

Wyoming Department of Education Required Virtual Education Course Syllabus

Niobrara County School District # 1

Program Name	Wyoming Virtual Academy	Content Area	VE
Course ID	TCH-036V1-G	Grade Level	9-12
Course Name	Computer Science	# of Credits	0.5
SCED Code	10002G0.5012	Curriculum Type	K12 Inc

COURSE DESCRIPTION

This course introduces students to computer science concepts such as computer architecture, networks, and the Internet. Students use object-oriented programming, event-driven processes, modular computer programming, and data manipulation algorithms to produce finished software programs. They use the design process to create many programs by determining specifications, designing the software, and testing and improving the product until it meets the specifications. By the end of this course, students will have a solid foundation for further study in this subject.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
CV12.2.1	College and career-ready students communicate clearly, effectively, and with reason.
CV12.2.4	College and career-ready students apply safe, legal, and responsible use of information and technology as appropriate to the task.
CV12.3.1	College and career-ready students identify and define authentic problems and significant questions for investigation.
CV12.3.2	College and career-ready students identify trends, forecast possibilities, and explore complex systems and issues.
CV12.3.3	College and career-ready students employ valid and reliable research strategies and apply prior knowledge to solve a problem or complete a project.
CV12.3.4	College and career-ready students demonstrate creativity and innovation while considering the environmental, social, and economic impacts of decisions.
CV12.4.2	College and career-ready students determine the meaning of symbols, key terms, and other content-specific words and phrases as they are used in technical context. (*Adapted from CCSS RL.9.11)
CV12.4.3	College and career-ready students acquire, manipulate, analyze, diagnose, and/or report information, using the appropriate technology.
CV12.4.4	College and career-ready students precisely follow a complex multistep procedure when performing technical tasks. (*Adapted from CCSS RL.9.3)
CV12.5.1	College and career-ready students manage resources to develop, analyze, and implement systems and applications.
CV12.5.2	College and career-ready students productively complete tasks taking constraints, priorities and resources into account.
CV12.5.3	College and career-ready students safely and ethically use current industry-standard tools and emerging technologies.
CV12.5.4	College and career-ready students utilize technology to develop innovative solutions or products.

SCOPE AND SEQUENCE		
UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Unit 1: Course Overview 1.01 Start the Course	0	Identify computer requirements. Recognize different operating systems. Demonstrate how to switch between windows.
Unit 1: Course Overview 1.02 Set Up Your Computer	0	Organize files and folders on a computer. Set up a computer to show the List folder view and filename extensions. Make a course folder.
Unit 1: Course Overview 1.03 Set Up a Browser	0	Demonstrate how to set up a Web browser. Recognize reasons for zipping and unzipping files and folders.
Unit 1: Course Overview 1.04 Download Resources and Zip Assignments	0	0
Unit 2: Starting with Python 2.01 Draw a Line 2.05 Study Questions: Starting with Python	CV12.2.1, CV124.2	Describe computer programming. Describe Python as a programming language. Identify the steps to open Python Turtle Graphics window. Describe the Python (command line) interpreter. Describe window freezing in the Windows environment and the steps to deal with it. Identify the steps to draw a line using the Python turtle program. Interpret Python code. Describe argument in the context of computer programming. Describe shape() command in the turtle program. Describe forward() command in the turtle program. Describe the use of cursor in writing commands in the Python window. Identify and fix the error in the Python code.

		<p>Describe the undo and the reset commands.</p> <p>Identify the commands to close a turtle graphics window.</p> <p>Identify the steps to close the turtle graphics window and the Python (command line) window.</p>
<p>Unit 2: Starting with Python 2.02 Draw Shapes</p>	0	<p>Identify the steps to open Python Turtle Graphics window.</p> <p>Describe turtle in the context of Python.</p> <p>Identify the commands to move the turtle in Python.</p> <p>Identify and fix the error in the Python code.</p> <p>Describe the method of drawing shapes using the turtle in Python.</p> <p>Identify the steps to draw shapes using turtle in Python.</p> <p>Describe the circle() command of turtle in Python.</p> <p>Define radius of a circle.</p> <p>Identify the steps to use the circle() command of turtle in Python.</p> <p>Describe multiple arguments in the context of Python.</p> <p>Describe the color() command in Python.</p> <p>Describe the two ways for choosing colors with the color() command.</p> <p>Choose color using the color() command in Python.</p>
<p>Unit 2: Starting with Python 2.03 Write a Program</p>	0	<p>Describe IDLE software program.</p> <p>Identify the steps to open IDLE software program.</p> <p>Describe Python Shell.</p> <p>Identify the steps to print words on the Python Shell window.</p>

