ICT KS3 Year 8 Autumn 2 Blended Learning Booklet

Introduction to Programming - Python

Name:

Form:

*Aim to complete one lesson each week. Write out the title and LI and then complete the tasks.*

*The Knowledge Organiser on page 3 has some key information and vocabulary to help you with this unit.*

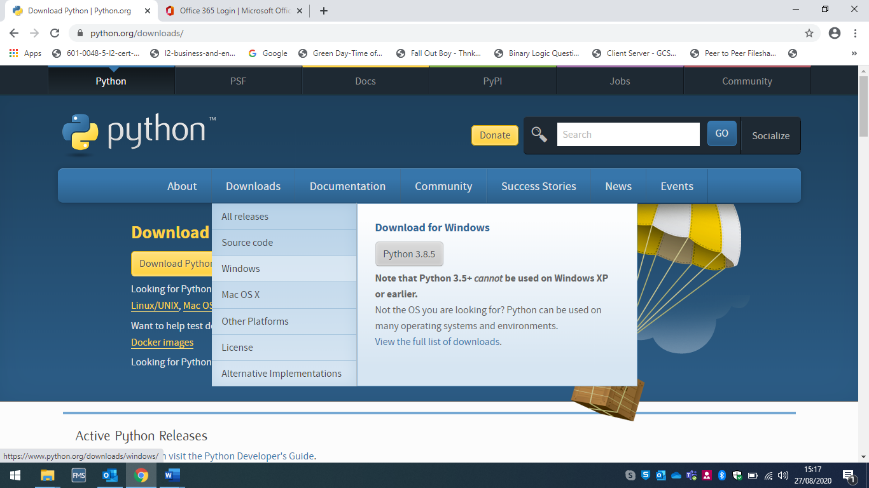
*Upload all work onto ClassCharts for feedback.*

***IF you do not have access to Python, you can write your programs in pencil/ pen in the spaces provided in this book.***

To complete this book fully, you will need to download Python 3 from the Internet.

You can download Python with this link: <https://www.python.org/downloads/>

You should be able to select “Downloads” and select “Python 3.8.5”



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A picture containing clock, bunch, different, photo

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A picture containing display

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A screenshot of a video game

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A screenshot of a cell phone

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Lesson 1

* **LI: to understand how to use basic Python syntax and variables**

DART – Link the keyword with the meaning below.

Keywords

*(Data Type, Sequence, Programming Language, Selection, Iteration, Python, .PY)*

This is the name of a programming language you are learning. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

This is the file extension for a python file. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

