Wallenpaupack Area School District
Planned Course Curriculum Guide

Department

Business, Computers, and Information Technology (BCIT)/CTE

Name of Course

AP Computer Science Principles

Course Description:
AP Computer Science Principles introduces students to the breadth of computer science. In this course, students will learn to design and evaluate solutions and to apply computer science to solve problems through the development of algorithms and programs. Students will incorporate abstraction into programs and use data to discover new knowledge. Students will also explore how computing innovations and systems work, impact, and contribute to a computing culture that is collaborative and ethical. Students will be required to take the Advanced Placement exam in Computer Science Principles. The cost of the exam will be covered by the school district.

Initial Creation Date (if applicable) and Revision Dates: November 2024

Wallenpaupack Area School District Curriculum	
COURSE: AP Computer Science Principles	**GRADE/S: 11-12**
UNIT 1: Computational Thinking	**TIMEFRAME1: 8** days

PA COMMON CORE/NATIONAL STANDARDS:

- 3B-DA-07: Compare various security measures, considering tradeoffs between the usability and security of a computing system.
- 3B-AP-10: Use and adapt classic algorithms to solve computational problems.
- 3B-AP-11: Evaluate algorithms in terms of their efficiency, correctness and clarity.
- 3B-AP-24: Compare multiple programming languages and discuss how their features make them suitable for solving different types of programs.
- 3B-CS-01: Categorize the roles of operating system software.
- 3A-IC-27: Use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.
- 3B-AP-16: Demonstrate code reuse by creating programming solutions using libraries and APIs.
- 3B-AP-14: Construct solutions to problems using student-centered components, such as procedures, modules, and/or objects.
- 3B-CS-02: Illustrate ways computing systems implement logic, input, and output through hardware components.
- 3B-AP-12: Compare and contrast fundamental data structures and their uses.

UNIT OBJECTIVES (SWBATS):

Program Development

- Students will examine strategies for approaching large-scale problems.
- Students will explore the non-linear approach to solving problems with the iterative development process.
- Students will identify a number of common features of algorithms, including sequencing, selection, and repetition.
- Students will design and evaluate text-based algorithms.
- Students will examine the need for clarity and precision in communicating an algorithmic solution to a problem.
- Students will examine the shortcomings and ambiguities of natural languages.
- Students will identify the elements of clear communication, including well-specified grammar, vocabulary, and syntax.
- Students will analyze the need for artificial programming languages.
- Students will compare high-level languages with low-level languages.
- Students will examine the process in which a program is written in a high-level language, compiled into a low-level language, loaded into memory, and then executed by a processor.

Big Picture

- Students will examine the benefits of working collaboratively.

Visual Programming

- Students will utilize a graphical editor to read, construct, and execute dynamic programs.
- Students will examine, modify, and execute programs developed by others.
- Students will examine how well-specified behavior of objects can be constructed through sequential actions and operations.
- Students will examine a number of common programming errors.
- Students will explore a number of common debugging strategies.

- Students will develop solutions for correcting common programming errors.

Program State

- Students will write programs that incorporate dynamic, user-driven, keyboard controls and input.
- Students will examine how the dynamic state of an object or program can be stored and changed using variables.
- Students will analyze the role of clear, descriptive names for objects, behaviors, variables, and other identifiers in maintaining the readability of code.
- Students will analyze and evaluate the correctness of their programs.

INSTRUCTIONAL STRATEGIES/ACTIVITIES:

- Online Project STEM Course and LMS
- Class Discussions
- Direct Instruction

ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):

- Lesson Practices
- Quizzes
- Unit Project
- Unit Test

DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):

- Students work at their own pace throughout this course with teachers adding enrichment where needed based on individual strengths. Accelerated students have the opportunity to finish the course and complete independent projects.
- Extension projects are incorporated into each unit and may be used at teacher discretion with accelerated students based on their individual interests.