		<p>Describe the text editor as a tool of IDLE software program.</p> <p>Identify the steps to open the text editor.</p> <p>Identify the importance of saving files in IDLE software program.</p> <p>Identify the steps to save Python program in IDLE software program.</p> <p>Describe the Undo command in the Python text editor.</p> <p>Identify the steps to start writing a turtle drawing program.</p> <p>Identify the steps to check the typed code and fix it if necessary.</p> <p>Describe the concept of running a program.</p> <p>Identify the steps to run a turtle program.</p> <p>Identify the steps to draw a square using turtle program.</p> <p>Identify the steps to draw a circle, a square, and a triangle using the circle() command.</p> <p>Identify and fix the error in the Python code.</p> <p>Describe the exitonclick() command.</p> <p>Identify the steps to add the exitonclick() command to the turtle drawing program.</p>
Unit 2: Starting with Python 2.04 Unit Review: Starting with Python	0	0
Unit 2: Starting with Python 2.06 Quiz: Starting with Python	CV12.4.2	0
Unit 2: Starting with Python 2.07 Assignment 1: Starting with Python	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0

Unit 2: Starting with Python 2.08 Assignment 2: Starting with Python	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 2: Starting with Python 2.08 Assignment 2: Starting with Python (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 2: Starting with Python 2.09 Assignment 3: Starting with Python	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 2: Starting with Python 2.09 Assignment 3: Starting with Python (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 3: Graphical Hello World 3.01 Draw an H 3.06 Study Questions: Graphical Hello World	CV12.2.1, CV12.4.2	<p>Identify codes written in different programming languages.</p> <p>Identify the steps to open a Python program in IDLE's text editor.</p> <p>Identify the use of turtle in drawing letter shapes in Python.</p> <p>Identify the X and Y coordinates of points on a grid.</p> <p>Identify the steps to move the turtle to a specific location using goto() command in Python.</p> <p>Identify the steps to move the turtle to stop and start drawing using penup() and pendown() commands in Python.</p> <p>Identify the steps to draw an alphabet in Python.</p>
Unit 3: Graphical Hello World 3.02 Comments and Spaces		<p>Identify the steps to add comments to a code in Python.</p> <p>Identify the steps to write code that adds space between letters in Python.</p>

		<p>Identify the steps to draw an alphabet in Python.</p> <p>Describe the code reuse technique.</p> <p>Identify the steps to use the code reuse technique in Python.</p>
Unit 3: Graphical Hello World 3.03 Define a Function	0	<p>Describe a function in Python.</p> <p>Identify the steps to define a function in Python.</p> <p>Describe the concept of whitespace in computer programming.</p> <p>Identify the steps to call a function in Python.</p>
Unit 3: Graphical Hello World 3.04 Define the Letter Functions	0	<p>Identify the steps to define a function in Python.</p> <p>Identify the steps to call a function in Python.</p> <p>Identify steps to organize function definitions and function calls in the correct order in Python.</p>
Unit 3: Graphical Hello World 3.05 Unit Review: Graphical Hello World	0	0
Unit 3: Graphical Hello World 3.07 Quiz: Graphical Hello World	CV12.4.2	0
Unit 3: Graphical Hello World 3.08 Assignment 1: Graphical Hello World	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 3: Graphical Hello World 3.08 Assignment 1: Graphical Hello World (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 3: Graphical Hello World 3.08 Assignment 1: Graphical Hello World (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 3: Graphical Hello World 3.09 Assignment 2: Graphical Hello World	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0

