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| **Name** |  |
| **Form** |  |
| **Teacher** |  |
| **Target Level** |  |

**Spelling Test No 6**

1)

2)

3)

4)

5)

**Spelling Test No 5**

1)

2)

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**Spelling Test No 4**

1)

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**Spelling Test No 3**

1)

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4)

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**Spelling Test No 2**

1)

2)

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4)

5)

**Spelling Test No 1**

1)

2)

3)

4)

5)

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| **CURRICULUM LEVEL** | **I MUST SHOW THAT I** | **SELF ASSESSMENT** | **TEACHER ASSESSMENT** |
| 1 | * Write simple programs using a high level programming language |  |  |
| 2/3 | * Learn about data types * Learn how to display statements using the Python GUI * Learn how to store different variables. * Design and create program * Debug programs that accomplish specific goals * Use repetition and loops in programs |  |  |
| 4 | * Solve problems by decomposing them into smaller parts * Use selection in programs * Work with variables * Use logical reasoning to explain how some simple algorithms work * Use logical reasoning to detect and correct errors in algorithms |  |  |
| 5 | * Use procedures and functions with parameters in your programs. * Use computational abstractions * Model state of real world problems * Use a programming language to solve computational problems * Use procedures and functions with parameters in your programs. |  |  |

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| --- | --- | --- | --- |
| Date: |  | Lesson Number | **1** |
| Learning Objective/s: | * Learn about the Python Interface * Learn to write a simple program to display a phrase. | | |
| Plenary: | Have you met todays learning objectives? Tick (✓) the ones you have and cross (🗶) the ones you haven’t above. | | |
| What I have learnt this lesson? |  | | |

**Starter**

What do you think programming is?

**Lesson 1 Activity 1: “Hello World”**

At the command prompt, type the words below, exactly as they appear (remember to use lower case):

**>>>print(“Hello World”)**

The phrase Hello World should appear immediately below the print as shown below:

**>>>print(“Hello World”)**

**Hello World**

**>>>**

Now type the message below, exactly as it appears:

**>>>print(Hello World)**

|  |  |
| --- | --- |
| What happened when you pressed enter?  (write out the message) |  |

**** ***Code Lesson 1 Activity 2***

|  |  |
| --- | --- |
| **Code** | **Try this and write down what happened?** |
| **>>>print”Hello World”** |  |
| **>>>print(“Hello World”);** |  |
| **>>> Print(“Hello World)** |  |
| **>>>print(‘Hel World”)** |  |
| **>>>prin(Hello World)** |  |

What have you learnt from the activity above? What will create syntax errors in your code? Identify some ‘rules’ here:

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| --- | --- | --- | --- |
| Date: |  | Lesson Number | **2** |
| Learning Objective/s: | * Learn how to write several lines of code spread over different lines * Learn about the “print” command | | |
| Plenary: | Have you met todays learning objectives? Tick (✓) the ones you have and cross (🗶) the ones you haven’t above. | | |
| What I have learnt this lesson? |  | | |

|  |
| --- |
| **Lesson 2 Activity 1 (Print Command)**  Look and type out the following code and answer the questions below  Print(“Hello!)  Print(“How are you”)  Print(“Have you had a good day so far?”)  Question 1: Explain the above code  ………………………………………………………………………………………………………………………………………………………………….  ………………………………………………………………………………………………………………………………………………………………….  ………………………………………………………………………………………………………………………………………………………………….  Question 2: What is the purpose of the Print Command?  ………………………………………………………………………………………………………………………………………………………………….  ………………………………………………………………………………………………………………………………………………………………….  ………………………………………………………………………………………………………………………………………………………………….  Extension: Type out your own Print Commands asking questions such as  What is today’s day?  Where are you from?  What are you looking forward to this weekend? |

**Lesson 2 Activity 2 (Comments)**

Comments are bits of text in the program code that are not used by the computer, but help to explain what is going on.

You can write a comment using a # symbol.

Try this program:

**#This is a comment**

print("This is not a comment.")

type out the following code and answer the questions below

Copy out the following codes and add #comments also.

Print(“Hello!)

**#Here the code display’s the word Hello**

Print(“Have you had a good day so far?”)

**#Here the code displays a question**

Task: Explain why adding comments helps programmers.

