Unit 8: Exam Prep and Content Review

Content Area: **Business/Tech.**
Course(s): **Advanced Placement Computer Science Principals**
Time Period: **April**
Length: **4 weeks**
Status: **Published**

Unit Overview:

This unit is design to give students review practice for the AP Computer Science A Exam. Student will be given practice questions and code parts to analyze and answer.

Enduring Understandings:

- The AP Exam Review will allow students to practice what they have learned over the course and prepare for the AP Exam.

Essential Questions:

- How can I transfer what I know to new technological situations/experiences?
- How do I choose which technological tools to use and when it is appropriate to use them?
- In a world of constant technological change, what skills should we learn?
- What is left to learn or review to prepare for the exam?

Standards/Indicators/Student Learning Objectives (SLOs):

- Apply Concepts learned for test
- Connect with Lessons
- Critically Think through AP Test Questions
- IS: • Extra Time to complete Programs
- IS: • NHS Assistance and Tutoring
- IS: • One on One tutoring during Delsea One
- Review Strategies

ITEC.9-12.9.4.12.K.(1).1	Identify and analyze an individual's or a business organization's network system needs and requirements to design a network.
ITEC.9-12.9.4.12.K.(4).1	Identify and analyze customer software needs and requirements to guide programming and software development.
ITEC.9-12.9.4.12.K.(4).2	Create and use information technology strategies and project plans when solving specific problems to deliver a product that meets customer specifications.
ITEC.9-12.9.4.12.K.(4).3	Identify and analyze system and software requirements to ensure maximum operating efficiency.

ITEC.9-12.9.4.12.K.(4).4	Demonstrate the effective use of software development tools to develop software applications.
ITEC.9-12.9.4.12.K.(4).5	Use the software development process to design a software application and deliver it to the customer.
ITEC.9-12.9.4.12.K.(4).6	Produce a computer application, in code, to demonstrate proficiency in developing an application using the appropriate programming language.
ITEC.9-12.9.4.12.K.(4).7	Implement software testing procedures to ensure quality products.
ITEC.9-12.9.4.12.K.(4).8	Perform quality assurance tasks to produce quality products.
ITEC.9-12.9.4.12.K.(4).9	Perform maintenance and customer support functions to maintain software applications.
ITEC.9-12.9.4.12.K.(4).10	Develop and maintain a database to store information.
ITEC.9-12.9.4.12.K.1	Demonstrate language arts knowledge and skills required to pursue the full range of postsecondary education and career opportunities.
ITEC.9-12.9.4.12.K.4	Select and employ appropriate reading and communication strategies to learn and use technical concepts and vocabulary in practice.
ITEC.9-12.9.4.12.K.17	Employ critical thinking skills (e.g., analyze, synthesize, and evaluate) independently and in teams to solve problems and make decisions.
ITEC.9-12.9.4.12.K.18	Employ critical thinking and interpersonal skills to resolve conflicts.
ITEC.9-12.9.4.12.K.19	Identify, write, and monitor performance goals to guide progress in assigned areas of responsibility and accountability.
ITEC.9-12.9.4.12.K.20	Conduct technical research to gather information necessary for decision-making.
ITEC.9-12.9.4.12.K.21	Use information technology design processes and guidelines to produce a quality information technology product or service.
ITEC.9-12.9.4.12.K.22	Implement problem-solving processes to evaluate and verify the nature of problems in this cluster.
ITEC.9-12.9.4.12.K.23	Employ organizational and design principles to sort and group information used in this cluster.
ITEC.9-12.9.4.12.K.26	Operate Internet applications to perform tasks.
ITEC.9-12.9.4.12.K.32	Employ computer operations applications to manage tasks.
ITEC.9-12.9.4.12.K.33	Use computer-based equipment (containing embedded computers or processors) to control devices.
ITEC.9-12.9.4.12.K.34	Describe the nature and types of business organizations to build an understanding of the scope of organizations.
ITEC.9-12.9.4.12.K.36	Analyze and summarize the use of information technology to enhance business effectiveness.
ITEC.9-12.9.4.12.K.45	Employ leadership skills to accomplish goals and objectives.
ITEC.9-12.9.4.12.K.46	Employ organizational skills to foster positive working relationships and accomplish organizational goals.
ITEC.9-12.9.4.12.K.51	Apply ethical reasoning to a variety of situations in order to make ethical decisions.
ITEC.9-12.9.4.12.K.55	Develop a Personalized Student Learning Plan to meet career goals and objectives.
ITEC.9-12.9.4.12.K.57	Maintain a career portfolio to document knowledge, skills, and experience in a career field.
ITEC.9-12.9.4.12.K.69	Compare classes of software associated with the development and maintenance of information systems to develop software and maintain computer systems.
ITEC.9-12.9.4.12.K.71	Summarize basic data communications components and trends to maintain and update information technology systems.