Unit 3: Graphical Hello World 3.09 Assignment 2: Graphical Hello World (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 3: Graphical Hello World 3.10 Assignment 3: Graphical Hello World	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 3: Graphical Hello World 3.10 Assignment 3: Graphical Hello World (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 4: Variables 4.01 Values and Variables 4.06 Study Questions: Variables	CV12.2.1, CV12.4.2	<p>Identify the steps to open the IDLE software program.</p> <p>Describe a value in the context of computer programming.</p> <p>Identify different types of values in computer programming.</p> <p>Identify the steps to enter strings in Python Shell.</p> <p>Describe an integer in the context of computer programming.</p> <p>Describe a floating point number in the context of computer programming.</p> <p>Identify the steps to type numbers in Python Shell.</p> <p>Identify different operators used in Python Shell.</p> <p>Describe variables in the context of computer programming.</p> <p>Identify the rules for naming variables in Python Shell.</p> <p>Identify meaningful variables names for a value in Python.</p> <p>Identify the points to consider while assigning a</p>

		<p>value to a variable in Python.</p> <p>Differentiate between variables and data types in Python.</p> <p>Identify the steps to assign integer values to variables in Python.</p>
<p>Unit 4: Variables 4.02 Changing Variable Values</p>	0	<p>Identify the steps to open the IDLE software program.</p> <p>Identify the steps to change the value of a variable in Python.</p> <p>Describe how Python performs the operation when values that contain operators are entered.</p> <p>Identify the steps to change the values of variables in Python.</p> <p>Describe concatenation in Python.</p> <p>Describe concatenation of variables and strings in Python.</p> <p>Identify the steps to assign string values to variables in Python.</p>
<p>Unit 4: Variables 4.03 Functions and Variables</p>	0	<p>Identify the steps to open a Python program in IDLE's text editor.</p> <p>Identify the steps to save a Python program in IDLE.</p> <p>Identify the steps to save a Python program in IDLE.</p> <p>Identify the steps to assign value to a variable in Python.</p> <p>Identify the steps to run a Python program.</p>
<p>Unit 4: Variables 4.04 Finish Adding Variables</p>	0	<p>Identify the steps to open a Python program in IDLE's text editor.</p> <p>Identify the steps to add variables to the draw_() function definition in Python.</p> <p>Identify the steps to run a Python program.</p> <p>Identify the steps to change the value of a variable in Python.</p>

		<p>Identify the steps to assign value to a variable in Python.</p> <p>Describe the input() function in Python.</p> <p>Identify the steps to use input() function in Python.</p>
Unit 4: Variables 4.05 Unit Review: Variables	0	0
Unit 4: Variables 4.07 Quiz: Variables	CV12.4.2	0
Unit 4: Variables 4.08 Assignment 1: Variables	CV12.2.4, CV12.3.1, CV12.3.3, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 4: Variables 4.08 Assignment 1: Variables (cont.)	CV12.2.4, CV12.3.1, CV12.3.3, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 4: Variables 4.09 Assignment 2: Variables	CV12.2.4, CV12.3.1, CV12.3.3, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 4: Variables 4.09 Assignment 2: Variables (cont.)	CV12.2.4, CV12.3.1, CV12.3.3, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 4: Variables 4.10 Assignment 3: Variables	CV12.2.4, CV12.3.1, CV12.3.3, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 4: Variables 4.10 Assignment 3: Variables (cont.)	CV12.2.4, CV12.3.1, CV12.3.3, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 5: Loops 5.01 The for Loop 5.05 Study Questions: Loops	CV12.2.1, CV12.4.2	<p>Identify the steps to open the IDLE software program.</p> <p>Identify the steps to write numbers and strings using the print() function in the IDLE Shell.</p> <p>Describe a loop in the context of computer programming.</p>

