

UNIT OVERVIEW: [Python Part 1](#)

Lesson	Course	Exercises	Objectives	Progression Pathways	Time (min)
1	1. Python Syntax	1 - 9	<ul style="list-style-type: none"> Become familiar with Codecademy platform Understand why Python is used and recognise basic terminology including 'variables' and 'Boolean' Understand and create whitespace and multi-line comments 	L1/3 programming L2 data 	20
2	1. Python Syntax	10 - 13	<ul style="list-style-type: none"> Perform mathematical operations using python syntax Create numbers using 'modulo' Practice creating comments, variable and arithmetic operations 	L1/4 algorithms L2 data 	20
3	2. Tip Calculator	1 - 5	<ul style="list-style-type: none"> Plenary activity synthesising lessons 1&2: Python syntax Create a 'tip calculator' using python syntax, variables and arithmetic operations 	L3 programming 	20
4	3. Strings & Console Output	1 - 9	<ul style="list-style-type: none"> Explain what a string is and how to create one Crete variables using indexing Implement lower(), upper() and str() string methods Compare when dot notation should be used 	L2 algorithms L2/3 programming L4/5 algorithms 	30
5	3. Strings & Console Output	10 - 16	<ul style="list-style-type: none"> Demonstrate how to print strings and variables including how to concatenate Explain how to convert a non-string into a string and why you would need to Demonstrate how to use the % operator 	L4/5 algorithms 	20
6	4. Date and time	1 - 6	<ul style="list-style-type: none"> Understand what the date time library is Explain how to print the current date, by day, month or year Demonstrate how to reorganise information using the % operator 	L4 programming 	15
7	5. Conditionals & Control Flow	1 - 4	<ul style="list-style-type: none"> Understand what control flow is Recognise and practice using 6 comparators (==, !=, <=, >=, <, >) Explain what a comparator is 	L3/4 algorithms 	15
8	5. Conditionals & Control Flow	5 - 10	<ul style="list-style-type: none"> Recognise 3 types of Boolean operations (AND, OR, NOT) Demonstrate how to use Boolean operations to return 'True' or 'False' values 	L4 data 	25
9	5. Conditionals & Control Flow	11 -15	<ul style="list-style-type: none"> Recognise IF, ELSE and ELIF statements Create simple controlled flows using IF, ELIF and ELSE statements Practice creating control flow with conditionals and Boolean operations 	L4/5 programming 	25

UNIT OVERVIEW: [Python Part 2](#)

Lesson	Course	Exercises	Objectives	Progression Pathways	Time (min)
10	6. PygLatin	1 - 11	<ul style="list-style-type: none"> Demonstrate use of <code>raw_input()</code> to store user inputs in a variable Create a program which converts English words to PygLatin using conditional statements 	L5 algorithms	30
11	7. Functions	1 - 11	<ul style="list-style-type: none"> Demonstrate and understand how to define a function with and without parameters Demonstrate and understand how to call functions Demonstrate importing functions both specific and universal Practice creating functions 	L6/7 programming	25
12	7. Functions	12 - 19	<ul style="list-style-type: none"> Demonstrate and understand what the <code>max</code>, <code>min</code>, <code>abs</code> and <code>type</code> functions do Practice making functions 	L6 programming	25
13	8. Taking a Vacation	1 - 7	<ul style="list-style-type: none"> Create a function that calculates the total cost of a holiday 	L5 algorithms	25
14	9. Python Lists and Dictionaries	1 - 9	<ul style="list-style-type: none"> Demonstrate and understand how to make and edit a list Demonstrate using the <code>append</code> function to add values to a list Demonstrate and understand how to slice a list Understand how a For In Loop works Practice using lists with for loops 	L6 data L6 programming	20
15	9. Python Lists and Dictionaries	10 - 14	<ul style="list-style-type: none"> Demonstrate and understand how to make a dictionary Understand the difference between a dictionary and a list Practice modifying, adding and deleting values in a dictionary 	L6 data L6 programming	15
16	10. A Day at the Supermarket	1 - 5	<ul style="list-style-type: none"> Create For Loops which iterate through lists and dictionaries Create a function which uses for loops 	L5 algorithms	15
17	10. A Day at the Supermarket	6 - 13	<ul style="list-style-type: none"> Plenary: Create a program which calculates the total value of goods in a shop and the total bill for a customer using for loops 	L6 programming	30
18	11. Student Becomes the Teacher	1 - 4	<ul style="list-style-type: none"> Review creating dictionaries and for loops 	L5 algorithms L6 data	15

UNIT OVERVIEW: [Python Part 3](#)

