

**Course Title: Computer Science III**

**Topic/Concept: Functions**

**Time Allotment: 5 Weeks**

**Unit Sequence: 1**

**Major Concepts to be learned:**

1. Functions
2. Scope
3. Passing pointers and arrays
4. Recursion

**Expected Skills to be demonstrated:**

1. Create a C++ project and apply the concepts of the unit.
2. Write code to solve specific problems.
3. Continuously evaluate, review, and refine program to ensure the success of the task

**PA Standards/Anchors:**

**Eligible Content:**

3.7.10.C  
3.7.10.D

- 3.7.10.C
- 3.7.10.D

**Instructional Strategies:**

**Assessments:**

Problem solving activities  
Lecture  
Performance task  
Note Taking  
Evaluating

- Program projects
- Quiz
- Teacher Observation

**Course Title:** Computer Science III

**Topic/Concept:** Closer Look at Functions

**Time Allotment:** 4-5 Weeks

**Unit Sequence:** 2

**Major Concepts to be learned:**

1. Argument Passing
2. Call by Reference
3. Function Overloading
4. Ambiguity

**Expected Skills to be demonstrated:**

1. Create a C++ project and apply the concepts of the unit.
2. Write code to solve specific problems.
3. Continuously evaluate, review, and refine program to ensure the success of the task

**PA Standards/Anchors:**

**Eligible Content:**

3.7.10.C  
3.7.10.D

- 3.7.10.C
- 3.7.10.D

**Instructional Strategies:**

**Assessments:**

Problem solving activities  
Lecture  
Performance task  
Note Taking  
Evaluating

- Program projects
- Quiz
- Teacher Observation

**Course Title:** Computer Science III

**Topic/Concept:** More Data Types and Operators

**Time Allotment:** 4-5 Weeks

**Unit Sequence:** 3

**Major Concepts to be learned:**

1. Const and volatile qualifiers
2. Static and Register variables
3. Enumerations
4. Shift Operators
5. compound Assignments

**Expected Skills to be demonstrated:**

1. Create a C++ project and apply the concepts of the unit.
2. Write code to solve specific problems.
3. Continuously evaluate, review, and refine program to ensure the success of the task

**PA Standards/Anchors:**

**Eligible Content:**

3.7.10.C  
3.7.10.D

- 3.7.10.C
- 3.7.10.D

**Instructional Strategies:**

**Assessments:**

Problem solving activities  
Lecture  
Performance task  
Note Taking  
Evaluating

- Program projects
- Quiz
- Teacher Observation

**Course Title: Computer Science III**

**Topic/Concept: Classes and Objects**

**Time Allotment: 4-5 Weeks**

**Unit Sequence: 4**

**Major Concepts to be learned:**

1. Creating classes and objects
2. Member Functions
3. constructors and destructors
4. arrays of objects
5. inline functions

**Expected Skills to be demonstrated:**

1. Create a C++ project and apply the concepts of the unit.
2. Write code to solve specific problems.
3. Continuously evaluate, review, and refine program to ensure the success of the task

**PA Standards/Anchors:**

3.7.10.C  
3.7.10.D

**Eligible Content:**

- 3.7.10.C
- 3.7.10.D

**Instructional Strategies:**

Problem solving activities  
Lecture  
Performance task  
Note Taking  
Evaluating

**Assessments:**

- Program projects
- Quiz
- Teacher Observation

**Course Title:** Computer Science III

**Topic/Concept:** Mathematical Problem Solving

**Time Allotment:** Ongoing weekly

**Unit Sequence:** 5

**Major Concepts to be learned:**

1. Open-Ended Problem Solving

**Expected Skills to be demonstrated:**

1. Solve open-ended questions based on the Pennsylvania Academic Standards Anchors

**PA Standards/Anchors:**

**Eligible Content:**

2.2.11      2.3.11      2.4.11  
2.5.11      2.6.11      2.7.11  
2.8.11      2.9.11

- Computation and Estimation
- Measurement and Estimation
- Mathematical Reasoning and Connections
- Mathematical Problem Solving and Communication
- Statistics and Data Analysis
- Probability and Predictions
- Algebra and Functions
- Geometry

**Instructional Strategies:**

**Assessments:**

Problem solving activities  
Lecture  
Performance task

- Quizzes
- Tests
- Teacher Observation