		<p>Define iteration in the context of computer programming.</p> <p>Describe the control flow programming technique.</p> <p>Identify the use of loop and iterator variable.</p> <p>Identify how the range() function works in Python.</p> <p>Identify how to use range() function with for loop.</p> <p>Identify the steps to write a for loop using the range() function in Python.</p> <p>Describe a for loop made up of Python code.</p> <p>Identify and fix the error in the Python code.</p> <p>Identify the steps to print iterator variables and strings using the print() function with arguments in Python.</p> <p>Identify the steps to create and save a new program using the turtle program in Python.</p> <p>Identify the steps to draw shapes using loops.</p> <p>Describe how the speed() function works in the turtle program.</p> <p>Identify the steps to use the speed() function to slow the turtle down.</p>
<p>Unit 5: Loops 5.02 Continue Looping</p>	<p>0</p>	<p>Identify the steps to open a Python program in the text editor.</p> <p>Identify the steps to comment out code in Python.</p> <p>Define an angle.</p> <p>Identify the steps to draw different shapes by changing the angle of the turn that turtle makes in Python.</p> <p>Describe an object in the context of the Python programming language.</p>

		<p>Define class and instance in the context of the Python programming language.</p> <p>Describe Turtle() class in turtle program.</p> <p>Identify the use of loop and iterator variable.</p> <p>Identify the steps to create multiple turtles and draw with them in Python.</p> <p>Identify the steps to comment out the movement of a turtle in Python.</p> <p>Identify the steps to use iterator variable in a loop to make turtle instance draw sides that increase in size during each iteration of the loop.</p>
		<p>Identify the steps to open a Python program in the text editor.</p> <p>Identify the steps to save Python program in IDLE.</p> <p>Identify the steps to write a HELLO() function definition made up of the draw letter functions.</p> <p>Identify the steps to comment out code in Python.</p> <p>Identify the steps to change line width using the loop and the iterator variable in Python.</p> <p>Identify the steps to spin a word around a central point using the loop and the iterator variable in Python.</p> <p>Describe the term computer bug.</p> <p>Describe the common types of computer bugs.</p> <p>Identify different techniques of debugging.</p>
Unit 5: Loops 5.03 Loops and Bugs	0	Identify and fix the error in the Python code.
Unit 5: Loops 5.04 Unit Review: Loops	0	0
Unit 5: Loops 5.06 Quiz: Loops	CV12.4.2	0
Unit 5: Loops 5.07 Assignment 1: Loops	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4,	0

	CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	
Unit 5: Loops 5.07 Assignment 1: Loops (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 5: Loops 5.08 Assignment 2: Loops	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 5: Loops 5.08 Assignment 2: Loops (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 5: Loops 5.09 Assignment 3: Loops	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 5: Loops 5.09 Assignment 3: Loops (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 6: A Drawing Program 6.01 IDLE Preparation 6.05 Study Questions: A Drawing Program	CV12.2.1, CV12.4.2	Identify the steps to open IDLE software program. Identify the uses of help() function in Python. Describe the three categories of Python help terms. Identify the steps to use the help() function in Python. Describe interactivity in the context of computing. Describe Graphical User Interface in the context of computer operating systems. Describe the Tkinter Graphical User Interface package.

		<p>Describe the purpose of file manager program.</p> <p>Describe different operating systems and their specific file manager programs.</p> <p>Describe file path in the context of file system.</p> <p>Describe the concept of nested folder.</p> <p>Identify how Windows and Mac operating systems handle file paths.</p> <p>Describe the purpose of file shortcut in operating systems.</p> <p>Describe the term application as a computer program.</p> <p>Identify the steps to make sure the IDLE shortcut works in Windows operating system.</p> <p>Identify the steps to make sure the IDLE shortcut works in Mac OS X operating system.</p> <p>Choose the type of operating system to make sure the IDLE shortcut works.</p>
<p>Unit 6: A Drawing Program 6.02 Click the Turtle</p>	<p>0</p>	<p>Identify the steps to use the IDLE interactive shortcut to open IDLE.</p> <p>Identify the steps to create and save a new program file in Python.</p> <p>Describe user created event in computer programming.</p> <p>Describe event handler in the context of computer programming.</p> <p>Describe callback function in the context of computer programming.</p> <p>Describe click events in the context of computer programming.</p> <p>Describe the concept of registering a callback function in computer programming.</p> <p>Identify the objects that can be the target of a click event in a turtle module.</p>