TECH.8.1.12.A	Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.
TECH.8.1.12.B	Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
TECH.8.1.12.C	Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
TECH.8.1.12.D	Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
TECH.8.1.12.E	Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
TECH.8.1.12.F	Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
TECH.8.2.12.A	The Nature of Technology: Creativity and Innovation: Technology systems impact every aspect of the world in which we live.
TECH.8.2.12.B	Technology and Society: Knowledge and understanding of human, cultural and society values are fundamental when designing technology systems and products in the global society.
TECH.8.2.12.C	Design: The design process is a systematic approach to solving problems.
TECH.8.2.12.D	Abilities for a Technological World: The designed world is the product of a design process that provides the means to convert resources into products and systems.
TECH.8.2.12.E	Computational Thinking: Programming: Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.

Lesson Titles:

- Classwork and Homework: AP Classroom Practice Test Questions
- Classwork: Review Exercises
- Homework: AP Sample Test Questions

Career Readiness, Life Literacies, & Key Skills

12.9.3.IT-PRG.1	Analyze customer software needs and requirements.
12.9.3.IT-PRG.2	Demonstrate the use of industry standard strategies and project planning to meet customer specifications.
12.9.3.IT-PRG.3	Analyze system and software requirements to ensure maximum operating efficiency.
12.9.3.IT-PRG.4	Demonstrate the effective use of software development tools to develop software applications.
12.9.3.IT-PRG.5	Apply an appropriate software development process to design a software application.
12.9.3.IT-PRG.6	Program a computer application using the appropriate programming language.
12.9.3.IT-PRG.7	Demonstrate software testing procedures to ensure quality products.
12.9.3.IT-PRG.8	Perform quality assurance tasks as part of the software development cycle.

12.9.3.IT-PRG.9	Perform software maintenance and customer support functions.
12.9.3.IT-PRG.10	Design, create and maintain a database.
TECH.9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
TECH.9.4.12.CI.2	Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).
TECH.9.4.12.CI.3	Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).
TECH.9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).

Inter-Disciplinary Connections:

MA.A-CED.A.1	Create equations and inequalities in one variable and use them to solve problems.
LA.WHST.11-12.1.A	Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.
MA.A-CED.A.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
LA.WHST.11-12.1.B	Develop claim(s) and counterclaims using sound reasoning and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.
LA.WHST.11-12.1.C	Use transitions (e.g., words, phrases, clauses) to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
LA.WHST.11-12.1.D	Establish and maintain a style and tone appropriate to the audience and purpose (e.g., formal and objective for academic writing) while attending to the norms and conventions of the discipline in which they are writing.
LA.WHST.11-12.1.E	Provide a concluding paragraph or section that supports the argument presented.
LA.WHST.11-12.2.A	Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
LA.WHST.11-12.2.B	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
LA.WHST.11-12.2.C	Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
LA.WHST.11-12.2.D	Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.
LA.WHST.11-12.2.E	Provide a concluding paragraph or section that supports the argument presented.
LA.WHST.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
LA.WHST.11-12.7	Conduct short as well as more sustained research projects to answer a question (including