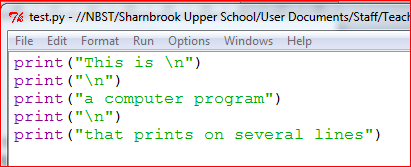
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**Lesson 2 Activity 3**

Try this **\n** command at any point in a line of text will force a new line:



Task: Copy out the code above

Explain why doing this would help a programmer.

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| Date: |  | Lesson Number | **3** |
| Learning Objective/s: | * Learn about storing variables using Python | | |
| Plenary: | Have you met todays learning objectives? Tick (✓) the ones you have and cross (🗶) the ones you haven’t above. | | |
| What I have learnt this lesson?  Ticks (✓) |  | | |

**Variables**

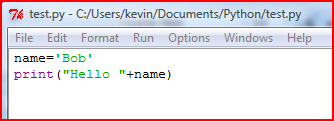
We need a mechanism for tracking values and changes of values in a program. We do this in high level programming by using what we term as “**variables**”.

A typical variable usage would be

a = 6

This assigns the value of 6 to the variable “a”

**Lesson 3 Activity 1 Try this….**

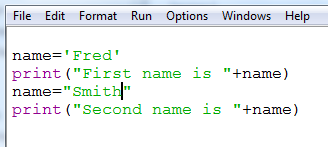


**Lesson 3 Activity 2**

We can change the value of a variable within the program. Try running this code and explain what happened:

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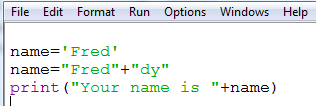
Explain what happened…

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**Lesson 3 Activity 3**

Try this.



Explain what happened…

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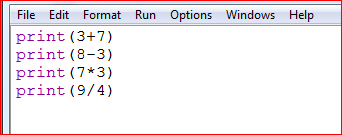
|  |  |  |  |
| --- | --- | --- | --- |
| Date: |  | Lesson Number | **4** |
| Learning Objective/s: | * Learn about calculations using Python * Learn about subtraction, addition, division and multiplication symbols. * Learn how to store numbers as variables. | | |
| Plenary: | Have you met todays learning objectives? Tick (✓) the ones you have and cross (🗶) the ones you haven’t above. | | |
| What I have learnt this lesson?  Ticks (✓) |  | | |

**Calculations:** We can carry out calculations in Python. The arithmetic operators we use to do this are:

|  |  |
| --- | --- |
| + | addition |
| - | subtraction |
| \* | multiplication |
| / | division |

**Lesson 4 Activity 1**

Try the following code.



