

Unit 1 - Introduction to Computer Programming with Visual Basic

**Overview**

Throughout this course students will develop algorithms and apply logic to use a computer to solve and model a real world problem.

Throughout this course students learn how to use logic and sets of instructions to have a computer accomplish a task.

In this unit, students will gain a general understanding of what a computer program is, how it works, and how to write one using a language such as Visual Basic and an Integrated Development Language such as Microsoft Visual Studio. Students will understand the flow of a program, how to respond to user-generated events, how to add user interface elements to a form, and how to save and run a program. Students will become acquainted with much of the terminology as well as the technology that is used throughout the course.

**21<sup>st</sup> Century Capacities:** Imagining, Design

**Stage 1 - Desired Results**

ESTABLISHED GOALS/ STANDARDS

- MP 1** Make sense sense of problems and persevere in solving them
- MP4** Model with Mathematics
- MP5** Use appropriate tools strategically
- MP7** Look for and make use of structure

**Transfer:**

*Students will be able to independently use their learning in new situations to...*

1. Make sense of a problem, initiate a plan, execute it, and evaluate the reasonableness of the solution. (Imagining)
2. Use appropriate tools to make reaching solutions more efficient, accessible and accurate. (Imagining)
3. Evaluate the accuracy and efficiency of a given solution. (Design)

**Meaning:**

**UNDERSTANDINGS:** *Students will understand that:*

1. Effective problem solvers work to make sense of the problem before trying to solve it
2. Computer scientists flexibly use different tools, strategies, and operations to build conceptual knowledge or solve problems
3. Computer scientists compare the effectiveness

**ESSENTIAL QUESTIONS:** *Students will explore & address these recurring questions:*

- A. What is the problem?
- B. How can I break a problem down into manageable parts?
- C. What is another way that this problem could be solved?
- D. What math tools/models/strategies can I use to

## Introduction to Computer Science Level 1 & 2 Curriculum

	<p>of various arguments, by analyzing and critiquing solution pathways.</p> <p>4. Computer scientists continually evaluate their process and the reasonableness of the intermediate results.</p> <p>5. Computer scientists apply their domain knowledge to solve problems occurring in everyday life.</p>	<p>solve the problem?</p> <p>E. How can I use what I know in the world?</p>
<b>Acquisition:</b>		
	<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>1. What a computer program is</li> <li>2. Why computer science is important</li> <li>3. The difference between hardware and software</li> <li>4. What devices can be programmed</li> <li>5. What types of programming languages exist</li> <li>6. How computers encode data and logic</li> <li>7. How source code is converted into executable code</li> <li>8. How a program flows</li> <li>9. How to create, save, and run a program in Scratch</li> <li>10. How to create, save, and run a program in VB</li> <li>11. Where to place code to respond to various events (click, double click)</li> <li>12. How to use an assignment statement</li> <li>13. Vocabulary: bit, byte, IDE, hardware, software, object-oriented, compile, source code, Visual Basic (VB), form, button, textbox, label, listbox, checkbox, frame, option button, taborder, event, property, project, assignment statement, enable/disable, String</li> </ol>	<p><i>Students will be skilled at...</i></p> <ol style="list-style-type: none"> <li>1. Writing a basic Scratch program</li> <li>2. Following a program's logic by reading the program</li> <li>3. Creating and saving a VB project</li> <li>4. Manipulating the visibility and enabled status of basic user interface objects</li> <li>5. Moving between design and code windows</li> <li>6. Updating the value of properties at design and run time</li> </ol>