

# *Wallenpaupack Area School District*

**COURSE:** Computer Programming (Visual Basic)

**GRADE LEVEL:** 10<sup>th</sup> /11<sup>th</sup>/12<sup>th</sup>

**LENGTH OF COURSE:** 90-days/1 semester (1/2 year)

**TEXT:** An Introduction To Programming Using Visual Basic

**PUBLISHER:** Lawrenceville Press

**COPYRIGHT:** 1999

**COURSE DESCRIPTION:**

Students will master the fundamentals of computer programming. Topics covered include a brief history of computing and programming, introduction to operating systems, using the Visual Basic Integrated Development Environment, using variables and constants, controlling program flow, looping structures, mathematical and business functions, using arrays and multimedia applications. Students will apply acquired knowledge to design, create, test and debug computer programs. Each student will be required to complete a research paper and two programming projects. Each project will be designed, created and presented by the student.

**CURRICULUM WRITING TEAM:**

Bernie Bieski

**DATE OF REVISION:**

June 2005

**TIMELINE:**

<b>Unit 1 and 2-</b> Introduction to operating systems	(5 blocks)
<b>Unit 3-</b> Introduction to Visual Basic	(7 blocks)
<b>Unit 4-</b> Variables and Constants	(10 blocks)
<b>Unit 5-</b> Program Flow and Decision Structures	(10 blocks)
<b>Unit 6-</b> Program Flow and Looping Structures	(10 blocks)
<b>Unit 7-</b> Procedures	(10 blocks)
<b>Unit 8-</b> Mathematical and business functions	(10 blocks)
<b>Unit 9-</b> Arrays and student projects	(13 blocks)
<b>Unit 10-</b> Graphics, Color and Sound	(10 blocks)
<b>Final Exam and Review-</b>	(5 blocks)

# Wallenpaupack Area School District

**Course:** Computer Programming

**Grade Level:** 10, 11, 12

**Unit:** Introduction to operating systems

**PA Standards:** 3.7.10

<b>Topics:</b>	<b>Skills:</b>
Creating files and folders Using the Windows Operating system	Explore the Windows GUI Use Menus and dialogue boxes Create file and folder management structures
<b>Activities:</b>	<b>Performance Assessments:</b>
Handouts Class discussion Class/Individual Introductions Computer Demonstrations	Question and Answer Teacher observation Textbook exercises Quiz/Testing

# Wallenpaupack Area School District

**Course:** Computer Programming

**Grade Level:** 10, 11, 12

**Unit:** Introduction to Visual Basic

**PA Standards:** 3.7.10

<b>Topics:</b>	<b>Skills:</b>
Creating and Using Labels Creating and Using Command Buttons The Unload Command Understanding Procedures Image Controls	Use the Visual Basic IDE Add objects to forms Create applications Save, print and run applications Create event procedures Change property values at design time and run time Add comments to program code Understand operations and expressions Use good style guidelines Create an executable file
<b>Activities:</b>	<b>Performance Assessments:</b>
Class lecture and discussion Handouts Computer Demonstrations Chapter questions and exercises Project modeling	Class participation Quiz Class assignments Textbook exercises Completion of an organized notebook

# Wallenpaupack Area School District

**Course:** Computer Programming

**Grade Level:** 10, 11, 12

**Unit:** Variables and Constants

**PA Standards:** 3.7.10

<b>Topics:</b>	<b>Skills:</b>
Declare variables in program code Use named constants Option explicit and debug.print statement Use change event procedures Evaluate operator precedence Use option buttons in frames Understand good programming style	Use the Visual Basic IDE Declare named variables & constants Identify data types Identify syntax errors Use debugging techniques Create programs to obtain user input
<b>Activities:</b>	<b>Performance Assessments:</b>
Class lecture and discussion Handouts Computer Demonstrations Chapter questions and exercises Project modeling Create working programs	Class participation Quiz Class assignments Textbook exercises Completion of an organized notebook

