Unit 6: Inheritance & Polymorphism (4 weeks)

The following curriculum map is a day-by-day listing of the AP Computer Science course in chronological order. Each row represents one day of class, based on a medium-paced class. Readings from the textbook and homework assignments are included on the day when they should be assigned. Refer to the Introduction document for information about how to adjust this pacing for your specific classroom.

- Unit 6 Slides
- Unit 6 Word Bank
- Curriculum Assets
- Text Excel

LP	Title	In Class	Reading	Homework
6.00	Test Review & Reteach	(Review test)	9.1	Test corrections
6.01 01	Inheritance Basics (day 1)	WS 6.1 Start class poster Example 6.1	"9.2 up to""Dividend Stock Behavior"""	Collect images
6.01 02	Inheritance Basics (day 2)	Finish class poster, discuss		
6.02	Overriding Methods & Accessing Inherited Code	WS 6.2	Rest of 9.2 starting from "The Object Class."	
6.03	Interacting with the Object Superclass	Practice SC 9.3, 9.4, 9.9, 9.10, E 9.4; WS 6.3 Poster 6.3	9.3 up to "Interpreting Inheritance Code."	
6.04	Polymorphism	WS 6.4.1 WS 6.4.2 SC 9.11-9.17	Rest of 9.4 "Is-a Versus Has-a Relationships."	SC 9.18, 9.20
6.05	Has-a Relationships	WS 6.5 Value Meal exercise?	9.5 (Optional if covering Interfaces)	
6.06	Interfaces (optional)	[Interface examples][] Poster 6.6	9.6 (Optional if covering Abstract classes	Generate own class hierarchy like Financial hierarchy in book
6.07 01	Programming project (day 1)	PP 9.1, notebook checks		Outline Ch. 9
6.07 02	Programming project (day 2)	PP 9.1, outline checks	Read and outline Barron's Ch. 4 (8th or later: Ch. 5)	
6.07 03	Programming project (day 3)	PP 9.3		Barron's Ch. 4 (8th or later: Ch. 5) exam, self-grade
6.07 04	Programming project (day 4)	E 9.8	Read and outline Barron's Ch. 3 (8th or later: Ch. 4)	

LP	Title	In Class	Reading	Homework
6.07 05	Programming project (day 5)	Barron's Ch. 3 (8th or later: Ch. 4) exam, outline checks	Review Ch. 9	Submit questions for review
6.07a 01	Celebrity Lab (day 1)	Celebrity Lab Activity 1, notebook checks		Outline Ch. 9
6.07a 02	Celebrity Lab (day 2)	Celebrity Lab Activity 2, outline checks	Read and outline Barron's Ch. 4 (8th or later: Ch. 5)	
6.07a 03	Celebrity Lab (day 3)	Celebrity Lab Activity 3		Barron's Ch. 4 (8th or later: Ch. 5) exam, self-grade
6.07a 04	Celebrity Lab (day 4)	Celebrity Lab Activity 4	Read and outline Barron's Ch. 3 (8th or later: Ch. 4)	
6.07a 05	Celebrity Lab (day 5)	Celebrity Lab Activity 5	Review Ch. 9	Submit questions for review
6.07a 06	Celebrity Lab (day 5)	Celebrity Lab Activity 5 (day 2)	Review Ch. 9	Submit questions for review
6.07a 07	Celebrity Lab (day 5)	Celebrity Lab Activity 5 (day 3), outline checks	Review Ch. 9	Submit questions for review
6.08	Finding & Fixing Errors	(Fix HW)	Review Ch. 9	Submit questions for review
6.09	Review	Review questions WS 6.5 Test practice		Study
6.99	Unit 6 test	Test 5 Guide Test 5 Section I Test 5 Section II		
6.XX	[Text Excel][]	Text Excel Student Guide A Text Excel Student Guide B Text Excel Student Guide C Text Excel Teacher Guide		

6.00

Lesson 6.00	*Test Review & Reteach*
Objectives	Students will re-learn or strengthen content knowledge and skills from Unit 5.

Lesson 6.00	*Test Review & Reteach*
Assessments	Students will re-submit test answers with updated corrections for partial or full credit, depending on instructor preference.
In Class	Review test
Reading	9.1
Homework	Test corrections

6.01.1

Lesson 6.01	*Inheritance Basics (Day 1)*
Objectives	Students will correctly define inheritance Students will use proper syntax to extend a class. Students will illustrate is-a relationships. Students will properly implement constructors of derived classes using super.
Assessments	Students will complete a Class Hierarchy Poster as indicated in WS 6.1.
In Class	WS 6.1 Start class poster Example 6.1
Reading	9.2 up to "*Dividend Stock Behavior*"
Homework	Collect images

6.01.2

Lesson 6.01	*Inheritance Basics (Day 2)*
Objectives	
Assessments	
In Class	Finish class poster Discussion
Reading	
Homework	

6.02

Lesson 6.02	*Overriding Methods & Accessing Inherited Code*
Objectives	Students will replace superclass behavior by writing overriding methods in the subclass. Students will write subclass methods that access superclass methods.
Assessments	Students will add code to their Class Posters from the previous lesson.
In Class	WS 6.2
Reading	Rest of 9.2 starting from "*The Object Class*"
Homework	

6.03

Lesson 6.03	*Interacting with the Object Superclass*
Objectives	Students will replace superclass behavior by writing overriding methods in the subclass. Students will write subclass methods that access superclass methods.
Assessments	Students will complete Practice questions Students will complete a worksheet.
In Class	Practice SC 9.3–4,9–10 E 9.4 WS 6.3 Poster 6.3
Reading	9.3 up to "*Interpreting Inheritance Code*"

