No core instructional textbook*

These supplemental instructional materials might also be included in 12th grade. Supplemental materials are additional approved books for teachers to use to teach a topic. If any listed instructional material conflicts with your family's sincerely held religious beliefs, you may request your child's excusal by submitting this request form. For additional information, visit our website.

Families: Put this on your refrigerator and review at home!