Unit 8: Python

Content Area: **Computer Science**
Course(s):
Time Period: **Marking Period 2**
Length: **8-10 Weeks**
Status: **Published**

Standards

CS	Computing Systems
P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
P.8	Use technology to enhance productivity increase collaboration and communicate effectively.
NI	Networks and the Internet
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).
IC	Impacts of Computing
DA	Data & Analysis
AP	Algorithms & Programming
ED	Engineering Design
ITH	Interaction of Technology and Humans
NT	Nature of Technology
EC	Ethics & Culture

Essential Questions / Enduring Understandings

Essential Questions:

- What is Python?
- What is a variable?
- What is an If statement?
- What is a loop?
- How do you give commands to an object?
- What is a string?
- What are the different types of variables?
- How does Python store information?
- What does it mean to be an indentation language?
- How can you use AI to help you further understand coding?

Enduring Understanding:

- There are unintended consequences to emerging technologies, some positive and some negative (AI).

- Python is one of the most used coding languages.
- Laws protect the developers of original code and products.
- Being aware of current laws will help protect the programmers in the future.

Objectives

Students will know:

- Basic structures in Python
- How to code behaviors to an object in Python
- Create programs within Python to complete certain tasks

Students will be skilled at:

- Coding in Python
- Writing/reading/interpreting code
- Analyzing code errors and fixing their mistakes

Learning Plan

- Preview the essential questions and connect to learning throughout the unit.
- Research on social, ethical, and legal issues pertaining to computer use.
- Discussion of the responsible use of a system.
- Discussion of current technologies.
- Discussion of current laws pertaining to the internet and technology.
- Debate on existence of local and international law pertaining to the internet, computer use and technology as it pertains to the new technologies.

Assessment

- Assessments
    - Formative: Daily assessments using examples from class notes and CodeHS.com, AP

Classroom/Albert Checks for Understanding

- Summative: Teacher-created assessments/projects and CodeHS Computer Science Projects, AP Classroom/Albert Unit Assessments
- Benchmark: Check for understanding benchmark assessments on CodeHS, AP Classroom/Albert/Khan Academy Diagnostics
- Alternative Assessments: Student-centered activities such as a doorbell coding project, game design projects, and other activities involving real world applications
    - Complete quizzes/test: Algorithms, Structure of Programs, Design of Programs
    - Be observed by the teacher during individual work on the performance tasks.
    - Conduct self-assessments and reflections
    - Conduct Peer Evaluations.

Materials

- Core instructional materials: Core Book List
- Supplemental materials: CodeHS, computers, and reference books.

Integrated Accommodations and Modifications

See Linked Document.