



Grade 12 AP Mock Exam 1 Study List

Sunday October 11th – Tuesday October 22nd

Grade 12 Eng/CS/ Medical

Subject	Unit/Lesson	Pages/Reference
AP Computer Science A CS/Eng Students	1.1 Introduction to Algorithms, Programming, and Compilers 1.2 Variables and Data Types 1.3 Expressions and Output 1.4 Assignment Statements and Input 1.5 Casting and Range of Variables 1.6 Compound Assignment Operators" 1.7 Application Program Interface (API) and Libraries 1.8 Documentation with Comments 1.9 Method Signatures 1.10-1.11 Math Class 1.12 Objects: Instances of Classes 1.13 Object Creation and Storage (Instantiation) 1.14 Calling Instance Methods 1.15 String Manipulation 2.1 Algorithms with Selection and Repetition 2.2 Boolean Expressions 2.3 if Statements 2.4 Nested if Statements 2.5 Compound Boolean Expressions 2.6 Comparing Boolean Expressions 2.7 while Loops 2.8 for Loops 2.9 Implementing Selection and Iteration Algorithms 2.10 Implementing String Algorithms 2.11 Nested Iteration 2.12 Informal Run-Time Analysis 4.5 Implementing Array Algorithms 4.7 Wrapper Classes 4.8 implementing Array algorithm	LMS (Presentations) and all notes given in class + All FRQs sample questions
AP Calculus AB	1.2 Defining Limits and Using Limit Notation 1.3 Estimating Limit Values from Graphs 1.4 Estimating Limit Values from Tables 1.5 Determining Limits Using Algebraic Properties of Limits 1.6 Determining Limits Using Algebraic Manipulation	Ap classroom + PPT + Khan academy +Unit tests





	1.7 Selecting Procedures for Determining Limits 1.8 Determining Limits Using the Squeeze Theorem 1.9 Connecting Multiple Representations of Limits 1.10 Exploring Types of Discontinuities 1.11 Defining Continuity at a Point 1.12 Confirming Continuity over an Interval 1.13 Removing Discontinuities 1.14 Connecting Infinite Limits and Vertical Asymptotes 1.15 Connecting Limits at Infinity and Horizontal Asymptotes 1.16 Working with the Intermediate Value Theorem (IVT) 2.1 Introducing Calculus - Can Change Occur at an Instant? 2.1 Defining Average and Instantaneous Rates of Change at a Point 2.2 Defining the Derivative of a Function and Using Derivative Notation 2.3 Estimating Derivatives of a Function at a Point 2.4 Connecting Differentiability and Continuity - Determining When Derivatives Do and Do Not Exist 2.5 Applying the Power Rule 2.6 Derivative Rules - Constant, Sum, Difference, and Constant Multiple 2.7 Derivatives of $\cos x$, $\sin x$, e^x, and $\ln x$ 2.8 The Product Rule 2.9 The Quotient Rule 2.10 Finding the Derivatives of Tangent, Cotangent, Secant, and/or Cosecant Functions 3.1 The Chain Rule 3.2 Implicit Differentiation 3.3 Differentiating Inverse Functions 3.4 Differentiating Inverse Trigonometric Functions 3.5 Selecting Procedures for Calculating Derivatives 3.6 Calculating Higher-Order Derivatives	and quizzes and Homework
AP Physics C: Mechanics	Unit 1 – Kinematics 1.1 Scalars and Vectors 1.2 Displacement, Velocity, and Acceleration 1.3 Representing Motion 1.4 Reference Frames and Relative Motion 1.5 Motion in Two or Three Dimensions	AP classroom Lesson materials on LMS





	Unit 2 –Force and Translational Dynamics 2.1 Systems and Center of Mass 2.2 Forces and Free-Body Diagrams 2.3 Newton’s Third Law 2.4 Newton’s First Law 2.5 Newton’s Second Law 2.6 Gravitational Force 2.7 Kinetic and Static Friction 2.8 Spring Forces 2.9 Resistive Forces 2.10 Circular Motion	
AP Chemistry	Unit 1: Atomic Structure and Properties - Structure of the atom (protons, neutrons, electrons) - Electron configurations and periodic trends - Photoelectron spectroscopy (PES) - Coulomb’s law and forces within the atom Unit 2: Molecular and Ionic Compound Structure and Properties - Ionic bonds, covalent bonds, metallic bonds - Lewis diagrams, resonance, formal charge - VSEPR theory and molecular geometry - Hybridization of orbitals - Polarity of bonds and molecules	PowerPoints on LMS





