

# AP Computer Science Unit 3: Conditionals and Loops

<b>Unit #:</b>	APSDO-00019437	<b>Duration:</b>	3.0 Week(s)	<b>Date(s):</b>	
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**Team:**  
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**Grades:**  
11, 12

**Subjects:**  
Mathematics, Science

## Unit Focus

In this unit, students will focus on how to use conditionals (if, if---else, switch) and repetition (for, while, do while) structures. Boolean statements are evaluated using truth tables. Efficiency are compared using big O notation. Summative assessments may include projects, labs and tests. Primary instructional materials include: Java Software Solutions for AP Computer Science, Lewis, Loftus and Cocking, Magpie Labs 1-4, APCentral Computer Science Course Webpage.

## Stage 1: Desired Results - Key Understandings

Established Goals	Transfer	
<p><b>Common Core</b> <i>Mathematics: 11</i></p> <ul style="list-style-type: none"> <li>• Look for and express regularity in repeated reasoning. <i>CCSS.MATH.MP.8</i></li> <li>• Look for and make use of structure. <i>CCSS.MATH.MP.7</i></li> <li>• Make sense of problems and persevere in solving them. <i>CCSS.MATH.MP.1</i></li> </ul>	<p><b>T1</b> (T50) Based on an understanding of any problem, initiate a plan, execute it and evaluate the reasonableness of the solution.</p> <p><b>T2</b> (T53) Articulate how mathematical concepts relate to one another in the context of a problem or in the theoretical sense.</p> <p><b>T3</b> (T51) Examine alternate methods to accurately and efficiently solve problems.</p> <p><b>T4</b> (T52) Use appropriate tools strategically to deepen understanding of mathematical concepts.</p>	
	Meaning	
	Understandings	Essential Questions
	<p><b>U1</b> (U503) Effective problem solvers try multiple strategies when struggling.</p> <p><b>U2</b> (U502) Effective problem solvers identify and apply an appropriate model, tool, or</p>	<p><b>Q1</b> (Q506) If my answer isn't correct or doesn't make sense, how can I fix it? How can I avoid this error the next time?</p> <p><b>Q2</b> (Q506) If my answer isn't correct or</p>

	<p>strategy.</p> <p><b>U3</b> (U510) Every problem is a member of a category of problems that has a similar structure and set of characteristics.</p> <p><b>U4</b> (U510) Every problem is a member of a category of problems that has a similar structure and set of characteristics.</p>	<p>doesn't make sense, how can I fix it? How can I avoid this error the next time?</p> <p><b>Q3</b> (Q504) What do I do when I get stuck?</p> <p><b>Q4</b> (Q503) What strategies/approaches are best for this problem?</p> <p><b>Q5</b> (Q510) What type(s) of problem is this?</p>
<b>Acquisition of Knowledge and Skill</b>		
	<b>Knowledge</b>	<b>Skills</b>
		<p><b>S1</b></p> <p>Use conditionals, boolean logic and repetition constructs in general and with in the Java language constructs</p> <p><b>S2</b></p> <p>Hand trace code to analyze flow of control and predict outcomes</p> <p><b>S3</b></p> <p>Debug own code and other students' code</p>
<b>Stage 3: Learning Plan</b>		
<b>Coding</b>	<b>Code</b>	<b>Description of Learning Activity</b>