Lesson	Course	Exercises	Objectives	Progression Pathways	Time (min)
19	11. Student Becomes the Teacher	5 - 9	<ul style="list-style-type: none"> Plenary: Create functions which calculate grades and average grades utilising functions and control flow 	L5 algorithms L5 programming	20
20	12. Lists and Functions	1 - 11	<ul style="list-style-type: none"> Review modifying, appending and removing list elements Practice using entire lists in functions Demonstrate and understand how to lists and sublists in a function 	L6 programming	15
21	12. Lists and Functions	12 - 18	<ul style="list-style-type: none"> Demonstrate using the range function to generate a list Practice using lists in functions Create a function which can be passed many lists as arguments 	L5 algorithms L7 programming	25
22	13. Battleship!	1 - 9	<ul style="list-style-type: none"> Demonstrate and understand how to use the join function Utilise lists to create a grid for Battleship Create functions to generate ship location and ask the user for co-ordinates 	L6 programming	20
23	13. Battleship!	10 - 19	<ul style="list-style-type: none"> Manage control flow using If/ Else If/ Else statements Create a game of Battleship Test your game for errors in syntax or logic Differentiate: Modify your game by adding multiple or bigger ships 	L6 programming	30
24	14. Loops	1 - 8	<ul style="list-style-type: none"> Understand how a While/ Else loop functions Understand how to prevent an infinite loop Create while loops integrated with lists, inputs and mathematical operators 	L4 programming	20
25	14. Loops	9 - 19	<ul style="list-style-type: none"> Plenary: Practice making loops using the correct syntax Understand how a For/ Else loop works Create a For/ Else loop 	L8 programming	25
26	15. Practice Makes Perfect	1 - 6	<ul style="list-style-type: none"> Demonstrate and understand how to use several math functions 	L6 programming	15
27	15. Practice Makes Perfect	7 - 15	<ul style="list-style-type: none"> Plenary: Creating functions which modify strings 	L6 programming	25

UNIT OVERVIEW: [Python Part 4](#)

Lesson	Course	Exercises	Objectives	Progression Pathways	Time (min)
28	16. Exam Statistics	1 - 9	<ul style="list-style-type: none"> Plenary: Creating functions to calculate statistical measures utilising function calls within functions 	L4 algorithms L6/8 programming <div style="display: flex; justify-content: flex-end; gap: 5px;"> AB AL DE EV GE </div>	20
29	17. Advanced Topics in Python	1 - 6	<ul style="list-style-type: none"> Demonstrate and understand how to use the items, keys and values functions Demonstrate and understand how to use the 'in' operator within a for loop Demonstrate and understand list comprehension 	L5 algorithms <div style="display: flex; justify-content: flex-end; gap: 5px;"> AL </div>	15
30	17. Advanced Topics in Python	7 - 18	<ul style="list-style-type: none"> Create modified versions of lists using stride Understand and create lists using a lambda expression 	L6 programming <div style="display: flex; justify-content: flex-end; gap: 5px;"> AB </div>	20
31	18. Introduction to Bitwise Operators	1 - 5	<ul style="list-style-type: none"> Understand how to convert between normal and binary numbers Demonstrate how to use the bin and int functions 	L5 data <div style="display: flex; justify-content: flex-end; gap: 5px;"> AB </div>	15
32	18. Introduction to Bitwise Operators	6 - 14	<ul style="list-style-type: none"> Demonstrate understanding of bit shift operators by using them on numbers Use bitmasks to modify bits 	L6 data <div style="display: flex; justify-content: flex-end; gap: 5px;"> AB AL </div>	20
33	19. Introduction to Classes	1 - 5	<ul style="list-style-type: none"> Understand what classes are and their uses Create a class and initialise it Create instance variables of a class 	L6 data L8 programming <div style="display: flex; justify-content: flex-end; gap: 5px;"> AB AL DE </div>	15
34	19. Introduction to Classes	6 - 18	<ul style="list-style-type: none"> Create attributes, member variables and methods within classes Demonstrate understanding of inheritance by making child classes Practice making classes 	L7 programming <div style="display: flex; justify-content: flex-end; gap: 5px;"> AB AL </div>	30
35	20. Classes	1 - 11	<ul style="list-style-type: none"> Plenary: Synthesising Module 19: Creating classes 	L8 programming <div style="display: flex; justify-content: flex-end; gap: 5px;"> AB DE </div>	30
36	21. File Input/Output	1 - 9	<ul style="list-style-type: none"> Understand that Python can be used to output data to a file Understand simple concepts in data buffering Demonstrate using the write function to output data to a file Demonstrate using the read and readline functions use data from a file within a program 	L8 hardware <div style="display: flex; justify-content: flex-end; gap: 5px;"> AB AL DE GE </div>	20