		<p>Describe onclick()function in the turtle program.</p> <p>Identify the steps to define a callback function that will be used in the onclick() function in Python.</p> <p>Identify the steps to call a onclick() function and run a callback function when the user clicks the turtle in Python.</p> <p>Identify the steps to add another function to the callback function definition in Python.</p> <p>Define button in the context of turtle program.</p> <p>Identify the steps to create new turtle instances as separate variables in Python.</p> <p>Identify the purpose of placing new turtles in different starting locations.</p> <p>Identify the steps to move new turtles to separate starting spots in Python.</p> <p>Describe usability as a measure to assess the ease of using a graphical software program.</p> <p>Identify the steps to add different colors and shapes to the turtle buttons in Python.</p> <p>Describe the concept of targeting a turtle button in Python.</p> <p>Identify the steps to change the onclick() function to target a turtle button that will control another turtle in Python.</p>
<p>Unit 6: A Drawing Program 6.03 Finish the onclick Program</p>	<p>0</p>	<p>Identify the steps to use the IDLEinteractive shortcut to open IDLE.</p> <p>Identify the steps to open a python program in IDLE.</p> <p>Identify the purpose of creating copies of a callback() function definition.</p> <p>Identify the steps to copy, paste, and edit a callback() function definition to reuse it for different turtle buttons in Python.</p>

		<p>Describe the click and drag event in computer graphical user interfaces.</p> <p>Describe the uses of <code>ondrag()</code> function in Python.</p> <p>Identify the bugs while using <code>ondrag()</code> function and the ways to fix them in Python.</p> <p>Identify the steps to make a drawing turtle draggable in Python.</p> <p>Describe the uses of <code>listen()</code> function in Python.</p> <p>Describe active window in the context of computer programming.</p> <p>Describe the <code>onkey()</code> function in Python.</p> <p>Identify the steps to clean the screen using the <code>onkey()</code> function and reset the turtle position with SPACEBAR key in Python.</p> <p>Identify the purpose of docstrings in Python.</p> <p>Describe how Python recognizes a docstring.</p> <p>Describe how to print a docstring on the screen in python.</p> <p>Describe the term attribute in the context of computer programming.</p> <p>Identify the steps to read a docstring of turtle module in Python.</p> <p>Identify the steps to add a docstring to interactive drawing program in Python.</p> <p>Identify the steps to make the unnamed drawing turtle draggable.</p>
Unit 6: A Drawing Program 6.04 Unit Review: A Drawing Program	0	0
Unit 6: A Drawing Program 6.06 Quiz 5: A Drawing Program	CV12.4.2	0
Unit 6: A Drawing Program 6.07 Assignment 1: A Drawing Program	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4,	0

	CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	
Unit 6: A Drawing Program 6.07 Assignment 1: A Drawing Program (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 6: A Drawing Program 6.08 Assignment 2: A Drawing Program	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 6: A Drawing Program 6.08 Assignment 2: A Drawing Program (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 6: A Drawing Program 6.09 Assignment 3: A Drawing Program	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 6: A Drawing Program 6.09 Assignment 3: A Drawing Program (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 7: Software Development 7.01 A Simple Model of Software Development 7.07 Study Questions: Software Development	CV12.2.1, CV12.4.2	Describe the software development process. Identify the stages in the simple model of software development process. Identify the stages of the software development process used for solving problems.
Unit 7: Software Development 7.02 Exploring Software Development		Define formal and informal development methodologies context of software development. Identify the need for creating a new software model or project. Describe waterfall model stages of software design. 0 Describe how iterative and incremental models of

		<p>software development work.</p> <p>Describe spiral model stages of software development.</p> <p>Describe open source and closed source software.</p> <p>Identify roles of members of a software designing team.</p> <p>Identify the factors that help in meeting the scheduled timelines while developing a project.</p>
<p>Unit 7: Software Development 7.03 Developing Solutions</p>	<p>0</p>	<p>Identify formal or informal development methodologies for creating a new software program.</p> <p>Identify the problems to be solved in software development process.</p> <p>Define client, stakeholder, and end user in the context of software development.</p> <p>Define Software Requirements Specification in the context of software development.</p> <p>Identify the types of client requirements in the context of software development.</p> <p>Identify ways to find possible solutions of a problem in software development process.</p> <p>Define dependency in the context of software development.</p> <p>Define scope of work (SOW) in the context of software development process.</p> <p>Identify requirements and constraints while selecting the best solution to a problem in software development process.</p>
<p>Unit 7: Software Development 7.04 Planning</p>	<p>0</p>	<p>Define functional specification and use case in the context of software development.</p> <p>Describe ways to create a detailed plan for the software program.</p> <p>Describe software architecture documentation.</p> <p>Describe programming paradigm.</p>

