Unit 0 Pacing Guide - AP Computer Science Principles

Content Area: **Technology**
Course(s): **AP Computer Science Principles**
Time Period:
Length: **Full Year -5 Units**
Status: **Published**

AP Computer Science Principles, Pacing Guide

Belleville Public Schools Unit Pacing Guide

Content Area: Technology / Advanced Placement
Course(s): Computer Science Principles
Time Period: Full Year

Division of Units / Topics: 7 Units including Explore and Create Performance Tasks (Programming)

ABSTRACT

AP Computer Science Principles is a year-long course that addresses the seven "Big Ideas" of computer science and six "Computational Thinking Practices", as specified by the College Board's AP Computer Science Principles curriculum framework. Through the incorporation of Project-Based Learning (PBL), this course introduces students to the foundational concepts of computer science and explores the advantages and the impact computing and technology have on society while developing programming and computational thinking skills.

The course introduces students to computer science with fundamental topics that include problem solving, design strategies and methodologies, organization of data (data structures), approaches to processing data (algorithms), analysis of potential

solutions, and the ethical and social

implications of computing.

The course emphasizes both object-oriented and imperative problem solving and design using Java language.

These techniques represent proven approaches for developing solutions that can scale up from small, simple problems to large, complex

problems.

Unit Plan 1	**Unit 1: Computational Thinking** Introduction to computational thinking, logical reasoning, and describing processes through algorithms and pseudocode (20-25 days)
Unit Plan 2	**Unit 2: Programming** Use of a programming environment to explore sequencing, selection, and iteration as part of the goal to create programs that serve useful functions (20-25 days)

Unit Plan 3

Unit 3: Data Representation

Explore the different means of representing information digitally.

(20-25 days)

Unit 4: Digital Media Processing

Unit Plan 4

Use of a coding environment to programmatically manipulate digital images and audio.

(20-25 days)

Unit 5: Big Data

Discover new knowledge through the use of large data sets.

(20-25 days)

Unit Plan 5

Unit Plan 6	**Unit 6: Innovative Technologies** Explore the current state of technology and its role in our everyday lives (20-25 days)
Unit Plan 7	**Unit 7: Performance Tasks** Portfolio for College Board (35-40 days)