RESOURCES (Technology Based Resources, Text Resources, etc.):

- Project STEM Website and LMS
- Laptop/Desktop/iPad

KEY VOCABULARY: Computer Science, Python, natural language, programming language, hardware, software, input, output, iterative, algorithm, variable, sequence, pseudocode, selection

Wallenpaupack Area School District Curriculum	
Course: AP Computer Science Principles	**GRADE/S: 11-12**
UNIT 2: Programming	**TIMEFRAME: 9 days**

PA COMMON CORE/NATIONAL STANDARDS:

- 3B-AP-12: Compare and contrast fundamental data structures and their uses.
- 3B-AP-16: Demonstrate code reuse by creating programming solutions using libraries and APIs.
- 3B-AP-10: Use and adapt classic algorithms to solve computational problems.
- 3B-AP-11: Evaluate algorithms in terms of their efficiency, correctness and clarity.
- 3B-CS-01: Categorize the roles of operating system software.
- 3A-IC-27: Use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.

- 3B-AP-16: Demonstrate code reuse by creating programming solutions using libraries and APIs.
- 3B-AP-14: Construct solutions to problems using student-centered components, such as procedures, modules, and/or objects.
- 3B-CS-02: Illustrate ways computing systems implement logic, input, and output through hardware components.
- 3B-AP-15: Analyze a large-scale computational problem and identify generalizable patterns that can be applied to a solution.
- 3B-IC-27: Predict how computational innovations that have revolutionized aspects of our culture might evolve.
- 3A-CS-02: Compare levels of abstraction and interactions between application software, system software, and hardware layers.

UNIT OBJECTIVES (SWBATS):

Control Structures

- Students will examine a number of common features of algorithms, including sequencing, selection, and repetition.
- Students will examine how well-specified behavior of objects can be constructed through sequential actions and operations.
- Students will examine the uses of selection statements in programming.
- Students will analyze the differences between simple selection and complex, nested selection statements.
- Students will examine the use of the Boolean operators "AND," "OR," and "NOT" in constructing complex conditional statements.
- Students will examine the uses of iteration statements in programming.
- Students will consider how to make a sequence of events more efficient with iteration statements.
- Students will combine sequencing, selection, and repetition structures alongside programming constructs like user input and variables to create computational artifacts.

Coding Skills

- Students will examine how pseudocode can outline algorithmic processes.
- Students will read, execute, and construct algorithms in AP-style pseudocode.

Procedural Abstraction

- Students will compare the methods and relative efficiencies of different algorithms.

Decidability and Efficiency

- Students will examine the factors that affect the decidability of a problem.
- Students will identify which problems can and cannot always be solved by an algorithm.
- Students will examine methods of comparing equivalent algorithms for relative efficiency.
- Students will evaluate the relative efficiency of equivalent algorithms.
- Students will identify factors that allow solutions to scale efficiently.

Big Picture

- Students will examine the implications of Moore's Law on the research and development of new and existing technologies.

Hardware Abstraction
- Students will explore the logical processes implemented in hardware design documentation.

INSTRUCTIONAL STRATEGIES/ACTIVITIES:
- Online Project STEM Course and LMS
- Class Discussions
- Direct Instruction

ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):
- Lesson Practices
- Quizzes
- Unit Project
- Unit Test

DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):
- Students work at their own pace throughout this course with teachers adding enrichment where needed based on individual strengths. Accelerated students have the opportunity to finish the course and complete independent projects.
- Extension projects are incorporated into each unit and may be used at teacher discretion with accelerated students based on their individual interests.

RESOURCES (Technology Based Resources, Text Resources, etc.):
- Project STEM Website and LMS
- Laptop/Desktop/iPad

KEY VOCABULARY: complex selection, nested selection, Boolean, repetition structures, constructs, scale, Moore's Law

Wallenpaupack Area School District Curriculum	
Course: AP Computer Science Principles	**GRADE/S: 11-12**
UNIT 3: Data Representation	**TIMEFRAME: 20** days

PA COMMON CORE/NATIONAL STANDARDS:
- 3B-AP-24: Compare multiple programming languages and discuss how their features make them suitable for solving different types of programs.
- 3A-DA-09: Translate between different bit representations of real-world phenomena, such as characters, numbers, and images.
- 3B-IC-25: Evaluate computational artifacts to maximize their beneficial effects and minimize harmful effects on society.
- 3B-IC-26: Evaluate the impact of equity, access, and influence on the distribution of computing resources in a global society.