Unit 3: Intermolecular Forces and Properties

- London dispersion, dipole-dipole, hydrogen bonding, ion-dipole
- Properties of solids, liquids, and gases
- Solids: network, molecular, ionic, metallic
- Solutions and solubility
- Chromatography and distillation

Unit 4: Chemical Reactions

- Evidence of chemical reactions
- Types of reactions (synthesis, decomposition, combustion, redox, acid–base, precipitation)
- Net ionic equations
- Stoichiometry and mole relationships
- Limiting reactant and percent yield

Unit 5: Kinetics

- Reaction rates and rate laws
- Rate constants and units
- Concentration vs. time data
- Method of initial rates
- Collision model, activation energy, and catalysts





	Potential energy diagrams	
AP Biology Medical Students	Unit 1. Chemistry of Life 1.1 Structure of Water and Hydrogen Bonding 1.2 Elements of Life 1.3 Introduction to Biological Macromolecules 1.4 Properties of Biological Macromolecules 1.5 Structure and Function of Biological Macromolecules 1.6 Nucleic Acids Unit 2. Cell Structure and Function 2.1 Cell Structure: Subcellular Components 2.2 Cell Structure and Function 2.3 Cell Size 2.4 Plasma Membranes 2.5 Membrane Permeability 2.6 Membrane Transport 2.10 Cell Compartmentalization Unit 3. Cellular Energetics 3.1 Enzyme Structure 3.2 Enzyme Catalysis 3.3 Environmental Impacts on Enzyme Function 3.4 Cellular Energy 3.5 Photosynthesis 3.6 Cellular Respiration	PowerPoints on LMS/Extended notes on LMS/ AP classroom-progress checks





	3.7 Fitness Unit 4. Cell Communication and Cell Cycle 4.1 Cell Communication 4.2 Introduction to Signal Transduction 4.3 Signal Transduction 4.4 Changes in Signal Transduction Pathways 4.5 Feedback 4.6 Cell Cycle 4.7 Regulation of Cell Cycle Unit 5. Heredity 5.1 Meiosis 5.2 Meiosis and Genetic Diversity 5.3 Mendelian Genetics 5.4 Non-Mendelian Genetics 5.5 Environmental Effects on Phenotype 5.6 Chromosomal Inheritance	
English	Reading Comprehension - main idea, details, sequence, evidence - True/False/Not given - MCQs, Open questions - Inference, Summarize Vocab/Grammar - Sat Lesson 1 and Lesson 2 - Noun modifier phrases - Word associations - Word collocations - Word forms	Great Writing Unit 1 and 2 SAT Vocab Lesson 1 & 2 IXL LMS





	- Spelling (prefixes and suffixes) - Sentence Fragments - Run-On Sentences Writing - Introduction to essays - Essay structure: introduction (hook and thesis statement), body paragraphs (TEEL), conclusion (summary statement and final thought) - Cause-led essay / Effect-led essay	
اللغة العربية	- الحفظ: غربة وحنين من البيت 1 إلى 7	81
	القضايا الأدبية: مدرسة الإحياء	75-79
	- القراءة: مسيرة وطن وحكمة قائد	36-44
	غربة وحنين	80-87
	الكلمة والجملة: أفعال المقاربة والرجاء والشروع	56-60
التربية الإسلامية	البلاغة: مراجعة التشبيه والاستعارة-المحسنات البديعية	20-26
	الكتابة: ال مقال نقاشي	61-63
	- أحكام التجويد	ص 21-18
التربية الإسلامية	- أول 10 آيات من سورة الحشر	ص 23-22
	- تقوى الله والاعتصام بدينه	ص 36-26
	- إعجاز القرآن الكريم	ص 46-37
	- أثر العقيدة	ص 60-69
	- أحكام الجهاد	ص 80-72

مع تمنياتنا لأبنائنا الطلبة بالتوفيق والنجاح



مدرسة قطر للعلوم والتكنولوجيا الثانوية للبنين
Qatar Science and Technology Secondary School for Boys
STEM & AP Education

وزارة التربية والتعليم و التعليم العالي
Ministry of Education and Higher Education
دولة قطر State of Qatar



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الرؤية : متعلم ريادي لتنمية مستدامة | **الرسالة :** نرسى بيئة تعليمية شاملة ومبتكرة تعزز القيم والأخلاق ونؤهل المتعلم بمهارات عالية؛ لإعداد جيل واع قادر على بناء مجتمع متقدم واقتصاد مزدهر
Tel: +974 40362888 | Email: qst.boys@edu.gov.qa