Visual Basic

Grade 9, 10, 11, or 12

Prerequisite: None

Credit Value: 5

ABSTRACT

Visual Basic is the first of a series of computer programming courses. Students who successfully complete this course may continue on to Visual C++. Students who are interested in a career in computer programming may also enroll in Advanced Placement Computer Programming. Benchmark assessments are employed to track individual student progress.
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<tr>
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**Essential Question:**
- What is object-orientated programming language?
- How are variables, constants, and scope utilized in programming?
- How are logic limitations applied to programming?
- How can long code be divided for easier reading?
- How are loop structures utilized to control program flow?

**Content:**
- Introducing Visual Basic
- Variables and Constants
- Application of Logic to Program Structure
- Controlling Program Flow with Decision Structures
- Controlling Program Flow with Looping Structures

**Skills and Topics:**
- Review the history of computing
- Define object-oriented language and use the Visual Basic IDE (integrated development environment)
- Discuss the Hello World program to include objective
- Apply controls and add objects to a form
- Define and create an event drive procedure
- Alter property values at design time and at run time
- Add comments to program code
- Change properties at design time and run time
- Create an event-driven application
- Use data types and apply division, integer division, and mod division to programs
- Identify and mediate syntax, logic, and runtime errors using the Visual Basic debugger
- Apply scope, specification, design, coding, testing, and debugging to computer programming
- Utilize textbox objects to get input from the user
- Apply automatic type conversion and special division operators
- Use data types and apply division, integer division, and mod division to programs
- Apply the if…then, if…then…else, and if …then…else if programming structure
- Apply the if…then…else nested programming structure
- Apply select case in programming structure
- Generate random numbers
- Return the integer portion of a number without rounding and understand variable lifetime
- Use And, Or, and Not in Boolean expressions
- Generate algorithms and pseudo code
- Apply the do loop structure to programs
- Apply the do loop and control infinite loops
- Utilize input boxes in applications
# SOMERVILLE PUBLIC SCHOOLS

## Visual Basic

**Grade 9, 10, 11, or 12**

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<td>• declare variables in programming code</td>
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<td><strong>Integration of Technology:</strong></td>
<td>Internet, Web Quests, wireless laptop computers, computer laboratory, SMART Boards, Visual Basic software, VoiceThread, Google Docs, email, MacBooks, iPads, video streaming, podcasting</td>
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<td><strong>Writing:</strong></td>
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| **Interdisciplinary Connections:** | *ELA: Sl.1-6, L.1-6, RST.1-10, WHST.1-2, WHST.4-10*  
*Arts: Design elements are exemplified in the construction of programming windows.*  
*World Language: 7.1.AL.A.3*  
| **21st Century Themes:** | ☒ Global Awareness ☐ Civic Literacy  
☐ Financial, Economic, Business, and Entrepreneurial Literacy ☐ Health Literacy  
| ☒ Critical Thinking and Problem Solving ☒ Life and Career Skills  
☒ Information and Communication Technologies Literacy ☒ Communication and Collaboration ☒ Information Literacy  
| | | | | |
| **21st Century Skills:** | ☒ Creativity and Innovation ☒ Media Literacy ☒ Critical Thinking and Problem Solving ☒ Life and Career Skills  
☑ Information and Communication Technologies Literacy ☑ Communication and Collaboration ☑ Information Literacy  
| | | | | |
| **Careers:** | Applicable career options are discussed as they arise throughout the technology program. Career options include, but are not limited to, the following career clusters: Arts, A/V Technology, and Communications Career Cluster; Business, Management, and Administration Career Cluster; Education and Training Career Cluster; Government and Public Administration Career Cluster; Health Science Career Cluster; Hospitality and Tourism Career Cluster; Human Services Career Cluster; Information Technology Career Cluster; Law, Public Safety, Correction, and Security Career Cluster; Manufacturing Career Cluster; Marketing Career Cluster; Science, Technology, Engineering and Mathematics Career Cluster; Transportation, Distribution, and Logistics Career Cluster. | | | | |

*2010 Common Core Content Standards:

- RL: Reading Literature
- RI: Reading Informational Text
- W: Writing
- SL: Speaking and Listening
- L: Language
- N: Real Number System
- A: Algebra
- F: Functions
- G: Geometry
- MD: Measurement and Data
- S: Statistics and Probability
## Visual Basic

**Grade 9, 10, 11, or 12**

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### Essential Question:

- How can we convert between characters and unicode?
- How can strings be matched?
- How are loop structures utilized to control program flow?
- How may we tag objects within string expressions?
- How can we apply knowledge and skills gained to a real-world project?