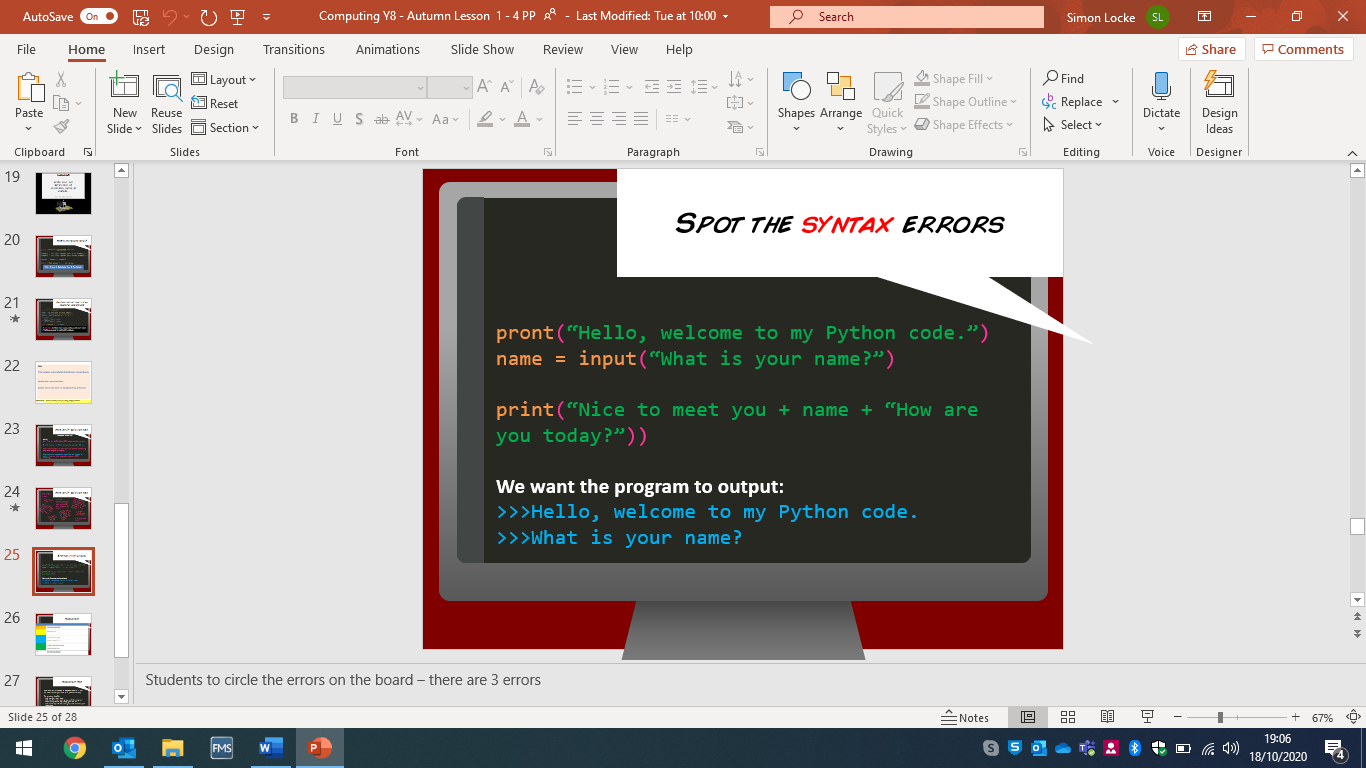
Giving information a data type is important. The data types are: String, Float, Integer, Character and Boolean. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

This is a computer language; it can be used to create programs. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

This is when actions are performed in a specific order. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

In this structure a question is asked and depending on the answer the program takes one of two courses of action. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

This is the programming technique which allows you to have blocks of code repeatedly carried out in your program. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Spot the syntax errors in the code above. Circle the 3 errors.**

**Can you also correct the errors…?**

**Task**

**Can you write a program in the box below that will accept the height and width of a room as inputs. The program should output the area of that room.**

Lesson 2

**LI: to understand how to use iteration when using Python**

**New Learning**

**7 Boolean is another Data Type – This can store one of two values:**

* + **True**
  + **False**

**We already know what integer, float and string means.**

**Research the Boolean expressions below to find out what they mean. Click on the link below**

[**https://www.bbc.co.uk/bitesize/guides/zqp9kqt/revision/1**](https://www.bbc.co.uk/bitesize/guides/zqp9kqt/revision/1)