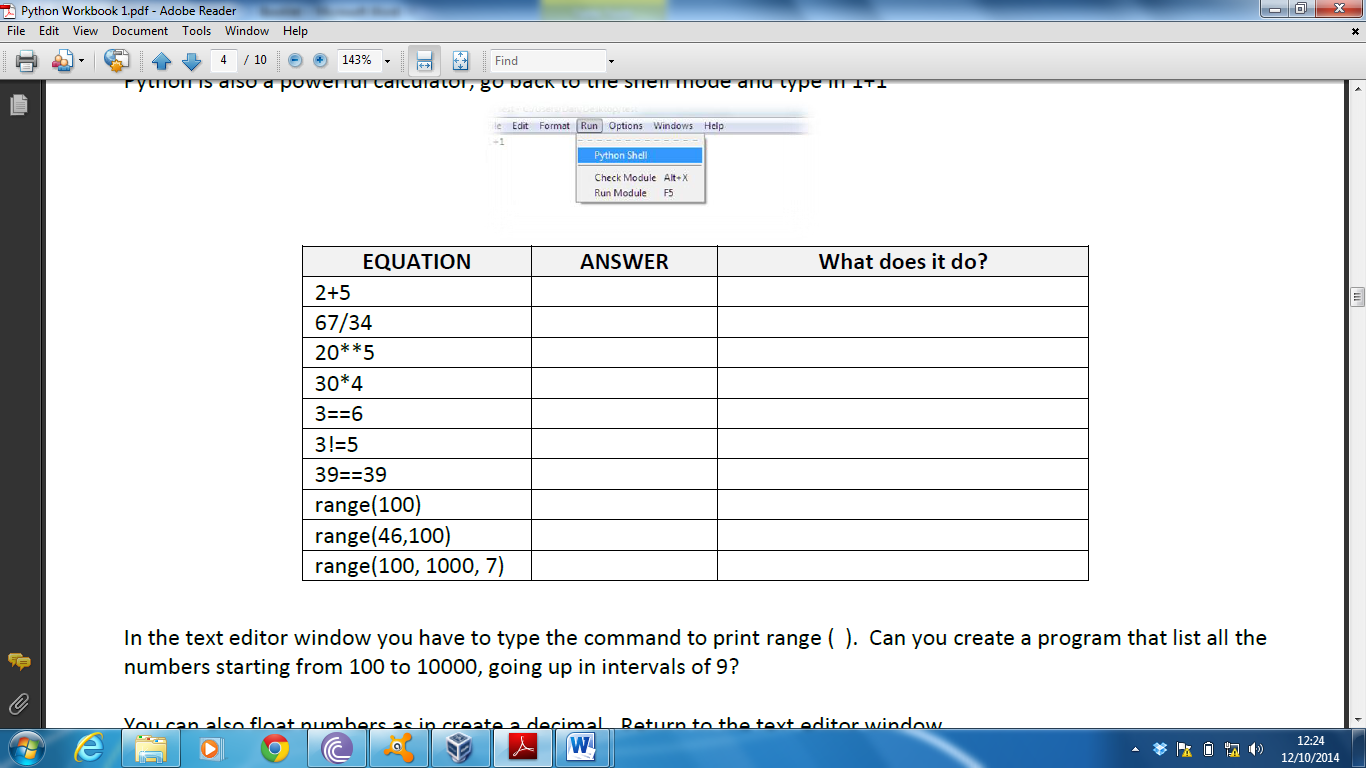
Explain what happened…

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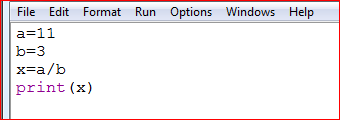
**Lesson 4 Activity 1b**

Using Python, copy out the following codes and answer the questions below.



**Lesson 4 Activity 2**

Copy and run this program:



Copy out the code above**.**

What does the code do?

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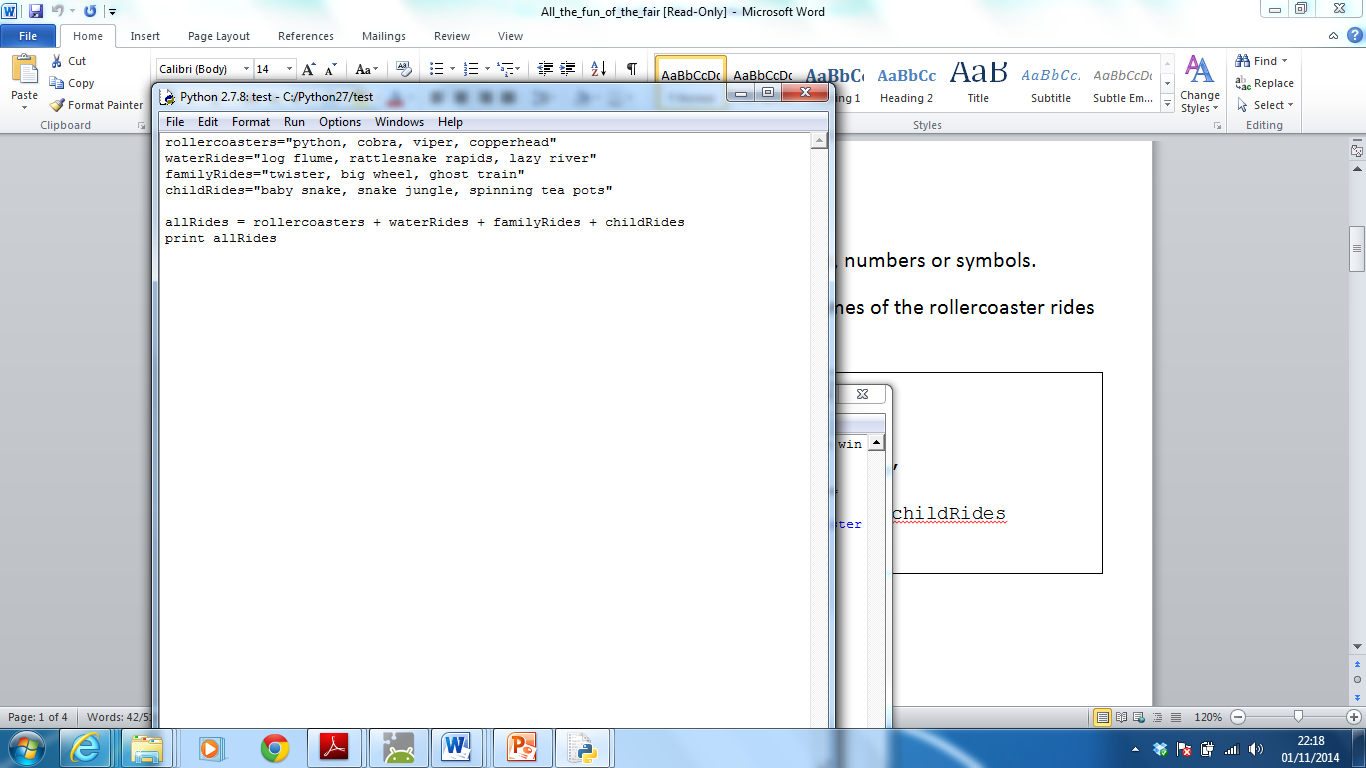
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| --- | --- | --- | --- |
| Date: |  | Lesson Number | **5** |
| Learning Objective/s: | * Learn about strings * Learn about lists * Learn how to store data using machine code. | | |
| Plenary: | Have you met todays learning objectives? Tick (✓) the ones you have and cross (🗶) the ones you haven’t above. | | |
| What I have learnt this lesson?  Ticks (✓) |  | | |