### Content:

- **Unicode Programming**
- **Textual Comparisons among Strings**
- **Procedure Documentation**
- **Control Object Parameters**
- **Applications of Visual Basic**

### Skills and Topics:

- Utilize input boxes in applications
- Apply string class in programming code
- Define string concatenation and use string comparison in code
- Apply the Char structure and use it in code
- Apply unicode in programming code
- Apply unicode in programming code and understand pattern matching
- Create a sub procedure and use the Call statement
- Add an image to an application and use the Image class to change a graphic run time
- Describe arguments and parameters and how to pass data to a procedure
- Describe arguments and parameters and post-conditions of a procedure
- Use control object parameter
- Create event handlers for multiple events
- Apply the sender parameter and use the tag property to identify objects at run time
- Create function procedures and use Return statement
- Design and pilot a digital learning game to demonstrate knowledge and skills related to one or more content areas or a real-world situation

### Integration of Technology:

- Internet, Web Quests, wireless laptop computers, computer laboratory, SMART Boards, Visual Basic software, VoiceThread, Google Docs, email, MacBooks, iPads, video streaming, podcasting

### Writing:

- Open-ended responses, conclusions and analysis of exploratory activities

### Formative Assessments:

- Teacher observation, class participation, Do Now activities, opening activities, closing activities, programming code, authentic benchmark assessments
### Visual Basic
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Visual Basic
Course Requirements

Grade: 9, 10, 11, or 12  Prerequisite: None  Credit Value: 5
Length of Course: Academic Year

Course Description

Visual Basic is the first of a series of computer programming courses. Students who successfully complete this course may continue on to Visual C++. Students who are interested in a career in computer programming may also enroll in Advanced Placement Computer Programming. Benchmark assessments are employed to track individual student progress.

Course Content

This course will consist of the following units of study:
- Introducing Visual Basic
- Variables and Constants
- Application of Logic to Program Structure
- Controlling Program Flow with Decision Structures
- Controlling Program Flow with Looping Structures
- Unicode Programming
- Textual Comparisons among Strings
- Procedure Documentation
- Control Object Parameters
- Applications of Visual Basic

Course Objectives

The student will demonstrate the ability to answer in detail the following essential questions:
- What is object-oriented programming language?
- How are variables, constants, and scope utilized in programming?
- How are logic limitations applied to programming?
- How can long code be divided for easier reading?
- How are loop structures utilized to control program flow?
- How can we convert between characters and unicode?
- How can strings be matched?
Course Objectives (continued)

- How are loop structures utilized to control program flow?
- How may we tag objects within string expressions?
- How can we apply knowledge and skills gained to a real-world project?
- What are the post-graduation and/or career options that apply to the course content?

Evaluation Process

A final average of 65% or better is required to be awarded course credit. Throughout the length of this course, students may be evaluated on the basis of, but not limited to:

- Formative Assessments, such as writing prompts, journals, and portfolios
- Summative Assessments, such as quizzes, tests, and midterm and final examinations
- Performance Assessments, such as projects and presentations
- Technology-based Applications, such as electronic portfolios, Web Quests, ThinkQuest, and podcasting
- Class Participation
- Homework

Specific weights will be determined by course and level.
Visual Basic
Student Agreement

STUDENT NAME: ____________________________

Last Name      First Name

GRADE: ________________

My signature below indicates that I have received a copy of the Somerville Public Schools Course Requirements for Visual Basic.

I acknowledge my responsibility to read and understand all of the information contained in the Visual Basic Course Requirements information and syllabus packet.

__________________________       __________________
Student Signature          Date

Note: Please share the course requirements for Visual Basic with your parents.