**write down if the below expressions are True or False**

**Task - True or False?**

**x = 5 y = 10**

**x>y**

**x=y**

**y<=x**

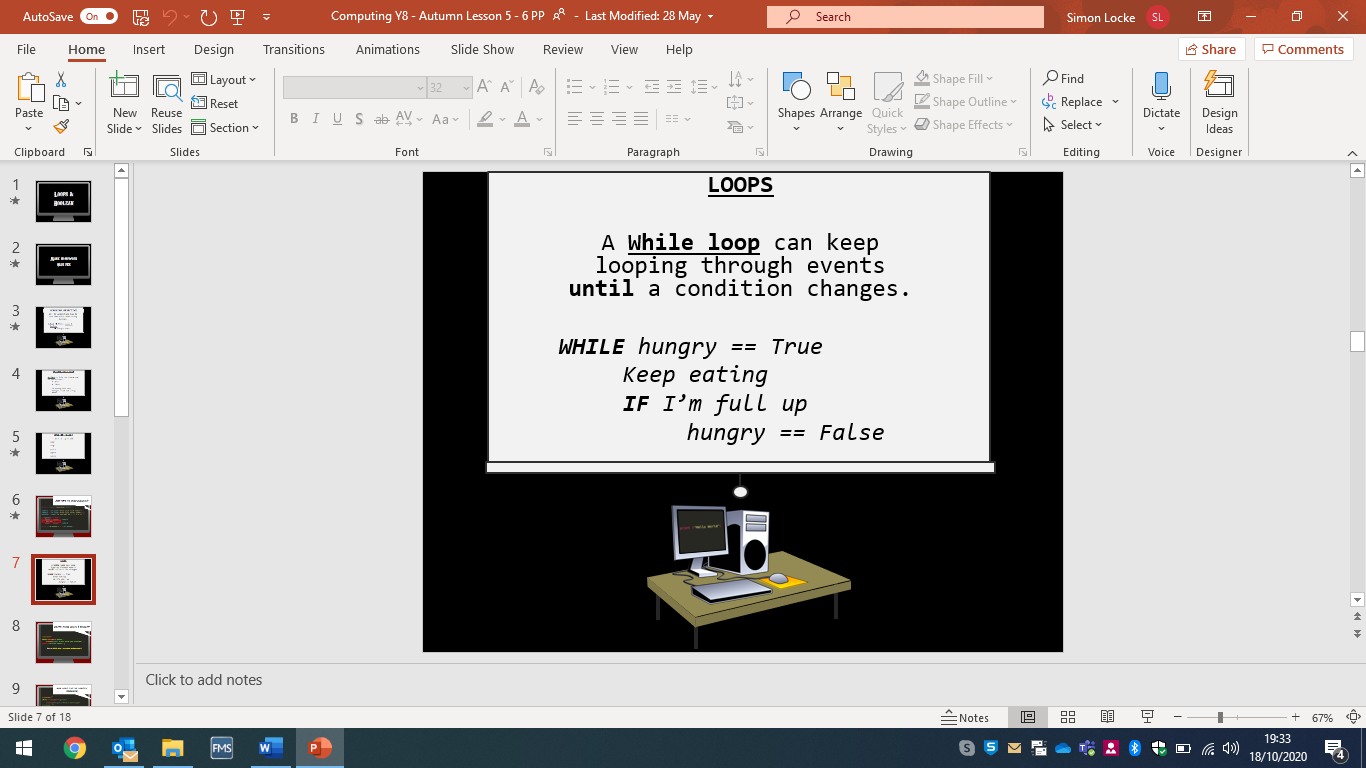
**x!=Y**

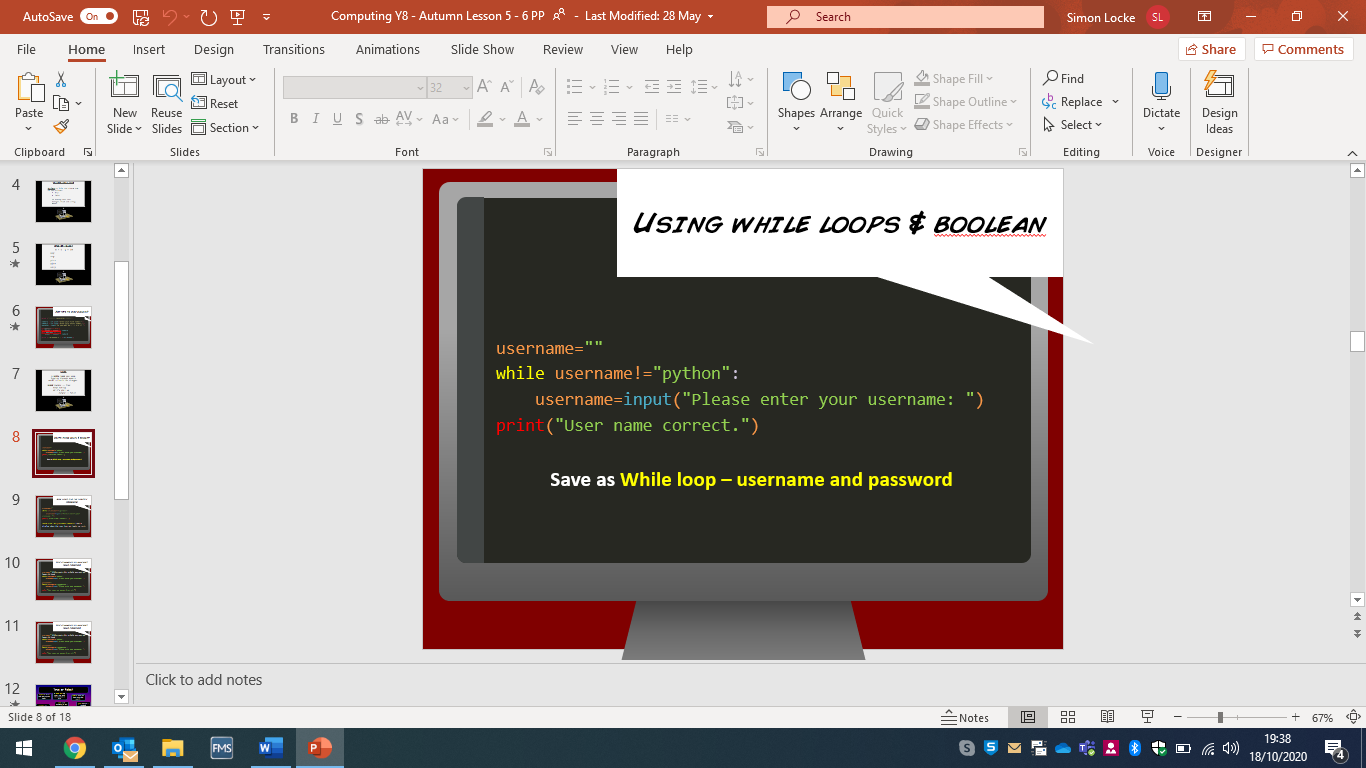
**x<=y**

**New Learning**

**Use your knowledge organiser to define iteration.**

**Iteration:**





**Study the code above. Can you explain what you think the code does in the box below?**

**Lesson 3**

**Let’s start programming.**

**If you click on the link below you will be able to watch a video on the ‘first steps’ of programming.**

[**https://classroom.thenational.academy/lessons/first-steps-6ctk4d**](https://classroom.thenational.academy/lessons/first-steps-6ctk4d)

