Longley Park Sixth Form Transition Pack

ICT & Computing

Longley Park
SIXTH FORM

longleypark.ac.uk

Welcome to the summer bridging work from the BIT Department. We hope this pack allows you to gain an insight into some of the brilliant subjects and activities that you could be doing within each subject.

INFORMATION TECHNOLOGY & COMPUTING

Information Technology and the Computing qualifications are highly sought after by many employers. These qualifications will not only give you the practical skills and knowledge needed but will allow you to gain the analytical skills to be successful, either to progress into industry or on to university. You have the chance to design and create working products that can affect our everyday life. We have a variety of BTEC qualifications at all levels to suit your desired progression route.

Below are some of the careers and destinations where our course could take you:-

- Higher Education
- Training or Apprenticeship
- e-Business
- Software Engineer
- Information Security
- Network Management and Design
- IT Practitioner

For more specific detail on courses, please check out our online prospectus!

COMPUTING

This course is designed specifically for those students interested in computing rather than ICT in general. Additional units of study on this pathway will include a range from databases, programming, networking and mathematical concepts.

Get into Computing at Longley Park.

In this short course, we will be learning some coding, using Python.

Some of you will be new to this, and some will have experience from school. This course is designed to suit both types of people.

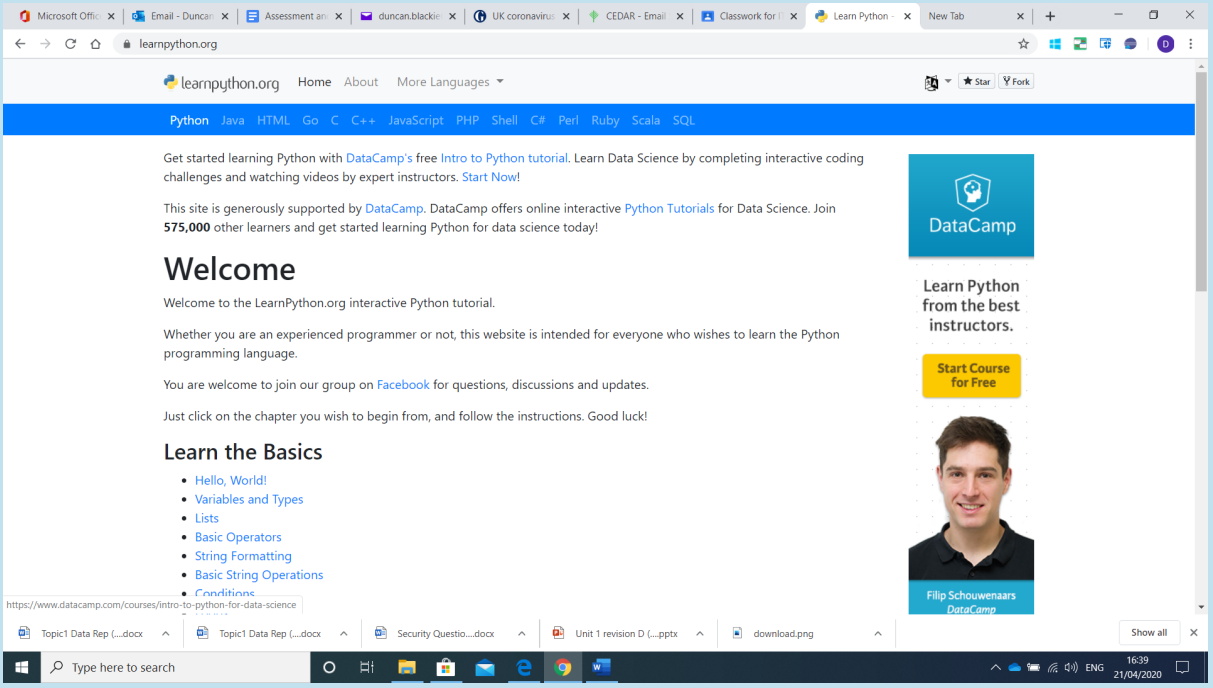
We will base most activities on the Data Camp website. It's like Band Camp, but without the music.

How to do the course.