- 3A-IC-28: Explain the beneficial and harmful effects that intellectual property laws can have on innovation
- 3A-AP-14: Use lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.
- 3B-AP-08: Describe how artificial intelligence drives many software and physical systems.
- 3B-IC-25: Evaluate computational artifacts to maximize their beneficial effects and minimize harmful effects on society.
- 3B-AP-10: Use and adapt classic algorithms to solve computational problems.
- 3B-AP-09: Implement an AI algorithm to play a game against a human opponent or solve a problem.

UNIT OBJECTIVES (SWBATS):

Binary Encoding of Information

- Students will examine how numerical values are represented using different bases, including decimal and binary.
- Students will explore methods of converting values from decimal to binary and binary to decimal.
- Students will examine the exponential relationship between the number of digits and their range of representable values.
- Students will examine how alphanumeric characters and symbols may be represented using ASCII and Unicode character mappings.
- Students will analyze the differences in state space between ASCII and Unicode standards.
- Students will explore how the interpretation of binary data is dependent upon its intended format and use, including base-64, bitmaps (*.BMP), plaintext (*.TXT), audio (*.MP3), etc.

Coding Skills

- Students will construct a Scratch program that simulates candles on a birthday cake being lit so as to show the user's age in binary.

Digital Approximations

- Students will examine the implications of variable-width encodings (e.g., Morse code) versus fixed-width encodings (e.g., Baudot code).
- Students will explore ways in which natural phenomena may be represented digitally.
- Students will analyze the extent to which digital approximations accurately reflect the reality that they represent.
- Students will analyze the differences between discrete (digital) and continuous (analog) representations of natural phenomena.
- Students will examine the social implications of the ease with which perfect digital copies can be made.

Big Picture

- Students will examine and discuss the legality of reselling "used" digital music.

Lists

- Students will examine the use of lists as ordered data structures that may contain multiple values.
- Students will investigate the use of index values to represent the position of an item in a list.

- Students will analyze the implications of accessing an index position beyond the bounds of a list.
- Students will investigate common operations for processing elements of a list, including searching for an element, removing an element, swapping the positions of two elements, or sorting an entire list into ascending or descending order.
- Students will examine the implications of case-sensitivity on ordered lists of strings.
- Students will consider how lists can appear in pseudocode.

INSTRUCTIONAL STRATEGIES/ACTIVITIES:

- Online Project STEM Course and LMS
- Class Discussions
- Direct Instruction

ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):

- Lesson Practices
- Quizzes
- Unit Project
- Unit Test

DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):

- Students work at their own pace throughout this course with teachers adding enrichment where needed based on individual strengths. Accelerated students have the opportunity to finish the course and complete independent projects.
- Extension projects are incorporated into each unit and may be used at teacher discretion with accelerated students based on their individual interests.

RESOURCES (Technology Based Resources, Text Resources, etc.):

- Project STEM Website and LMS
- Laptop/Desktop/iPad

KEY VOCABULARY: decimal, binary, exponential, range, alphanumeric, ASCII, Unicode, variable-width, fixed-width, discrete, continuous, index value, elements, ascending, descending, case-sensitivity

Wallenpaupack Area School District Curriculum	
Course: AP Computer Science Principles	**GRADE/S: 11-12**
UNIT 4: Digital Media Processing	**TIMEFRAME: 13 days**

PA COMMON CORE/NATIONAL STANDARDS:

- 3B-AP-24: Compare multiple programming languages and discuss how their features make them suitable for solving different types of programs.
- 3B-AP-10: Use and adapt classic algorithms to solve computational problems.
- 3B-AP-11: Evaluate algorithms in terms of their efficiency, correctness and clarity.
- 3A-CS-03: Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.
- 3B-AP-13: Illustrate the flow of execution of a recursive algorithm.

- 3B-AP-16: Demonstrate code reuse by creating programming solutions using libraries and APIs.
- 3A-AP-17: Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.
- 3A-DA-09: Translate between different bit representations of real-world phenomena, such as characters, number, and images.
- 3A-IC-28: Explain the beneficial and harmful effects that intellectual property laws can have on innovation
- 3A-IC-30: Evaluate the social and economic implications of privacy in the context of safety, law, or ethics.

