CS Applications: Python

Grades 6-12

Programming Language:
Python

Software used in Course:
Thonny or Pickcode.io

Supported Devices
Mac
Windows
Chromebook

Instructional Models:
Direct Instruction
Instructional Scaffolding
Use of Learning Objectives
Relevant Vocabulary
Bloom's Taxonomy or Questions
Inquiry-Based Instruction
Project-Based Instruction
Cooperative Learning
Independent Study

Supported Learning Models:
Classroom
Blended
Hybrid
Synchronous
Asynchronous

Standards Aligned:
National and State Computer Science Standards

Reinforces:
Math
ELA
Social-Emotional Learning

Course Description

In this course, students analyze, manipulate, and develop programs using the Python programming language. Students will learn programming fundamentals and write Python scripts that utilize user input, control structures, data structures, and object-oriented programming techniques to solve problems. Students will explore ethical behavior and real-world applications through data projects, Digital Citizenship lessons, and STEM Careers. By the end of this course, students will be familiar with Python and its real-world applications in computer science.

Learning Objectives

Each lesson plan is designed to enable students to achieve specific learning outcomes related to course aligned computer science competencies. For example, at the end of this course students will be able to:

- Modify and add to a program to produce new output.
- Identify and implement print functions and comments while developing a software program.
- Identify and explain the advantages Python provides in programming.
- Evaluate digital scenarios and justify their reasoning with supporting details.
- Identify applications and describe tradeoffs of machine learning.