	a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
SCI.HS-ETS1-4	Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.
SCI.HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.
SCI.HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
SCI.HS-ETS1-1	Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.
SOC.9-12.1.1.1	Compare present and past events to evaluate the consequences of past decisions and to apply lessons learned.
SOC.9-12.1.1.2	Analyze how change occurs through time due to shifting values and beliefs as well as technological advancements and changes in the political and economic landscape.
SOC.9-12.1.2.1	Construct various forms of geographic representations to show the spatial patterns of physical and human phenomena.
VPA.1.1.12.D.CS1	Common themes exist in artwork from a variety of cultures across time and are communicated through metaphor, symbolism, and allegory.
VPA.1.3.12.B.CS1	Technical accuracy, musicality, and stylistic considerations vary according to genre, culture, and historical era.
VPA.1.3.12.D.CS1	How individuals manipulate the elements of art and principles of design results in original portfolios that reflect choice and personal stylistic nuance.

Instructional Strategies, Learning Activities, and Levels of Blooms/DOK:

- Classwork and Homework: AP Classroom Practice Test Questions
- Classwork: Review Exercises
- Homework: AP Sample Test Questions
- IS: • Extra Time to complete Programs
- IS: • NHS Assistance and Tutoring
- IS: • One on One tutoring during Delsea One

Modifications

ELL Modifications:

- Choice of test format (multiple-choice, essay, true-false)
- Continue practicing vocabulary
- Provide study guides prior to tests

- Read directions to the student
- Read test passages aloud (for comprehension assessment)
- Vary test formats

IEP & 504 Modifications:

- Allow for redos/retakes
- Assign fewer problems at one time (e.g., assign only odds or evens)
- Differentiated center-based small group instruction
- Extra time on assessments
- Highlight key directions
- If a manipulative is used during instruction, allow its use on a test
- Opportunities for cooperative partner work
- Provide reteach pages if necessary
- Provide several ways to solve a problem if possible
- Provide visual aids and anchor charts
- Test in alternative site
- Tiered lessons and assignments
- Use of a graphic organizer
- Use of concrete materials and objects (manipulatives)
- Use of word processor

G&T Modifications:

- Alternate assignments/enrichment assignments
- Enrichment projects
- Extension activities
- Higher-level cooperative learning activities
- Pairing direct instruction with coaching to promote self-directed learning
- Provide higher-order questioning and discussion opportunities
- Provide texts at a higher reading level
- Tiered assignments
- Tiered centers

At Risk Modifications

- Additional time for assignments
- Adjusted assignment timelines

- Agenda book and checklists
- Answers to be dictated
- Assistance in maintaining uncluttered space
- Books on tape
- Concrete examples
- Extra visual and verbal cues and prompts
- Follow a routine/schedule
- Graphic organizers
- Have students restate information
- No penalty for spelling errors or sloppy handwriting
- Peer or scribe note-taking
- Personalized examples
- Preferential seating
- Provision of notes or outlines
- Reduction of distractions
- Review of directions
- Review sessions
- Space for movement or breaks
- Support auditory presentations with visuals
- Teach time management skills
- Use of a study carrel
- Use of mnemonics
- Varied reinforcement procedures
- Work in progress check

Benchmark Assessment:

Skills-based assessment
Reading response
Writing prompt
Lab practical

Formative Assessment:

- Abstraction Journal
- Anticipatory Set
- Closure
- Program Examples
- Teacher/Student Review

- Warm-Up

Summative Assessment:

- Alternate Assessment
- Benchmark
- Classwork/Homework
- Group Review Programs
- Quiz: Review Questions

Resources & Materials:

- • Various Additional Web Sites
- • Visual Studios Express software
- Canvas
- Class Dojo
- Code.org
- Computer Labs
- CSMatters
- Earsketch
- Microsoft Office
- Microsoft Visual Basic
- Photoshop
- Quizlet
- Repl.it
- Screen Sharing Software

Technology:

- Canvas
- Chromebooks
- Computer Lab
- Earsketch
- Google Classroom
- Photshop
- Snap!
- Visual Studios IDE
- World Wide Web

TECH.8.1.12 Educational Technology: All students will use digital tools to access, manage, evaluate, and

	synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
TECH.8.1.12.A	Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.
TECH.8.1.12.A.CS1	Understand and use technology systems.