1. **Get to the website:**

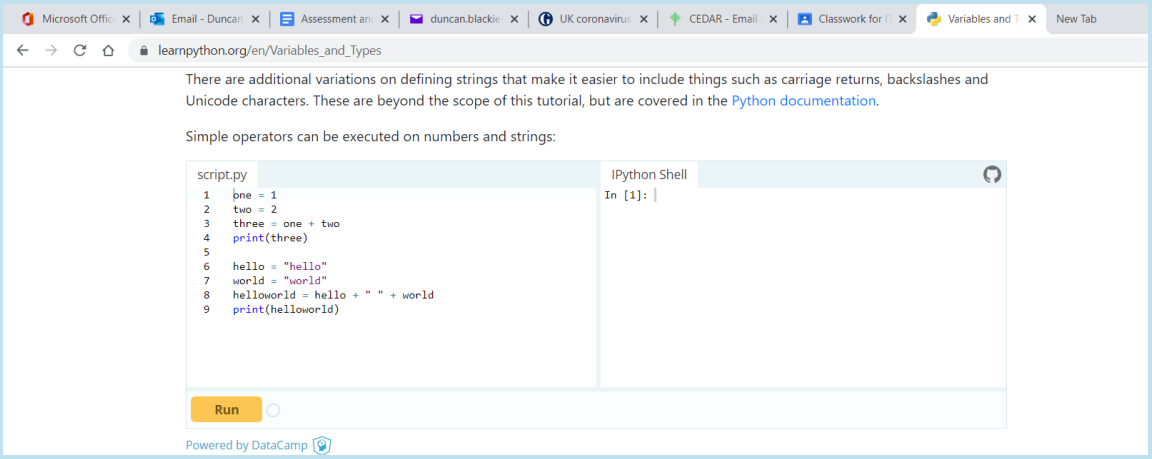
https://www.learnpython.org/

This is completely free and doesn't need any downloading. You don't even need to sign in.

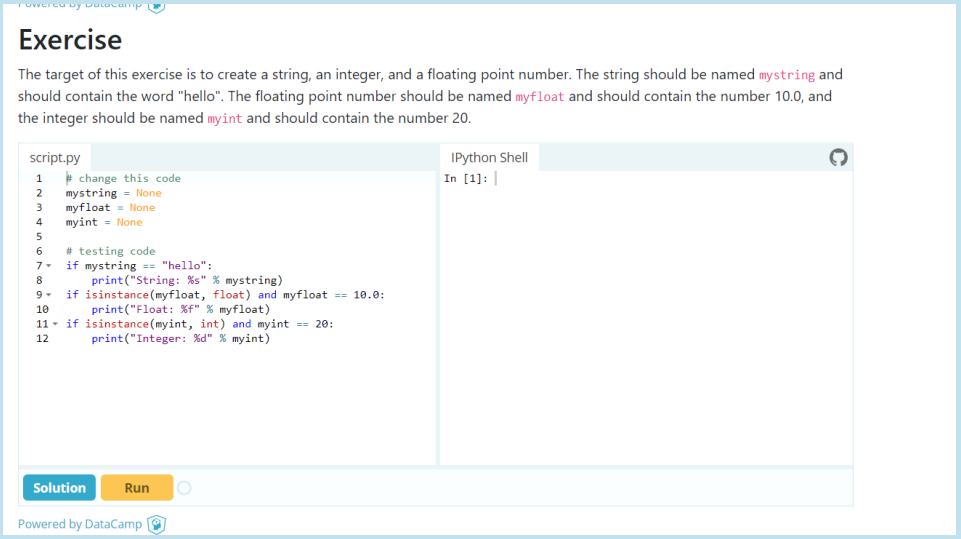


2. **Everyone should try the first lesson.** If you are new, it's the best place to start. But, it you are more experienced, it will also help with getting comfortable with the way the course works.

3. **Lesson structure.** Each lesson covers a separate topic. There are a series of explained examples, with code and a button to try it out.



4. Each lesson ends with an **exercise**. You should try to get each one correct before moving to the next topic. If you are stuck, look back up the page for tips as it is only that page that is being tested. If you are still stuck, then email the Longley Park course help line mentioned at the end of this document.
   Once you have a correct answer, you will be congratulated and then prompted to do the next section.



5. Completing the course. The course is not a test, so everyone should try to make their own progress. You should however, aim to complete at least 8 lessons. For beginners, that will mean everything down to “Loops”. More experienced users might do “Hello World” and then 7 more advanced topics.

Finally: Getting Help and keeping in touch.

This course is being supervised by Duncan Blackie. You can contact him at any reasonable time at: **DBlackie@Brigantiatrust.net**.

Happy Coding!

INFORMATION TECHNOLOGY

You will improve your knowledge and practical skills in IT, including web design and e-commerce, data communications, expert systems and computing. You'll find out about how computer systems work and learn how to use different applications. Assignments are based on workplace situations so you will get a real insight into the careers available in IT and what it is like to work in industry.