Lesson 6.03	*Interacting with the Object Superclass*
Homework	

6.04

Lesson 6.04	*Polymorphism*
Objectives	Students will define polymorphism. Students will trace the execution of methods through a class hierarchy and predict output.
Assessments	Students will complete a Tracing Inheritance guide and complete worksheet 6.4.
In Class	WS 6.4.1 WS 6.4.2 SC 9.11–17
Reading	Rest of 9.4 "*Is-a Versus Has-a Relationships*"
Homework	SC 9.18,20

6.05

Lesson 6.05	*Has-a Relationships*
Objectives	Students will be able to identify and explain why two classes have an is-a or a has-a relationship. Students will be able to create a has-a relationship between two classes.
Assessments	Students will complete an AP Section II question "*Trio*"
In Class	WS 6.5 ValueMeal exercise
Reading	9.5 (Optional if covering Interfaces)
Homework	

6.06

Lesson 6.06	*Interfaces (Optional)*
Objectives	Students will implement and use interfaces.
Assessments	Students will complete an in-class competition.
In Class	Interface examples Poster 6.6
Reading	9.6 (Optional if covering Abstract classes)
Homework	Generate own class hierarchy like Financial hierarchy in book

6.07.1

Lesson 6.07	*Programming project (Day 1)*
Objectives	Students will write complex code that uses polymorphism, and inheritance.
Assessments	Students will submit a program electronically.
In Class	PP 9.1 Notebook checks
Reading	
Homework	Outline Ch. 9

6.07.2

Lesson 6.07	*Programming project (Day 2)*
Objectives	
Assessments	
In Class	PP 9.1 Outline checks
Reading	Read and outline Barron's Ch. 4 (8th or later: Ch. 5)
Homework	

6.07.3

Lesson 6.07	*Programming project (Day 3)*
Objectives	
Assessments	
In Class	PP 9.3
Reading	
Homework	Barron's Ch. 4 (8th or later: Ch. 5) exam, self-grade

6.07.4

Lesson 6.07	*Programming project (Day 4)*
Objectives	
Assessments	
In Class	EX 9.8
Reading	Read and outline Barron's Ch. 3 (8th or later: Ch. 4)
Homework	

6.07.5

Lesson 6.07	*Programming project (Day 5)*
Objectives	
Assessments	
In Class	Barron's Ch. 3 (8th or later: Ch. 4) exam, Outline checks
Reading	Review Ch. 9
Homework	Submit questions for review

6.07a.1

Lesson 6.07a	Celebrity Lab (Day 1)_
Objectives	Students will complete a long-form lab, using classes, objects, two dimensional arrays of objects, array traversing algorithms, program analysis, while/for loops.
Assessments	Students will complete the College Board's AP CS A Celebrity Lab. Students will answer end of activity Check your understanding and open-ended activity.
In Class	Celebrity Lab Activity 1 Notebook checks
Reading	
Homework	Outline Ch. 9

6.07a.2

Lesson 6.07a	Celebrity Lab (Day 2)_
Objectives	
Assessments	
In Class	Celebrity Lab Activity 2 Outline checks
Reading	Read and outline Barron's Ch. 4 (8th or later: Ch. 5)
Homework	

6.07a.3

Lesson 6.07a	Celebrity Lab (Day 3)_
Objectives	
Assessments	
In Class	Celebrity Lab Activity 3
Reading	
Homework	Barron's Ch. 4 (8th or later: Ch. 5) exam, self-grade

6.07a.4

Lesson 6.07a	Celebrity Lab (Day 4)_
Objectives	
Assessments	
In Class	Celebrity Lab Activity 4
Reading	Read and outline Barron's Ch. 3 (8th or later: Ch. 4)
Homework	

6.07a.5

Lesson 6.07a	Celebrity Lab (Day 5)_
Objectives	
Assessments	
In Class	Celebrity Lab Activity 5, Outline checks
Reading	Review Ch. 9
Homework	

6.07a.6

Lesson 6.07a	Celebrity Lab (Day 6)_
Objectives	
Assessments	
In Class	Celebrity Lab Activity 5 (day 2), Outline checks
Reading	Review Ch. 9
Homework	

6.07a.7

Lesson 6.07a	Celebrity Lab (Day 7)_
Objectives	
Assessments	

Lesson 6.07a	Celebrity Lab (Day 7)_
In Class	Celebrity Lab Activity 5 (day 3), Outline checks
Reading	Review Ch. 9
Homework	Submit questions for review

6.08

Lesson 6.08	*Finding & Fixing Errors*
Objectives	Students will find errors in their returned homework assignments, and correct their code.
Assessments	Students will re-submit all homework assignments with corrected answers.
In Class	Fix homework
Reading	Review Ch. 9
Homework	Submit questions for review

6.09

Lesson 6.09	*Review*
Objectives	Students will identify weaknesses in their Unit 6 knowledge.
Assessments	Students will create a personalized list of review topics to guide tonight's study session.
In Class	Review questions WS 6.5 Test practice
Reading	
Homework	Study

6.99

Unit 6 Test	*Inheritance and Polymorphism*
Guide	Test 5 Guide
In Class	Test 5 Section I Test 5 Section II

6.XX

Unit 6 Project	*Text Excel*
In Class	[Text Excel][] Text Excel Student Guide A Text Excel Student Guide B Text Excel Student Guide C Text Excel Teacher Guide

Abbreviations

- **WS** — Worksheet
- **SC** — Self-Check problem (in the textbook)
- **EX** — Exercise (in the textbook)
- **PP** — Programming Project (in the textbook)