**PLTW Computer Science Principles**

**2023-2024**

**Scope of Sequence Pacing Chart**

St. Louis Public Schools, Vashon

Career & Technical Education

# Course Objectives (Outline)

The objective of this course is to prepare students for the Computer Science Principles (EOC) exams. The course follows the Understanding by Design model in which each lesson is designed to produce evidence that students have achieved specific course objectives. Course objectives include all CS Principles learning objectives. Course materials explicitly show alignment to objectives at the lesson level and at the activity level, including PLTW understanding, skills, and knowledge objectives; CS Principles learning objectives and essential knowledge; and objectives specified in NGSS, CCSS, CSTA, and other standards. In all of these examples, students work in a team to combine team members' perspectives, skills, and knowledge to address a complex problem.

**Scope of Sequence Annual Pacing Chart**

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| Unit 1: Creative Computing for All—August  | Unit 2: Every Bit of the Internet--September |
| Lesson 1.1 Algorithms | Lesson 2.1 Data Dilligence |
| Activity 1.1.1 Algorithmic Thinking | Activity 2.1.1 Alert: Phishing Warning! |
| Activity 1.1.2 Planning a Picture | Activity 2.1.2 Encryption: Keep it Confidential |
| Activity 1.1.3 Fun with Flowers | Activity 2.1.3 Password Strength-Strong! |
| Activity 1.1.4 Spinning with Spirographs | Activity 2.1.4 Design the User Experience |
| Activity 1.1.5 Run Robot, Run Robot Maze | Activity 2.1.5 Securing Sloppy Code |
| Activity 1.1.6 Buggy Image | Activity 2.1.6 A pHishy Fish Tank |
| Activity 1.1. 7 Traversing Turtles | Lesson 2.2 How the Internet Works--October |
| Activity 1.1.8 Turtles in Traffic | Activity 2.2.1 The Internet and the Web: Explore Task 1 |
| Activity 1.1.9 Algorithms and Art | Activity 2.2.2 A Little Bit of Data |
| Lesson 1.2 Abstraction--September | Activity 2.2.3a Demystifying Data Transmission |
| Activity 1.2.1 Catch-A-Turtle | Activity 2.2.3b Demystifying Data Transmission(Cloud9) |
| Activity 1.2.2 Catch-A-Turtle Leaderboard | Activity 2.2.4 Parallel and Distributed Computing |
| Activity 1.2.3 Apple Avalanche | Activity 2.2.5 Analyzing Data and Computing Innovations |
| Activity 1.2.4 Turtle Escape | Activity 2.2.6 A GUI Situation |
| Activity 1.2.5 Shall We Play a Game? | Activity 2.2.7 Creating Command Line GUI |
| Lesson 1.3 Artistic Expression Through Code | Lesson 2.3 Creating a Custom Encoder |
| Problem 1.3.1 Artistic Expression Through Code | Problem 2.3.1 Creating a Custom Encoder |
| Unit 3: Little Data to Big Data--October | Unit 4: Solving Complex Problems—March-May |
| Lesson 3.1 Little Data | Lesson 4.1 Simulating the Real World |
| Activity 3.1.1 Data Visualization: What’s the “Point”? | Activity 4.1.1 Simulations in Science |
| Activity 3.1.2 Speculations in Sound | Activity 4.1.2 Simulations to Predict Growth Rates |
| Activity 3.1.3 The Color of Light | Activity 4.1.3 Simulations to Predict Behavior |
| Activity 3.1.4 CO2 Rising | Activity 4.1.4 Understanding Complex Systems |
| Activity 3.1.5 Gaming with Force |  Project Introduction |
| Project 3.1.6 Rover Phone Home | Lesson 4.2. Future Innovations |
| Lesson 3.2 Trendy Data--November | Activity 4.2.1 Machine Learning and AI |
| Activity 3.2.1 Trends in Temperature | Activity 4.2.2 Computing Exploration |
| Activity 3.2.2 Shocking Data Trends | Project 4.2.3 Mobile Classroom |
| Activity 3.2.3 Pirates Are the Problem | Lesson 4.3 Impacts of Computing Innovations |
| Activity 3.2.4 Making Meaning from Data | Problem 4.3.1 Impacts of Computing Innovations: Explore |
| Lesson 3.3 Making Predictions from Data--December |  Task 3 |
| Problem 3.3.1 Making Predictions from Data |  |
|  Converting Data into a CSV File |  |
| Create Performance Task December2023/January 2024 |  |
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