**You will have gone through some of these things last term however it will be good to recap these skills.**

**Lesson 4**

**Click on the link below to start the lesson on ‘Crunching Numbers’.**

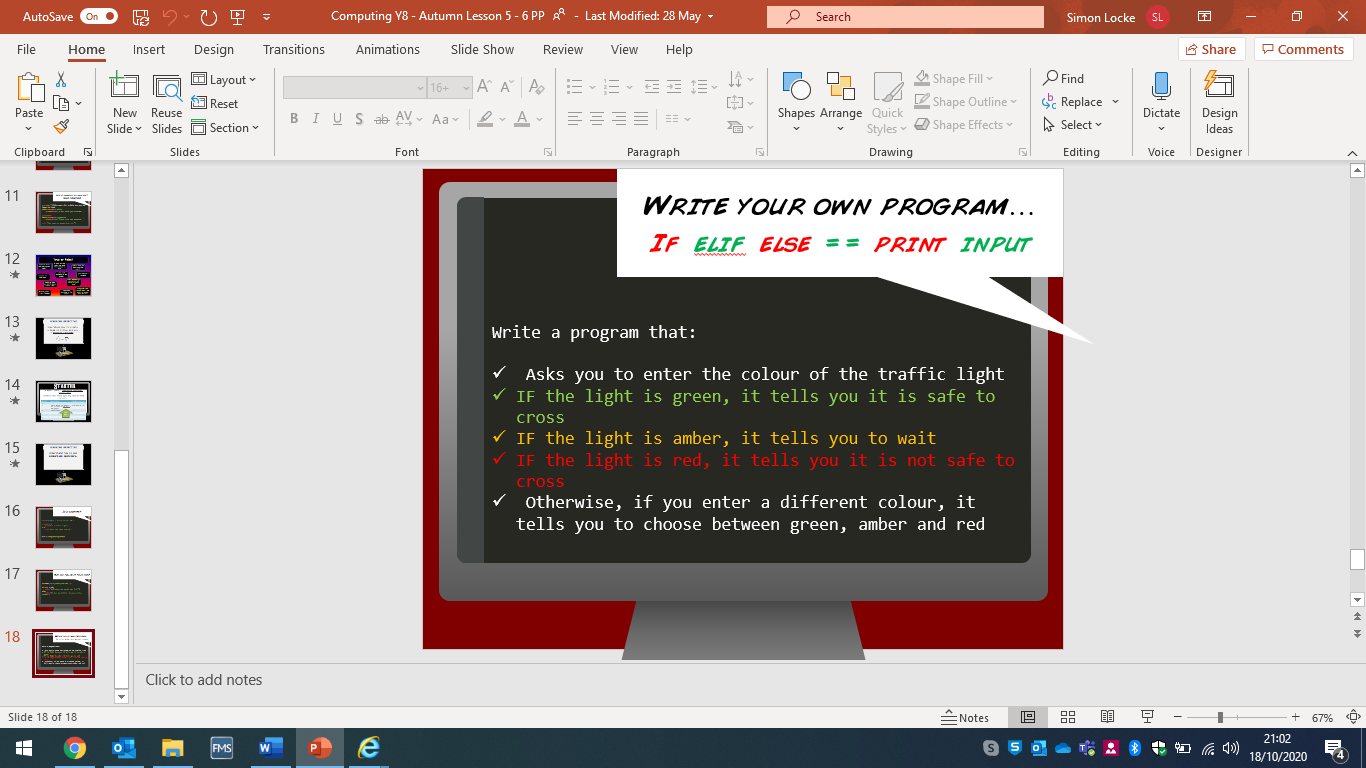
[**https://classroom.thenational.academy/lessons/crunching-numbers-6gtked**](https://classroom.thenational.academy/lessons/crunching-numbers-6gtked)

**Extra lessons (Optional)**

**If you want to take your programming skills further then please have a look at the other online lessons here.**

[**https://classroom.thenational.academy/units/intro-to-python-programming-9c22**](https://classroom.thenational.academy/units/intro-to-python-programming-9c22)

