Moon Area School District Curriculum Map

Course: Visual Basic Programming
Grade Level: 9-12
Content Area: Business/Computer
Frequency: One-Semester

Big Ideas

1. Follow the Visual Basic development process to create effective, reliable, user-friendly applications with various content and features.

Essential Questions

2. Why is it important to understand computer, Internet, and network basics before designing and programming an application?
3. Why is it essential to understand the social, ethical, and legal policies of the Web?
4. What are various career options in computer programming and application development?
5. What is Microsoft Visual Studio & Visual Basic?
6. What are the various applications you can create with Visual Basic?
7. How can students evaluate the difference between a well-designed application and a poorly designed application?
8. What is the advantage of using an object-oriented programming language, with rapid application development, like Visual Basic?
9. What is a graphical user interface and an event driven program?
10. What are the roles of input, processing, output, and data when running a computer program?
11. Why is it important to be able to explain the purpose of the Visual Basic integrated development environment (IDE) and, more specifically, identify and locate essential components of the code window and user-interface design screen?
12. What is the Visual Basic application development process?
13. Why is it important to follow layout and content formatting guidelines for the user interface?
14. Why is it important to follow the Visual Basic programming language syntax rules in the code window?
15. How can various objects, used to build the graphical user interface of an application, enhance the user's experience and interaction with the application?
16. What are the various code statements required to allow the user to interact with the graphical user interface and provide a successful application output/solution?
17. How can logical problem-solving strategies and skills be applied to computer programming?
18. What is the importance of test data?
19. How do you test, publish, and maintain a website?
20. How will learning the skills of computer programming and application design be beneficial?

Primary Resource(s) & Technology:

Materials: Shelly Cashman *Microsoft Visual Basic 2012-2022* textbooks, Visual Basic via Visual Studio 2022 Software, Web Resources, Microsoft Teams, Promethean Board, Student Desktops/Laptops

Pennsylvania and/or focus standards referenced at:

www.pdesas.org and www.education.pa.gov

Big Ideas/EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
		Unit 1: Introduction to Visual Basic Programming & Visual Studio	**Approx.**
2-11, 20	3.6.10.B 3.6.12.B 3.7.10.A 3.7.10.C 3.7.10.D 3.7.10.E 3.7.12.A 3.7.12.C 3.7.12.D 3.7.12.E 3.8.12.B	• Careers in programming and application development • Computer Basics and Basic Program Operations • Understand software and computer programs • Discuss various programming languages • Role of developer in creating computer programs • Purpose of Visual Studio and Visual Basic • Object Oriented Programming (OOD) • Rapid Application Development (RAD) • Graphical User Interface (GUI) • Event-Driven Programs • Integrated Development Environment (IDE) Components • Role of Arithmetic & Logical Operations in programming • Assessment(s): Quiz and Supplemental Activities	1.5 week
Big Ideas/EQs	**Focus Standard(s)**	**Unit 2: Program and Graphical User Interface Design**	**Approx.**
1, 7-20	3.6.10.B 3.6.12.B 3.7.10.A 3.7.10.C 3.7.10.D 3.7.10.E 3.7.12.A 3.7.12.C 3.7.12.D 3.7.12.E 3.8.12.B	• Explore Visual Studio and Visual Basic software • Configure the IDE Workspace • Identify and utilize components of the Visual Basic IDE and GUI (Graphical User Interface) • Follow the application development process to create a simple application • Design a simple user-interface by adding object controls to a form (label, text box, button, picture box) • Change object properties • Type simple, one line assignment code statements for event procedures • Identify and debug errors • Assessment(s): Lab Project(s), Unit Project, and Supplemental Activities	3 weeks

Big Ideas/EQs	Focus Standard(s)	Unit 3: Coding with Variables, Constants, and Calculations	Approx.
1, 7-20	3.6.10.B 3.6.12.B 3.7.10.A 3.7.10.C 3.7.10.D 3.7.10.E 3.7.12.A 3.7.12.C 3.7.12.D 3.7.12.E 3.8.12.B	• Understand how/when to use variables and constants in code • Understand how/when to assign data types and add values to variables and constants • Understand why and how to convert variable data types • Use arithmetic expressions to perform calculations • Understand and apply scope rules for variables • Format variables • Understand when/how to use a concatenated string • Include various objects on the GUI (label, text box, button, numeric up down, picture box, group box, radio buttons) • Debug a program • Assessment(s): Lab Project(s), Unit Project, and Supplemental Activities	4 weeks
Big Ideas/EQs	**Focus Standard(s)**	**Unit 4: Decision Structures**	**Approx.**
1, 7-20	3.6.10.B 3.6.12.B 3.7.10.A 3.7.10.C 3.7.10.D 3.7.10.E 3.7.12.A 3.7.12.C 3.7.12.D 3.7.12.E 3.8.12.B	• Understand when/why to use decision structures in code • Understand when/why to use arithmetic, comparison, and logical operators in a decision structure's condition • Identify and utilize the order of operations and precedence for operators • Compare and contrast the *If Then Else* and *Select Case* decision structures • Include decision structures and nested decision structures in code • Include various objects on the GUI (label, text box, button, picture box, numeric up down, group box, radio buttons, check box, combo box/drop down list) • Include message boxes to anticipate errors and notify the user • Debug a program • Assessment: Lab Project(s), Unit Project, and Supplemental Activities	4 weeks

Big Ideas/EQs	Focus Standard(s)	Unit 5: Multiple Forms, Object Movement, Menus, & Timers	Approx.
1, 7-20	3.6.10.B 3.6.12.B 3.7.10.A 3.7.10.C 3.7.10.D 3.7.10.E 3.7.12.A 3.7.12.C 3.7.12.D 3.7.12.E 3.8.12.B	• Understand when/why/how to include timers, menus, object movement, public variables, and multiple forms • Include code to: o Enable, format, and disable a timer o Move text, graphics, and other graphical objects automatically on the GUI o Enable the user to move text, graphics, and other objects on the GUI based on user input o Declare and utilize a Public Shared Variable for multiple forms o Enable the user to interact with multiple forms/windows • Include menus, and other objects on the GUI, to enable the user to interact with both forms • Include various objects on the GUI (label, text box, button, picture box, numeric up down, group box, radio button, check box, combo box/drop down list, multiple forms, menus, timer) • Debug a Program • Assessment: Lab Project(s), Unit Project, and Supplemental Activities	4 weeks
Big Ideas/EQs	**Focus Standard(s)**	**Final Exam Project**	**Approx.**
1-20	3.6.10.B 3.6.12.B 3.7.10.A 3.7.10.C 3.7.10.D 3.7.10.E 3.7.12.A 3.7.12.C 3.7.12.D 3.7.12.E 3.8.12.B	• Review all skills, concepts, and vocabulary • Complete a cumulative final project • Present final project to class (if time permits)	1.5 week