		<p>flowchart in the context of diagramming software architecture.</p> <p>Describe shelfware in the context of diagramming software architecture.</p>
<p>Unit 7: Software Development 7.05 Writing and Testing</p>	0	<p>Describe code style in the context of writing code of a software program.</p> <p>Identify the purpose of coding principles in software development process.</p> <p>Identify the steps to access the Zen of Python, a set of design principles, used to write codes in the Python programming language.</p> <p>Describe style guide as a document providing details about writing consistent codes.</p> <p>Use the Python Style Guide recommendations to write consistent codes in the Python programming language.</p> <p>Identify common methods for organizing the code writing in software development process.</p> <p>Describe Quality Assurance, usability testing, and test case in context of testing a software program.</p> <p>Describe automated testing in the context of software testing.</p>
<p>Unit 7: Software Development 7.06 Unit Review: Software Development</p>	0	0
<p>Unit 7: Software Development 7.08 Quiz: Software Development</p>	CV12.4.2	0
<p>Unit 7: Software Development 7.09 Assignment: Software Development</p>	CV12.2.4, CCV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
<p>Unit 7: Software Development 7.09 Assignment: Software Development (cont.)</p>	CV12.2.4, CCV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0

Unit 7: Software Development 7.09 Assignment: Software Development (cont.)	CV12.2.4, CCV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 7: Software Development 7.09 Assignment: Software Development (cont.)	CV12.2.4, CCV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 8: Strings and Lists 8.01 Escape Characters 8.08 Study Questions: Strings and Lists	CV12.2.1, CV12.4.2	<p>Describe returning and expressions in the context of variable in Python Shell.</p> <p>Describe literal and special characters in context of computer programming.</p> <p>Identify the steps to use IDLE's Shell to create a variable and give it a multi-line string value.</p> <p>Describe a newline in context of computer programming.</p> <p>Describe how to view newline characters in Python Shell.</p> <p>Identify the steps to write a string that includes a newline character.</p> <p>Describe escape sequence in the context of computer programming.</p> <p>Identify some commonly used escape sequences in Python.</p> <p>Identify the backlash characters in Python.</p>
Unit 8: Strings and Lists 8.02 Manipulating Strings with Methods	0	<p>Describe direct and indirect use of literals in a Python program.</p> <p>Describe manipulation in the context of variable.</p> <p>Describe immutable and mutable data types.</p> <p>Describe string manipulation in Python.</p> <p>Identify the two main ways of manipulating strings, including methods and operations.</p> <p>Describe the len() function in Python.</p>

		<p>Identify the steps to use the len() function to show the length of different strings.</p> <p>Describe substring as a part of string in executable codes in programming languages.</p> <p>Describe the count() function in a string.</p> <p>Identify the steps to use the count() function to count specific characters in strings.</p> <p>Describe the index() function in Python.</p> <p>Identify the steps to find the index of characters in a string.</p> <p>Identify some string methods to change the case of characters in a string.</p> <p>Identify the steps to use string methods to change the case of characters in a string in Python.</p> <p>Describe the replace() function in Python.</p> <p>Identify the steps to use the replace() method to replace text in a string.</p>
<p>Unit 8: Strings and Lists 8.03 Slicing and Striding</p>	<p>0</p>	<p>Describe slicing strings in Python.</p> <p>Identify ways to slice strings in Python.</p> <p>Identify the steps to slice a string in Python.</p> <p>Describe striding strings in Python.</p> <p>Describe how to add stride numbers to slicing operation in Python.</p> <p>Describe how to create slice in even and odd indexes in the string.</p> <p>Identify the steps to slice and stride through a string.</p> <p>Describe the reversing technique in Python.</p> <p>Identify the steps to reverse a string.</p>
<p>Unit 8: Strings and Lists 8.04 Concatenate and Compare Strings</p>	<p>0</p>	<p>Describe concatenation in Python.</p> <p>Identify the steps to concatenate strings in</p>

