Core Learning

Portfolio Projects

Flipped Learning

Enrichment

Technology

Wellbeing

Soft Skills

Employability

Data Academy HLT

Tasks	GLH
Core Learning – Python fundamentals	120 – 240 minutes
Portfolio Task – Python fundamentals	60 – 120 minutes
Flipped Learning – Datatypes and if statements	30 minutes
Enrichment – Python Syntax	60 minutes
Technology – Command Line Interface (CLI)	60 minutes
Wellbeing – Mental Health	60 minutes
Soft Skills – Problem Solving	60 minutes
Employability – Preparing for Interview	60 minutes

*Times are a rough guideline

TECH TALENT ACADEMY

20 - 40 mins

Core Learning 1 - favourite meal

Write a program that allows user to enter their favorite starter, main course, dessert and drink.

Concatenate these and output a message which says - "Your favourite meal is ………with a glass of…."

Follow the instructions below:

1. Create 4 variables, one named starter, one named main, one named dessert and one named drink.
2. Concatenate these into the output message using + to combine the strings

Extension:
Ask for the total price of a bill, then ask how many dinners there are. Divide the total bill by the number of diners and show how much each person should pay.

REMINDER

Must check marking criteria

Use examples from lesson

Once complete, submit the ipynb file via Teams

Core Learning

Marking Criteria – favourite meal

	Pass	Merit	Distinction
• **Syntax**	• Attempts to use Python syntax with some success	• Python syntax is largely accurate with some errors	• Python syntax is consistently accurate and appropriate to the task
• **Code**	• Declares 1 variables • Attempts to concatenate the variables into the output message	• Declares all 4 variables • Successfully concatenates the variables into the output message	• Demonstrates other ways of concatenation e.g. using {} or f string

Core Learning

20 - 40 mins

Core Learning 2 - Calculations

Create 3 programs to complete the following calculations:

1) Takes two numbers from user and outputs a subtraction

2) Takes two numbers from user and outputs a multiplication

3) Takes two numbers from user and outputs a division

Extension:
Ask for the radius and the depth of a cylinder and work out the total volume (circle area*depth) rounded to three decimal places. (You will need to import the math library and look up the function for rounding decimals)

Core Learning

Marking Criteria – Calculations

	Pass	Merit	Distinction
Syntax	• Attempts to use Python syntax with some success	• Python syntax is largely accurate with some errors	• Python syntax is consistently accurate and appropriate to the task
Code	• Attempts to prompt the user to input a number and store against a variable • Attempts to complete 1 calculation	• Successfully prompts the user to input 2 numbers and store against separate variables • Completes all 3 calculations	• Has demonstrated the ability to carry out other calculations

Core Learning

20 – 40 mins

Core Learning 3 – Joke

Joke

Write code that will display the joke:

"What do you call a bear with no teeth?"

and on the next line display the answer: "A gummy bear!"

Core Learning

Marking Criteria – Joke

	Pass	Merit	Distinction
- **Syntax**	- Attempts to use Python syntax with some success	- Python syntax is largely accurate with some errors	- Python syntax is consistently accurate and appropriate to the task
- **Code**	- Attempts to store string against variable - Attempts to print the punch line of the joke on a separate line	- Successfully stores string against variable - Print the punch line of the joke on a separate line and formatting is correct	- Demonstrates other Modifies the string using other inbuilt methods

20 - 40 mins

Core Learning 4 - Casting

Create a program that:

1. Asks the user to input two numbers
2. Multiplies the numbers together
3. Prints the answer as both an integer and a float

Core Learning

Marking Criteria – Casting

	Pass	Merit	Distinction
Syntax	• Attempts to use Python syntax with some success	• Python syntax is largely accurate with some errors	• Python syntax is consistently accurate and appropriate to the task
Code	• Attempts to prompt the user to input a number and store against a variable • Attempts to complete the calculation	• Successfully prompts the user to input 2 numbers and store against separate variables • Completes the calculation • Prints the answer as a integer and a float	• Casts answer into other data types

Core Learning

Core Learning 5 – String modification

20 - 40 mins

String modification

Modify a string which you have created to do the following built-in methods:

- Replace
- Upper case
- Split

Other python string methods https://www.w3schools.com/python/python_ref_string.asp

Marking Criteria – String modification

	Pass	Merit	Distinction
• **Syntax**	• Attempts to use Python syntax with some success	• Python syntax is largely accurate with some errors	• Python syntax is consistently accurate and appropriate to the task
• **Code**	• Attempts to store string against variable • Modifies the string using one of the built-in methods	• Successfully stores string against variable • Modifies the string using all the suggested built-in methods	• Demonstrated the ability to manipulate strings in other ways e.g. slicing