**Lesson 5: Activity 1 – Using Strings**

A string in a program is a block of text which can include letters, numbers or symbols.

In a new program window, create a string to include all the names of the rollercoaster rides using the code below.



Copy out the code above**.**

What does the line print allRides do?

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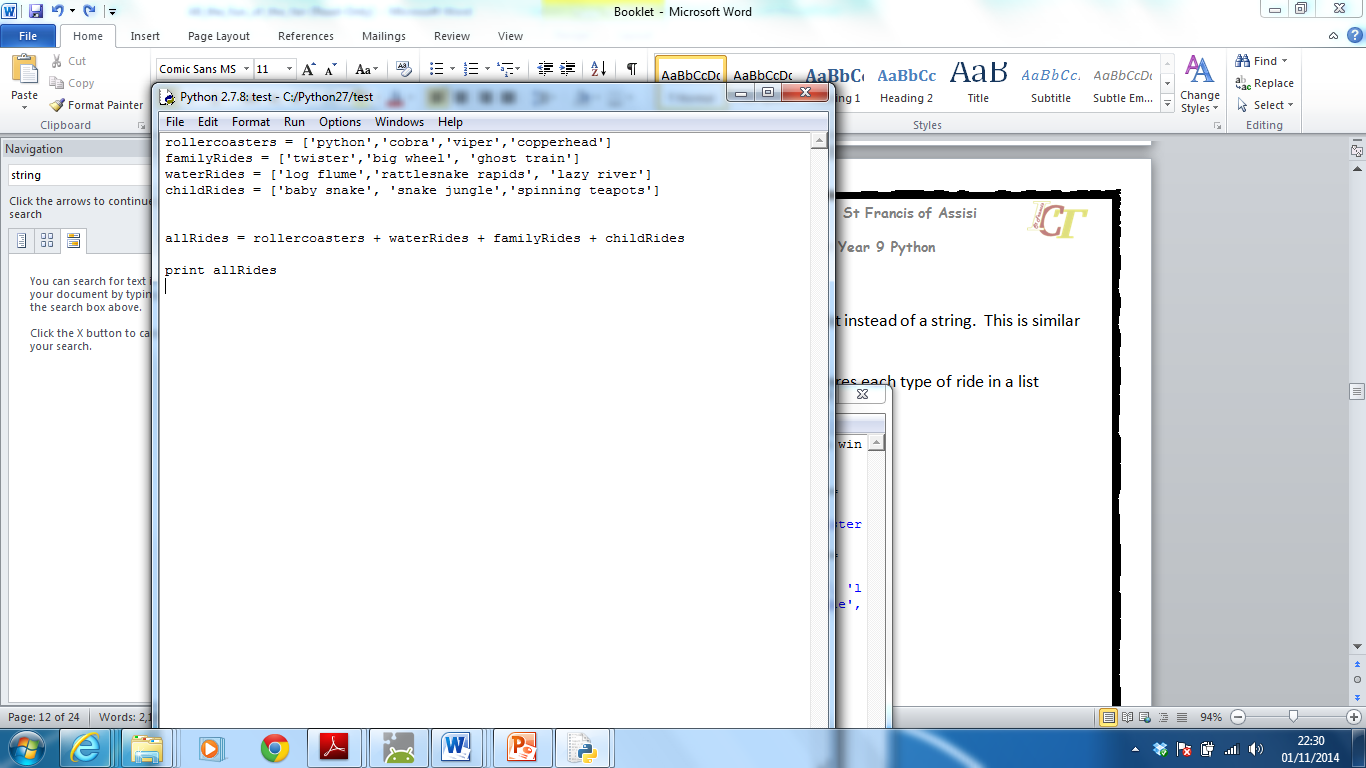
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**Lesson 5: Activity 2 – Using Lists**

