

# AP Computer Science Unit 6: Inheritance and Polymorphism

<b>Unit #:</b>	APSDO-00019741	<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 focus on how to use inheritance to write super classes and sub classes. Polymorphism is explored through class hierarchies and interfaces. Students will learn the "is a" relationship that is systemic of inheritance. Summative assessments may include projects, labs and tests. Primary instructional materials include: Java Software Solutions for AP Computer Science, Lewis Loftus and Cocking, APCentral Computer Science Course Webpage.

## Stage 1: Desired Results - Key Understandings

Established Goals	Transfer	
<p><b>Common Core</b> <i>Mathematics: 12</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> </ul>	<p><b>T1</b> (T51) Examine alternate methods to accurately and efficiently solve problems.</p> <p><b>T2</b> (T24) Classify, interpret, and compare functions or equations.</p> <p><b>T3</b> (T40) Describe, classify, and compare objects by their attributes.</p>	
	Meaning	
	Understandings	Essential Questions
	<p><b>U1</b> (U502) Effective problem solvers identify and apply an appropriate model, tool, or strategy.</p> <p><b>U2</b> (U510) Every problem is a member of a category of problems that has a similar structure and set of characteristics.</p> <p><b>U3</b> (U530) Every problem belongs to a</p>	<p><b>Q1</b> (Q501) What do I picture/visualize when I look at this problem?</p> <p><b>Q2</b> (Q503) What strategies/approaches are best for this problem?</p> <p><b>Q3</b> (Q510) What type(s) of problem is this?</p> <p><b>Q4</b> (Q531) What values, numbers, quantities, and/or symbols can be used to solve a</p>

	category of problems that has a similar structure and set of characteristics; which means it can be solved using a similar model. <b>U4</b> (U560) Patterns and structures are characterized by consistent relationships. <b>U5</b> (U560) Patterns and structures are characterized by consistent relationships.	problem? <b>Q5</b> (Q531) What values, numbers, quantities, and/or symbols can be used to solve a problem?
<b>Acquisition of Knowledge and Skill</b>		
<b>Knowledge</b>		<b>Skills</b>
		<p><b>S1</b> The use and creation of sub classes of a given super class</p> <p><b>S2</b> The use and interpretation of class hierarchies</p> <p><b>S3</b> The use of interfaces and super classes in the application of polymorphisms</p> <p><b>S4</b> The use of overridden methods</p>
<b>Stage 3: Learning Plan</b>		
<b>Coding</b>	<b>Code</b>	<b>Description of Learning Activity</b>