UNIT OBJECTIVES (SWBATS):

Introduction to Python

- Students will explore the capabilities of a text-based programming language (Python).
- Students will compare and contrast the programming capabilities of a visual programming language (Scratch) with those of a text-based programming language (Python).
- Students will understand the importance of using proper punctuation and syntax when coding in a text-based programming language.

Control Structures

- Students will write code using common programming constructs like conditional if() for selection and while() loops for iteration.
- Students will use boolean, relational and conditional expressions.

Abstraction

- Students will write code using data abstraction (lists).
- Students will create and use procedural abstractions in order to make their programs more readable and versatile.

Image Manipulation

- Students will examine the structure of raster images as compositions of individual pixels.
- Students will explore various methods of representing color, including RGB, CMYK, and HSV.
- Students will explore the various colors that can be produced by the combination of different ratios of red, green, and blue light.
- Students will perform base conversions for decimal, binary, and hexadecimal number systems.
- Students will modify the color channels of pixels in an image to produce a variety of effects.
- Students will design algorithms for modifying the pixels in an image in prescribed ways to create custom image filters.
- Students will explore the difference between lossy and lossless encoding schemes of several common image file formats.

Big Picture

- Students will explore the positive and negative consequences of digitally altering images.
- Students will discuss the ethics of digitally manipulating images, especially in the context of journalism.
- Students will discuss the issues related to intellectual property.

- Students will explore the limitations and rights associated with a number of common licenses, including Creative Commons.

Audio Manipulation

- Students will analyze the differences between analog and digital sound.
- Students will explore the roles that sampling rate and bit depth play in determining the quality of digitized sound.
- Students will explore methods of programmatically generating digital audio.
- Students will explore methods of programmatically altering and modifying digital audio by adjusting volume, pitch, and sampling rate.
- Students will explore the methods and effects of compression algorithms in reducing the amount of data needed to represent an audio sample.
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INSTRUCTIONAL STRATEGIES/ACTIVITIES:

- Online Project STEM Course and LMS
- Class Discussions
- Direct Instruction

ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):

- Lesson Practices
- Quizzes
- Unit Project
- Unit Test

DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):

- Students work at their own pace throughout this course with teachers adding enrichment where needed based on individual strengths. Accelerated students have the opportunity to finish the course and complete independent projects.
- Extension projects are incorporated into each unit and may be used at teacher discretion with accelerated students based on their individual interests.

RESOURCES (Technology Based Resources, Text Resources, etc.):

- Project STEM Website and LMS
- Laptop/Desktop/iPad

KEY VOCABULARY: text-based programming, visual programming, punctuation, syntax, conditional statements, iteration, relational expressions, conditional expressions, pixel, hexadecimal, filer, lossy encoding schemes, lossless encoding schemes, intellectual property, common licensing, analog sound, digital sound, sampling rate, bit depth, pitch, compression algorithms.

Wallenpaupack Area School District Curriculum	
Course: AP Computer Science Principles	**GRADE/S: 11-12**
UNIT 5: Big Data	**TIMEFRAME: 11 days**

PA COMMON CORE/NATIONAL STANDARDS:

- 3B-IC-25: Evaluate computational artifacts to maximize their beneficial effects and minimize harmful effects on society.
- 3B-DA-05: Use data analysis tools and techniques to identify patterns in data representing complex systems.
- 3B-DA-06: Select data collection tools and techniques to generate data sets that support a claim or communicate information.
- 3B-DA-07: Evaluate the ability of models and simulations to text and support the refinement of hypothesis.
- 3A-DA-10: Evaluate the tradeoffs in how data elements are organized and where data is stored.
- 3B-AP-13: Illustrate the flow of execution of a recursive algorithm.
- 3B-IC-27: Predict how computational innovations that have revolutionized aspects of our culture might evolve.
- 3A-IC-30: Evaluate the social and economic implications of privacy in the context of safety, law, or ethics.
- 3B-AP-15: Analyze a large-scale computational problem and identify generalizable patters that can be applied to a solution.

