

<p><b>Essential Understandings</b></p>	<ul style="list-style-type: none"> <li>▪ Python is widely used (i.e., Google and NASA), yet it is a good language for beginning programmers to learn. Python is easy to learn and use. Python is powerful. Python is object-oriented.</li> <li>▪ Python is a “glue” or scripting language that runs on all operating systems.</li> <li>▪ Like a foreign language, programming languages have correct syntax, language structures and conventions that must be followed. In addition, they often require the ability to apply principles of mathematics, science, or business.</li> <li>▪ Computer programming languages like Python are used to create tools and software that greatly extend the reach and productivity of individuals and organizations (i.e., computer software, video games).</li> <li>▪ Computer programs are written, debugged, and tested in an Integrated Development Environment (IDE).</li> </ul>
<p><b>Essential Questions</b></p>	<ul style="list-style-type: none"> <li>▪ What is the best beginning language for learning (teaching) purposes and also for overall general usefulness later in our programming career?</li> <li>▪ How does one install Python and an Integrated Development Environment (IDE)?</li> <li>▪ What kinds of programs would a beginner be able to write?</li> <li>▪ Even though it is a good language for beginning programmers, will Python still be useful or expandable as one becomes a more experienced programmer?</li> <li>▪ How can Python be helpful in getting new software to market ahead of the competition?</li> </ul>
<p><b>Essential Knowledge</b></p>	<ul style="list-style-type: none"> <li>▪ All programming languages have similar structures (i.e. for loops, while loops, strings, lists or arrays).</li> <li>▪ The logical skills one would use to solve a particular problem using Python will work in most other programming languages with alterations in syntax and construction.</li> <li>▪ Learning a first programming language usually makes learning the second programming language much easier.</li> <li>▪ Python is good for beginners and powerful enough for expert programmers.</li> </ul>
<p><b>Vocabulary</b></p>	<ul style="list-style-type: none"> <li>▪ <u>Terms:</u> <ul style="list-style-type: none"> <li>○ Integrated Development Environment (IDE), Object Oriented Programming Language, Scripting Language, Interactive Mode, Python program</li> </ul> </li> </ul>
<p><b>Essential Skills</b></p>	<ul style="list-style-type: none"> <li>▪ Install Python and an Integrated Development Environment (IDE).</li> <li>▪ Enter and run a Python program in Interactive Mode.</li> <li>▪ Create, debug, run, and save a Python program.</li> <li>▪ Use an IDE effectively.</li> </ul>

<b>Related Maine Learning Results</b>	<u>Mathematics</u> A. Number Real Number A1.Students will know how to represent and use real numbers. a. Use the concept of nth root. b. Estimate the value(s) of roots and use technology to approximate them. c. Compute using laws of exponents. d. Multiply and divide numbers expressed in scientific notation. e. Understand that some quadratic equations do not have real solutions and that there exist other number systems to allow for solutions to these equations.
<b>Sample Lessons And Activities</b>	<ul style="list-style-type: none"><li>▪ Write <i>"Hello World"</i></li><li>▪ Create the <i>"Game Over"</i> program.</li></ul>
<b>Sample Classroom Assessment Methods</b>	<ul style="list-style-type: none"><li>▪ Print Your Name program and Quotable Quotes</li></ul>
<b>Sample Resources</b>	<ul style="list-style-type: none"><li>▪ <u>Publications:</u><ul style="list-style-type: none"><li>○ <u>Python Programming for the Absolute Beginner</u> – Michael Dawson</li></ul></li></ul>