Course Title: Computer Science I

Topic/Concept: Hardware

Time Allotment: 1 Week

Unit Sequence: 1

Major Concepts to be learned:

1. Computer hardware
2. Computer peripherals

Expected Skills to be demonstrated:

1. Basic computer setup
2. Recognize and assemble inner computer components

PA Standards/Anchors:	Eligible Content:
3.7.10C	• 3.7.10C.1 • 3.7.10C.2 • 3.7.10C.3

Instructional Strategies:	Assessments:
Lecture Performance task Research Hands-on activity Note Taking	• Quiz • Teacher Observation

Course Title: Computer Science I

Topic/Concept: Machine Language

Time Allotment: 1 Week

Unit Sequence: 2

Major Concepts to be learned:

1. Machine language
2. Compilers
3. Programing languages

Expected Skills to be demonstrated:

1. Convert numbers between multiple bases (binary, hex, oct. and dec)

PA Standards/Anchors:	Eligible Content:
2.1.11A 2.2.11A	• 2.1.11.A • 2.2.11A

Instructional Strategies:	Assessments:
Problem solving activities Lecture Note Taking	• Quiz • Teacher Observation

Course Title: Computer Science I

Topic/Concept: Fundamentals

Time Allotment: 3 Weeks

Unit Sequence: 3

Major Concepts to be learned:

1. Variables and data types
2. Comments
3. Declarations
4. Input/output

Expected Skills to be demonstrated:

1. Create simple Visual Basic programs using variables and basic data types that includes user input and program output.
2. Apply basic software operation concepts.
3. Apply basic file management concepts.
4. Recognize and use proper computer terms
5. Create a new Visual Basic project by adding objects and changing property values.
6. Write code to solve specific problems.
7. 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	• Program projects • Quiz • Teacher Observation

Course Title: Computer Science I

Topic/Concept: Modifying Objects

Time Allotment: 3 Weeks

Unit Sequence: 4

Major Concepts to be learned:

1. Properties
2. Expressions
3. Operations
4. Increment/decrement

Expected Skills to be demonstrated:

1. Modify object properties within properties panel and with code modifiers.
2. Write statements using expressions and operations.
3. Use statements to control increment and decrement

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

Assessments:

- Program projects
- Quiz
- Teacher Observation

Course Title: Computer Science I

Topic/Concept: Control Constructs

Time Allotment: 4 Weeks

Unit Sequence: 5

Major Concepts to be learned:

1. Logical Values and operators
2. Truth tables
3. If-else statements
4. For, while, & do loops

Expected Skills to be demonstrated:

1. Create truth tables.
2. Observing logical values and operators.
3. Write programs that use conditional and switch statements..
4. Write programs that require the use of for, while and do loops

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	• Program projects • Quiz • Teacher Observation

Course Title: Computer Science I

Topic/Concept: Functions

Time Allotment: 4 Weeks

Unit Sequence: 6

Major Concepts to be learned:

1. Functions
2. Invocation and flow control
3. String class
4. Math library

Expected Skills to be demonstrated:

1. Write functions for algorithms that are recurring within a program.
2. Reduce the number of executable lines in a program with flow control.
3. Use functions of the string class in programs.
4. Use built-in functions of the math library in programs

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

Assessments:

- Program projects
- Quiz
- Teacher Observation

Course Title: Computer Science I

Topic/Concept: Procedures

Time Allotment: 3 Weeks

Unit Sequence: 7

Major Concepts to be learned:

1. Procedures
2. Invocation and flow control
3. Parameters
4. Return statement

Expected Skills to be demonstrated:

1. Write procedures for algorithms that are recurring within a program and require a return value.
2. Reduce the number of executable lines in a program by using procedures
3. Follow the flow of a program and predict the outcome

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

Assessments:

- Program projects
- Quiz
- Teacher Observation

Course Title: Computer Science I

Topic/Concept: Mathematical Problem Solving

Time Allotment: Ongoing weekly

Unit Sequence: 8

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:

2.2.11	2.3.11	2.4.11
2.5.11	2.6.11	2.7.11
2.8.11	2.9.11	

Eligible Content:

- 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:

Problem solving activities
Lecture
Performance task

Assessments:

- Quizzes
- Tests
- Teacher Observation