		<p>Python.</p> <p>Identify the ways to compare values of strings in Python.</p> <p>Describe Boolean data type.</p> <p>Describe Unicode system.</p> <p>Describe the concept of comparing string values in Python.</p> <p>Identify the steps to compare string and integer values in Python.</p> <p>Describe the combining string manipulation techniques in computer programming.</p> <p>Identify the steps to combine string methods in different ways.</p>
<p>Unit 8: Strings and Lists 8.05 Lists</p>	<p>0</p>	<p>Describe a list in Python.</p> <p>Define an element in the context of list in Python.</p> <p>Identify the steps to assign a list value to a variable and print the list in Python.</p> <p>Identify some common list methods in Python.</p> <p>Identify the steps to use different list methods in Python.</p> <p>Use the various operators with the list data type in Python.</p> <p>Identify the steps to use list operations in Python.</p> <p>Describe lists as mutable data type.</p> <p>Identify the ways to change the value of a list.</p> <p>Identify the steps to change a list by appending and inserting elements.</p> <p>Identify two different ways to remove elements from a list.</p> <p>Identify the steps to delete elements from a list.</p> <p>Describe the split() function and join() function.</p>

		Identify steps to split strings into lists and then join lists into strings.
Unit 8: Strings and Lists 8.06 Manipulating a Text File	0	<p>Identify the steps to open a text file in Python.</p> <p>Convert a pre-existing text file into an executable Python file by string manipulation.</p> <p>Identify the steps to assign a string to a variable.</p> <p>Describe how to count the words in a string in Python.</p> <p>Describe how to use print() function with strings and other functions in Python.</p> <p>Identify the steps to count the number of words in the string.</p> <p>Describe how to count the sentences in the string.</p> <p>Identify the steps to count the number of sentences in the string.</p> <p>Describe how to count a word with the user input in Python.</p> <p>Identify the steps to use the input() function to count a different word with user input.</p> <p>Describe ways to a break a long string value into a list of elements.</p> <p>Identify the steps to split the string of sentences into a list elements for each sentence.</p> <p>Describe how to remove the newline characters from the list in Python.</p> <p>Identify the steps to remove the newline escape sequences from the list value.</p> <p>Identify the steps to print the number of elements in the list in Python.</p> <p>Describe how to sort the list elements in alphabetical order.</p> <p>Identify the steps to sort the list elements in alphabetical order.</p>

		Describe ways to print a limited number of elements in a list. Identify the steps to add a for loop to print the first 10 elements in the list.
Unit 8: Strings and Lists 8.07 Unit Review: Strings and Lists	0	0
Unit 8: Strings and Lists 8.09 Quiz: Strings and Lists	CV12.4.2	0
Unit 8: Strings and Lists 8.10 Assignment 1: Strings and Lists	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 8: Strings and Lists 8.10 Assignment 1: Strings and Lists (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 8: Strings and Lists 8.10 Assignment 1: Strings and Lists (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 8: Strings and Lists 8.11 Assignment 2: Strings and Lists	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 8: Strings and Lists 8.11 Assignment 2: Strings and Lists (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 8: Strings and Lists 8.11 Assignment 2: Strings and Lists (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 8: Strings and Lists 8.12 Assignment 3: Strings and Lists	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2,	0

	CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	
Unit 8: Strings and Lists 8.12 Assignment 3: Strings and Lists (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 8: Strings and Lists 8.12 Assignment 3: Strings and Lists (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0
Unit 8: Strings and Lists 8.12 Assignment 3: Strings and Lists (cont.)	CV12.2.4, CV12.3.1, CV12.3.2, CV12.3.3, CV12.3.4, CV12.4.2, CV12.4.3, CV12.4.4, CV12.5.1, CV12.5.2, CV12.5.3, CV12.5.4	0