# Wallenpaupack Area School District

**Course:** Computer Programming

**Grade Level:** 10, 11, 12

**Unit:** Program Flow and Decision Structures

**PA Standards:** 3.7.10

<b>Topics:</b>	<b>Skills:</b>
If then and Else statements Using logical operators Generate random numbers Scope of variables Algorithms Using passwords and message boxes Counters and check boxes	Design programs and control flow using logical operators Create programs that generate random numbers Design programs that utilize password protection and numeric counters
<b>Activities:</b>	<b>Performance Assessments:</b>
Class lecture and discussion Handouts Computer Demonstrations Chapter questions and exercises Project modeling Create working programs	Class participation Quiz Class assignments Textbook exercises Completion of an organized notebook

# Wallenpaupack Area School District

**Course:** Computer Programming

**Grade Level:** 10, 11, 12

**Unit:** Program Flow and Looping Structures

**PA Standards:** 3.7.10

<b>Topics:</b>	<b>Skills:</b>
Input boxes Accumulators and sentinels String conversion functions For Next statement ASCII code "Do Loop" and "Loop While" statements	Design programs and control flow using looping statements Create programs that track numeric data Design programs that utilize ASCII code and text strings
<b>Activities:</b>	<b>Performance Assessments:</b>
Class lecture and discussion Handouts Computer Demonstrations Chapter questions and exercises Project modeling Create working programs	Class participation Quiz Class assignments Textbook exercises Completion of an organized notebook

# Wallenpaupack Area School District

**Course:** Computer Programming

**Grade Level:** 10, 11, 12

**Unit:** Procedures

**PA Standards:** 3.7.10

<b>Topics:</b>	<b>Skills:</b>
Sub procedures and Call statements Passing Data Value and reference parameters Static variables	Design programs that utilize Call statements Create programs that exchange data Design programs that use static variables
<b>Activities:</b>	<b>Performance Assessments:</b>
Class lecture and discussion Handouts Computer Demonstrations Chapter questions and exercises Project modeling Create working programs Team software writing	Class participation Quiz Class assignments Textbook exercises Completion of an organized notebook

# Wallenpaupack Area School District

**Course:** Computer Programming

**Grade Level:** 10, 11, 12

**Unit:** Mathematical and business functions

**PA Standards:** 3.7.10

<b>Topics:</b>	<b>Skills:</b>
Formatting numeric output Rounding functions Mathematical functions List boxes and combo boxes Payment functions	Design programs that format numeric data Create programs with menu operation Design programs that calculate payment information
<b>Activities:</b>	<b>Performance Assessments:</b>
Class lecture and discussion Handouts Computer Demonstrations Chapter questions and exercises Project modeling Create working programs	Class participation Quiz Class assignments Textbook exercises Completion of an organized notebook

# Wallenpaupack Area School District

**Course:** Computer Programming

**Grade Level:** 10, 11, 12

**Unit:** Arrays

**PA Standards:** 3.7.10

<b>Topics:</b>	<b>Skills:</b>
Variable arrays Upper bound and lower bound Arrays with looping structures Dynamic arrays Two-dimensional arrays	Design programs that use variable arrays Identify range errors Search an array Design programs that use dynamic and two-dimensional arrays
<b>Activities:</b>	<b>Performance Assessments:</b>
Class lecture and discussion Handouts Computer Demonstrations Chapter questions and exercises Project modeling Create working programs Educational software program	Class participation Quiz Class assignments Textbook exercises Completion of an organized notebook

# Wallenpaupack Area School District

**Course:** Computer Programming

**Grade Level:** 10, 11, 12

**Unit:** Graphics, Color and Sound

**PA Standards:** 3.7.10

<b>Topics:</b>	<b>Skills:</b>
Modify form object color properties Add lines and shapes to applications Modify shapes and picture boxes Timer objects and timer event procedures Add animation and sound to applications	Design programs that contain sound and animation Design programs that use timers to control program flow
<b>Activities:</b>	<b>Performance Assessments:</b>
Class lecture and discussion Handouts Computer Demonstrations Chapter questions and exercises Project modeling Create working programs Educational software program	Class participation Quiz Class assignments Textbook exercises Completion of an organized notebook