UNIT OBJECTIVES (SWBATS):

Data Science

- Students will relate the impact of computing to ubiquitous and large-scale data processing.
- Students will explore the ways that patterns within large data sets can be used in a predictive manner.
- Students will discuss the risks and benefits of drawing conclusions from patterns found in large data sets.
- Students will combine visuals, content knowledge, and interaction to create a dynamic infographic that clearly communicates discrete information about a data set.
- Students will identify the characteristics that differentiate usable data from unusable data.
- Students will identify the characteristics that differentiate useful data from useless data.

Data Aggregation

- Students will explore the purposes of various processing tasks, including collection, knowledge extraction, and data storage.
- Students will identify multiple techniques for data collection, both on and off of the Internet.
- Students will analyze the characteristics of structured and unstructured data.
- Students will extract structured information from unstructured data.
- Students will examine methods of extracting information from online sources, including structured and unstructured search engines, screen scrapers, and spiders.
- Students will explore the basic features and functionality of modern relational databases.
- Students will debate the implications of large-scale data storage and data persistence on privacy and utility, including the costs associated with each.

Big Picture

- Students will apply the technique of crowdsourcing to a novel data collection problem.
- Students will examine the security risks and responsibilities assumed by companies that collect and store sensitive personal data.

- Students will examine the causes and impact of data breaches involving sensitive personal data.

Data Analysis (including Supplemental)

- Students will analyze the tradeoff of utility and confidence in descriptive, predictive, and prescriptive data analysis.
- Students will investigate traditional statistical hypothesis testing and exploratory data analysis.
- Students will investigate the use of data mining in the discovery of patterns in large data sets.
- Students will examine the use of cluster analysis, anomaly detection, regression analysis, and data classification in the processing of large data sets.
- Students will use automatic summarization tools to create computer-generated summaries of a large data set.
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INSTRUCTIONAL STRATEGIES/ACTIVITIES:

- Online Project STEM Course and LMS
- Class Discussions
- Direct Instruction

ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):

- Lesson Practices
- Quizzes
- Unit Project
- Unit Test

DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):

- Students work at their own pace throughout this course with teachers adding enrichment where needed based on individual strengths. Accelerated students have the opportunity to finish the course and complete independent projects.
- Extension projects are incorporated into each unit and may be used at teacher discretion with accelerated students based on their individual interests.

RESOURCES (Technology Based Resources, Text Resources, etc.):

- Project STEM Website and LMS
- Laptop/Desktop/iPad
- EarSketch

KEY VOCABULARY: infographic, discrete data, usable data, unusable data, outlier, structured data, unstructured data, screen scrapers, spiders, relational database, crowdsourcing, novel data collection, data breach, data analysis (descriptive, predictive, prescriptive), data mining, cluster analysis, anomaly detection, regression analysis, data classification

Wallenpaupack Area School District Curriculum	
Course: AP Computer Science Principles	**GRADE/S: 11-12**
UNIT 6: Innovative Technologies	**TIMEFRAME: 12 days**

PA COMMON CORE/NATIONAL STANDARDS:

- 3B-AP-08: Describe how artificial intelligence drives many software and physical systems.
- 3B-IC-25: Evaluate computational artifacts to maximize their beneficial effects and minimize harmful effects on society.
- 3B-IC-26: Evaluate the impact of equity, access, and influence on the distribution of computing resources in a global society.
- 3A-DA-10: Evaluate the tradeoffs in how data elements are organized and where data is stored.
- 3B-NI-04: Compare ways software developers protect devices and information from unauthorized access.
- 3B-IC-28: Debate laws and regulations that impacts the development and use of software .
- 3B-NI-03: Despite the issues that impact network functionality (e.g., bandwidth, load, delay, topology).
- 3A-IC-24: Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.
- 3B-AP-18: Explain security issues that might lead to compromised computer programs.
- 3A-NI-05: Give examples to illustrate how sensitive data can be affected by malware and other attacks.
- 3B-IC-27: Predict how computational innovations that have revolutionized aspects of our culture might evolve.

UNIT OBJECTIVES (SWBATS):

Big Picture

- Students will examine computing innovations and consider their impact on the economy, society, culture and environment.
- Students will investigate the socioeconomic causes and effects related to the digital divide.
- Students will discuss the benefits and risks of open versus closed platforms.