TASK 1

TRUE or **FALSE?**

1. Modelling involves a collection of rules is created to study what would happen in real-life situations.
2. Changes are made to see how they affect the outcome.
3. A spreadsheet model could be used to check the aerodynamics of a cars body shape and structure.
4. Modelling can be used effectively with 'what is…' questions.
5. More complicated models can be built to replicate real-world phenomena such as water, fire and weather.
6. Simulations are not a type of computer model.
7. A simulation imitates a particular environment. It can be used for research or training.
8. Train drivers are initially trained using a train simulators.
9. A pilot simulator reacts based on predetermined rules linked to how the pilot behaves.
10. It can be safer and cheaper than the real world is an advantage of modelling and simulation.
11. They can be used to find every single unexpected problem is an advantage of modelling and simulation.
12. Mistakes may be made in the programming or rules of the simulation or model is a disadvantage of modelling and simulation.
13. The cost of a simulation model can be high is a disadvantage of modelling and simulation.

USING SOCIAL MEDIA

TASK 2

The table below contains a list of some of the world's most important social media sites. If you are not familiar with the site you may need to do some research into the features it has. In the 'Likely audience profile' column try to identify the type of people who might use the site and what they might use it for.

Site	**Purpose**	**Site main features**	**Likely audience profile**
Facebook			
Twitter			
Google+			
Instagram			
YouTube			
LinkedIn			

Pinterest			
Snapchat			
WhatsApp			

TASK 3

Find out about the following which are considered amongst the top ten sites for business:

- Ryze
- Talkbiznow
- Affluence
- Quora

What are they and what do they do?

Why do you think that businesses use social media sites that would ordinarily be designed for personal use?

CREATING SYSTEMS TO MANAGE INFORMATION

TASK 4

Can you provide an explanation as to what the different **data types** are within databases?

Data type	**What is it?**
Short Text	
Long Text	
Number	
Date/Time	
Currency	
AutoNumber	
Yes/No	
OLE Object	

Hyperlink	
Attachment	

Can you identify what data types the following fields should be?

File Name	**Data Type**
ID	
Customer Email	
Date of Survey	
Gender	
Holiday Date	
Holiday Duration (Days)	
Accomodation Rating	
Price Paid	
Overall Satisfaction	
Any Other Comments	

TASK 5

Can you try to create an Entity Relationship Diagram (ERD) using the following Access tables?

TblStaff
SRef
FirstName
Surname
DeptRef
TelNumber

TblDept
DRef
DName
Location
ManagerRef

TblManager
MRef
FirstName
Surname

TblMagazines
MRef
Title
Publisher

TblSubscriptions
SRef
DateStarted
SubscriptionLength
MagazineRef
MemberRef
SubscriptionPrice

TblMembers
MRef
MemberName
EmailAddress
MemberAddress
MemberPhone

ENTERPRISE IN IT

TASK 1

Start by defining each attribute and then linking any IT related entrepreneur to that attribute, then reflect against each attribute to complete the final column. An example has been done for you.

Attribute	Definition	Entrepreneur	Me
Creativity	This is the use of imagination or original ideas to create something	James Dyson - the billionaire inventor when building a great product takes years and hundreds of prototypes and tonnes of creativity.	I consider myself to be very creative as in the past I have designed and created a prototype of a motorcycle stand in D&T using welded steel.
Confidence			
Positivity			
Passion			
Motivation			
Initiative			
Self-belief			
Discipline			
Drive			
Adaptability and flexibility			
Intuitiveness			
Imagination			
Desire to succeed and grow			

Vision			
Capacity to inspire			
Focus			

TASK 2

Can you research a number of different jobs within the IT industry and complete the table below?

Job Title	**Main Roles and Responsibilities**	**Skills Required**	**Salary**	**Example Job Online** ***(Insert URL of where you have found the job)***

2D AND 3D DIGITAL GRAPHICS

TASK 1

Complete the table below using the missing answers:

	A type of image made up of small square pixels
	A type of image which is drawn according to a set of mathematical instructions
	A moving image
	Low cost images bundled together in cheap packages for use in creative packages
	Another name for a bitmap image

Raster, Bitmap, Clipart. Animation, Vector

TASK 2

Fill in the gaps using the answers below:

There are two main types of image: _____ and _____. A bitmap is a map of bits.

A bitmap (or _____) image is made up of small _____ (picture _____) arranged in a rectangular grid of rows and columns.

Each pixel is a small _____ which is always a single _____.

The more pixels there are, the bigger the image, the more _____ that it can hold on and the _____ the _____ size.

Most _____ cameras produce _____ files.

Pixels, Bitmap, Square, File, Digital, Bigger, Colour, Raster, Detail, JPG, Vector, Elements