**Lesson 5**

**LI: to understand how programming is used in the real world.**

**Write your program in the box**

**Lesson 6 Maths Quiz Assessment**

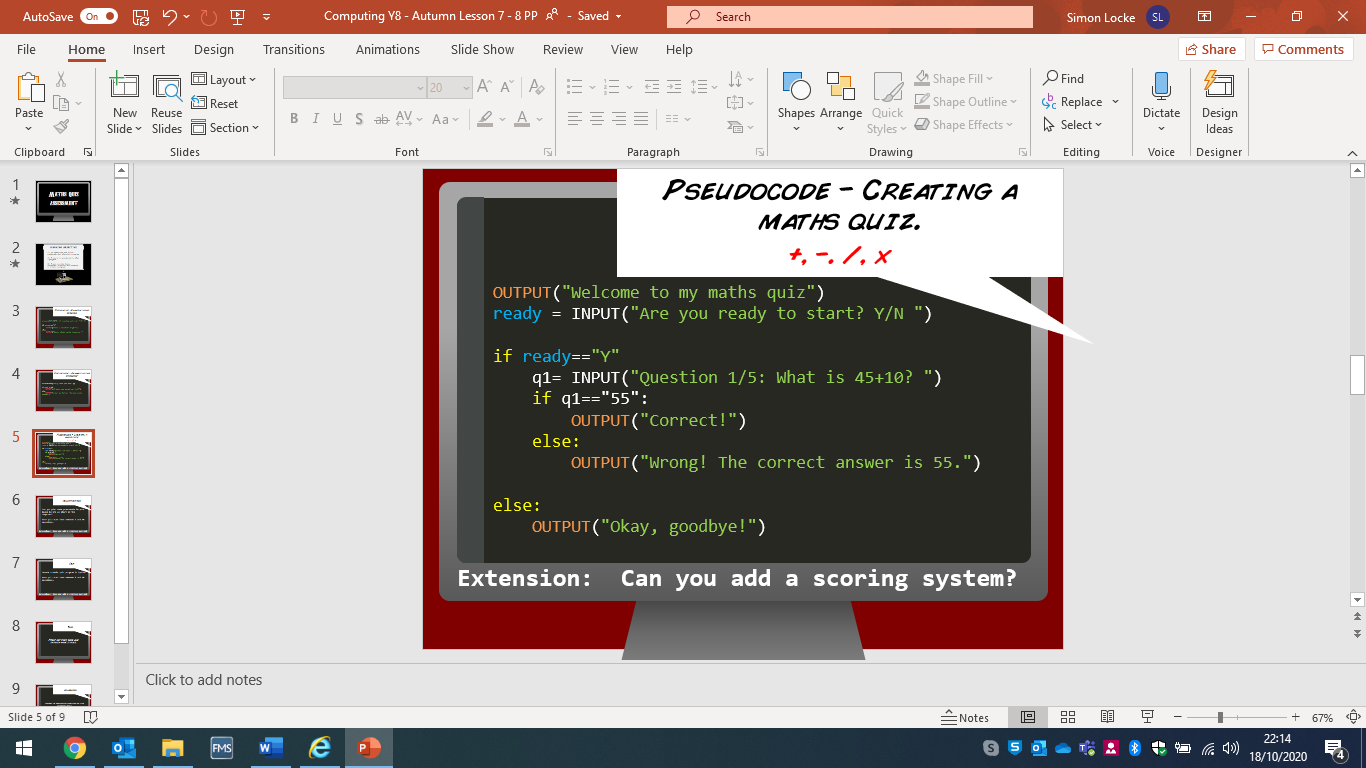
**LI: to understand how to create a program using all previous programming skills**

**Task**

**Your task is to create a maths quiz. The code below will get you started.**

**You can download python to complete this task. The instructions and link to download Python are on the front of this book.**

**Alternatively, you can use the website/ account you set up from the video in lesson 3.**



**Take a picture of your code and send it your teacher on class charts.**

|  |  |  |
| --- | --- | --- |
| Attainment Band: | **Introduction to programming -Python** | |
| **Knowledge and Understanding** | **Skills** |
| **Yellow Plus** | Understands how to use iteration in Python  Able to understand errors and debug code  The programs work correctly (Assessment extension) | Show independent skills and can include a while loop in a program  Can debug programs and make them work correctly  Create a testing table to record tests to ensure program works (Assessment extension) |
| **Yellow** | Understands the term Iteration  Understands the need to test programs using different inputs  Understands how variables change throughout the program  Understands the difference between a compiler and a translator | Can create a program using iteration with some help  Tests the possible inputs to ensure all sections of code work  Can explain how the variables work in a program  Identifies which translator Python uses and is able to explain why |
| **Blue** | Understands how IF statements are used in a program  Understand how variables are used in a program  Understands the importance of indents in code  Understands why you need a translator | Can create a program using IF ELIF and ELSE statements  Can create a programme using variables  Can use indents in programs correctly |
| **Green** | Understands how 3 different data types work  Understands the term sequence  Can create a simple program with some assistance | Can create a program using different data types (String, Integer, Float, Boolean) |
| **White** | Understands the term ‘Programming Language’  Understands the term algorithm | Can create a simple program using Python  Can copy code accurately and make a program run  Can run a program independently to ensure it works |