Implications of Computing

- Students will explore the ways that innovations in digital technology can impact the lives of individuals and communities.
- Students will analyze the role that digital technology plays in their everyday lives.
- Students will analyze the role that digital technology plays in their social communications and interactions.
- Students will explore the impact that instant access to global search, news, and information has had on individuals and communities.
- Students will analyze the benefits and risks of cloud computing.

The Internet

- Students will examine the overall design and architecture of the Internet.
- Students will explore the role of servers, routers, gateways, and clients.
- Students will examine the domain name system and its role in network routing.
- Students will examine a number of standard network protocols, including IP, TCP, UDP, SMTP, HTTP, and FTP.
- Students will investigate the series of components and events that are involved in the transmission of an email or SMS text over the network.
- Students will investigate the series of components and events that are involved in the transmission of an HTML request from a Web browser.

Cryptography

- Students will identify the needs and applications of cryptography in our digital world.
- Students will encode and decode messages using common cryptographic techniques.
- Students will examine the mathematical foundation of cryptography.
- Students will analyze the differences between symmetric (single-key) encryption and asymmetric (public key) encryption.
- Students will examine the features of open and closed platforms and consider the role cryptography plays in systems security.

Cybersecurity

- Students will examine a number of common threats to cybersecurity, including distributed denial of service attacks (DDoS), phishing, viruses, and social engineering.
- Students will identify the needs for robust cybersecurity.
- Students will analyze the software, hardware, and human components of cybersecurity.
- Students will analyze the function and effectiveness of common cybersecurity solutions, including antivirus software and firewalls.

Interconnectedness in Computing

- Students will investigate the origins and applications of the World Wide Web.
- Students will analyze the impact of hyperlinked documents on how individuals find, acquire, and learn new information.
- Students will analyze the legal, social, and commercial impact that the World Wide Web has had on society.
- Students will examine the roles and applications of distributed computing.
- Students will investigate and extrapolate from recent advances in computing to make predictions about the capabilities of future technologies.
- Students will analyze how future technologies might impact individuals and societies.
- Students will examine the legal and ethical implications of autonomous technology.

INSTRUCTIONAL STRATEGIES/ACTIVITIES:

- Online Project STEM Course and LMS
- Class Discussions
- Direct Instruction

ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):

- Lesson Practices
- Quizzes
- Unit Project
- Unit Test

DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment):

- Students work at their own pace throughout this course with teachers adding enrichment where needed based on individual strengths. Accelerated students can finish the course and complete independent projects.
- Extension projects are incorporated into each unit and may be used at teacher discretion with accelerated students based on their individual interests.

RESOURCES (Technology Based Resources, Text Resources, etc.):

- Project STEM Website and LMS
- Laptop/Desktop/iPad

KEY VOCABULARY: socioeconomic, digital divide, open platform, closed platform, cloud computing, server, router, gateway, client, standard network protocols, cryptography, symmetric encryption, asymmetric encryption, cybersecurity, distributed denial of service attacks (DDoS), phishing, virus, social engineering, firewall, hyperlinked, distributed computing

Wallenpaupack Area School District Curriculum	
Course: AP Computer Science Principles	**GRADE/S: 11-12**
UNIT 7: AP Exam Review	**TIMEFRAME: 5 days**

PA COMMON CORE/NATIONAL STANDARDS: No new standards – review for AP Exam.
UNIT OBJECTIVES (SWBATS): • Determine the areas of strengths and weaknesses using Diagnostic Exams. • Create a plan to prepare for the AP Exam.
INSTRUCTIONAL STRATEGIES/ACTIVITIES: • Online Project STEM Course and LMS • Class Discussions • Direct Instruction
ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative): • Lesson Practices • Quizzes • Unit Project • Unit Test
DIFFERENTIATED INSTRUCTION (Acceleration/Enrichment): • Students work at their own pace throughout this course with teachers adding enrichment where needed based on individual strengths. Accelerated students have the opportunity to finish the course and complete independent projects. • Extension projects are incorporated into each unit and may be used at teacher discretion with accelerated students based on their individual interests.
RESOURCES (Technology Based Resources, Text Resources, etc.): • Project STEM Website and LMS • Laptop/Desktop/iPad
KEY VOCABULARY: no new vocabulary