60 - 120 mins

Portfolio Projects

Portfolio Tasks -

Mini project madlibs (1:40 to 6:54)

https://www.youtube.com/watch?v=8ext9G7xspg

Mini project email sender (0:0:41 to 0:12:15)

https://www.youtube.com/watch?v=pdy3nh1tn6I

Mini project interest payment calculator (1:13:58 to 1:21:51)

https://www.youtube.com/watch?v=pdy3nh1tn6I

Remember to upload to GitHub

GitHub

30 mins

Flipped Learning

Use the following resources to support you ahead of next weeks session on the following concepts:

Lists
Tuples
Dictionaries
If statements

Watch YouTube video https://www.youtube.com/watch?v=rfscVS0vtbw during the below times which run through working with lists, tuples, dictionaries and If statements
1:03:10 - 1:24:15
1:40:06 - 2:00:37
2:07:17 - 2:14:13

60 mins

Enrichment

Enrichment

Use the following resources to explain concepts in more detail:

Your programs won't always work first time and that is absolutely okay!

IDEs can usually help spot errors using the colour of the text, but some error messages are not always so obvious. Take a look at some of the most common syntax errors so next time it pops up, you will know how to fix it.

https://realpython.com/invalid-syntax-python/

60 mins

Technology

Before the days of Microsoft Windows, users would interact with computers via a Command Line Interface (CLI), often via DOS. Users would have typed in commands to access information stored on the computer. Today, most users interact with a computer via a Graphical User Interface (GUI) either via a mouse and keyboard or touchscreen.

There is still software being used today which use CLI however most users prefer a GUI as it is often easier to use.

You can access a CLI within Windows environment by clicking on the Windows menu and typing CMD. If using a MacBook, click on Launchpad and type Terminal into the search field.

To find out more about using the Windows Command Prompt, use the following link:

https://www.bleepingcomputer.com/tutorials/windows-command-prompt-introduction/

If using a MacBook, use the following link to find out more about using the Terminal:

https://macpaw.com/how-to/use-terminal-on-mac

Wellbeing

This week, our focus is on **Mental Health** - Maintaining Mental Health as a Programmer

One in four adults experience mental illness. It is important that you are aware of the signs and able to access support if ever needed.

Visit the following websites for help and support:

NHS website:
https://www.nhs.uk/mental-health/

Maintaining Mental health on Software Development Teams:
https://www.infoq.com/articles/mental-health-software-teams/

Tips for Maintaining Mental Health as a Programmer:
https://www.geeksforgeeks.org/tips-for-maintaining-mental-health-as-a-programmer/

7 Ways to Maintain Good Mental Health as a Software Engineer:
https://www.turing.com/blog/ways-to-maintain-good-mental-health-as-a-software-engineer/

60 mins

Soft Skills

This week, our focus is **Problem Solving.**

Day-to-day we have to solve problems to meet our goals and objectives. Some people are naturally good at solving problems however many panic in an unknown event or situation. Problem solving is a skill which can be developed overtime; the more we do it, the easier it is!

There are many methods to follow; below is just one example.

Step 1: Identify the problem - Many people make assumptions and begin to solve the wrong problem. The first step is the identify the root cause of the issue. Ask yourself: Who, What, When, Why and Where.

Step 2: Generate potential solutions - Sometimes the first idea may not be the best. Brainstorming (individually or as a group) can be done to this of a potential answer.

Step 3: Choose one solution - Analyse the solutions and select the best one (easier said than done ☺)

Step 4: Implement the solution you've chosen - To implement a change, planning, patience and persistence are all required.

Step 5: Evaluate results - Have you solved the problem? Does it need a tweak? Reflect on how you could improve.

Further information:
https://www.knowledgecity.com/blog/5-steps-to-make-your-problem-solving-process-easier/
https://asq.org/quality-resources/problem-solving
https://www.mindtools.com/pages/main/newMN_TMC.htm

60 mins

Employability

Your CV is now complete and your LinkedIn profile is up-to-date.

Your next step is to plan ahead for interview. Some interviews are completed on-line and others face-to-face; either way, the format and the questions asked will be very similar. It is important you prepare in order to achieve a positive outcome.

Before the interview:

- Read the job description – ensure you are clear on the skills and qualities the employer is looking for
- Visit the companies website – read the About Us page and find out as much information you can about the company
- Re-read your CV – think about the types of questions the employer may ask
- If possible, ask someone to complete a mock interview (Google 'common interview questions')
- Prepare 2-3 questions you can ask during or at the end of the interview
- Check you interview clothes fit ☺ or prepare something suitable to wear
- Plan how you are getting to the interview, what time you need to arrive and who you need to see
- Make sure you know who to call if you are running late.

Use the following links to support you with preparation for interview:

https://nationalcareers.service.gov.uk/careers-advice/interview-advice

https://uk.indeed.com/career-advice/interviewing/interviewing-techniques

https://www.totaljobs.com/advice/interview-tips