Unit 8: Python

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

Standards

CS.9-12.AP	Algorithms & Programming
CS.9-12.CS	Computing Systems
CS.9-12.DA	Data & Analysis
CS.9-12.EC	Ethics & Culture
CS.9-12.ED	Engineering Design
CS.9-12.IC	Impacts of Computing
CS.9-12.NI	Networks and the Internet
CS.9-12.NT	Nature of Technology
CS.9-12.ITH	Interaction of Technology and Humans
WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
WRK.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate effectively.
TECH.9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).

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.