It is often more useful to store information as a list instead of a string. This is similar to an array in other programming languages.

Write a new program in a new window which stores each type of ride in a list



What is printed on screen this time when you ran the code?

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What happens if you type print allRides[0] into the python shell?

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What happens when you type print allRides[4:6] into the python shell?

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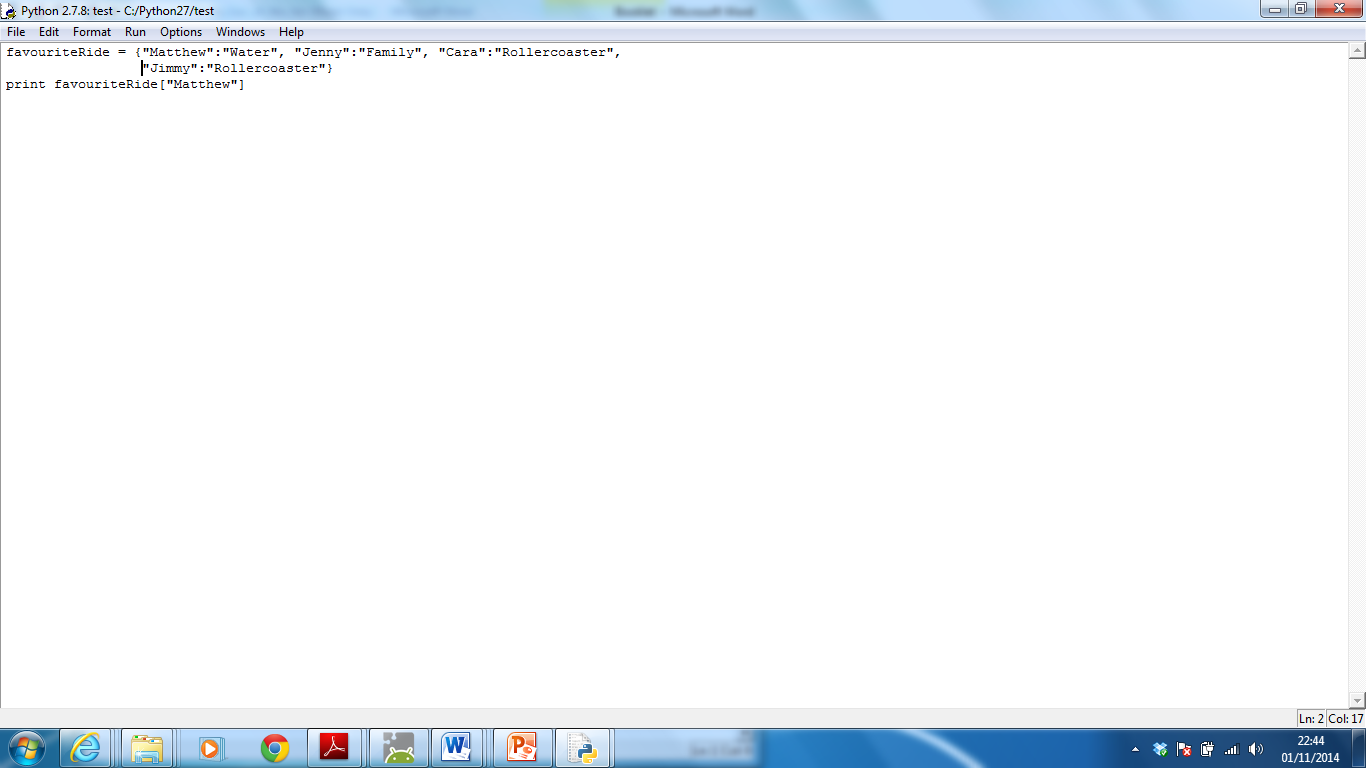
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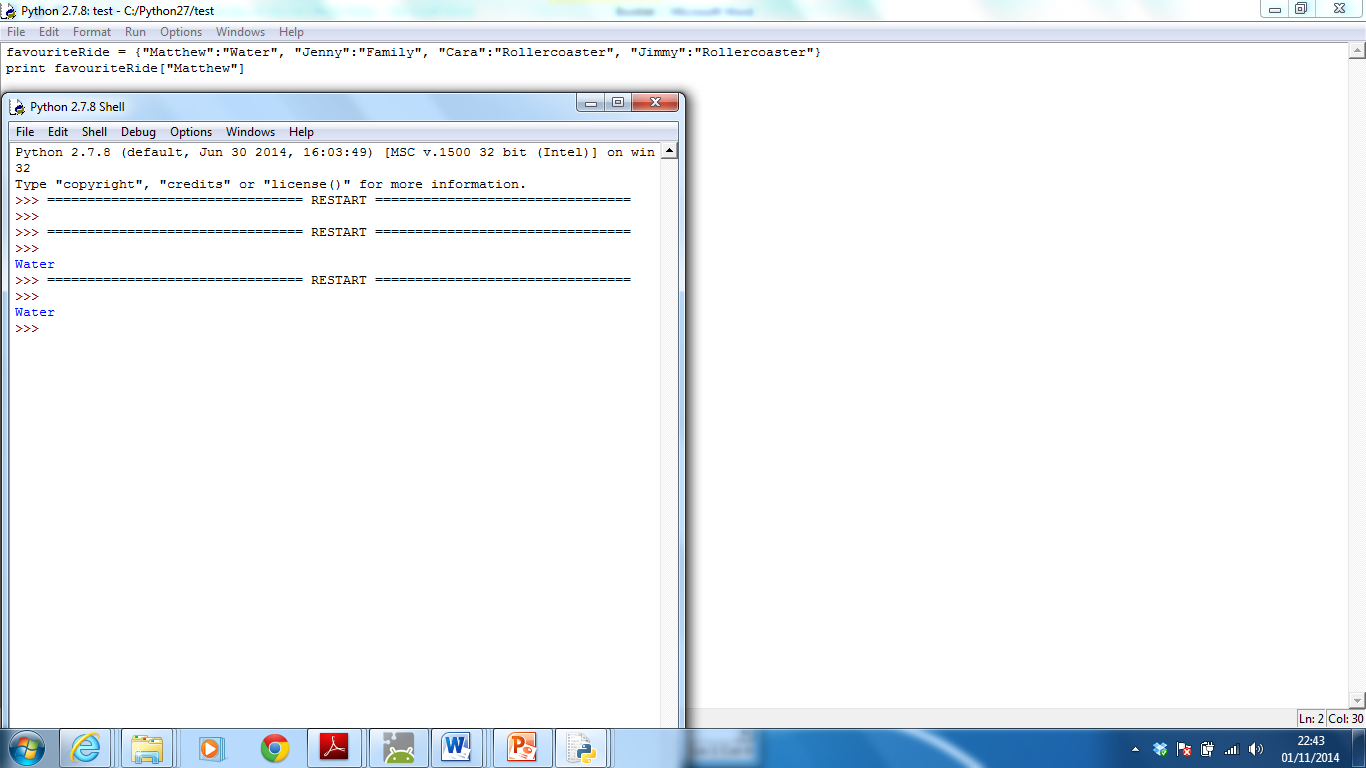
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**Lesson 5: Activity 3 – Dictionary’s**

Another data type in Python is a Dictionary (sometimes called a Map). This is similar to a list but has a key which can be used to find the information quickly.

Copy out the code below





What happens if you type printfavouriteRide(“Jenny”) into the python shell?

………………………………………………………………………………………………………………………………………………………………….

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What happens if you type printfavouriteRide(“Cara”) into the python shell?

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Modify the code above to add two more people and rides. Explain what happened.

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| Date: |  | Lesson Number | **6** |
| Learning Objective/s: | * Learn about the IF Statement * Learn about operators * Learn about indentation. | | |
| Plenary: | Have you met todays learning objectives? Tick (✓) the ones you have and cross (🗶) the ones you haven’t above. | | |
| What I have learnt this lesson?  Ticks (✓) |  | | |

Load up the file “IF statement task.xls”

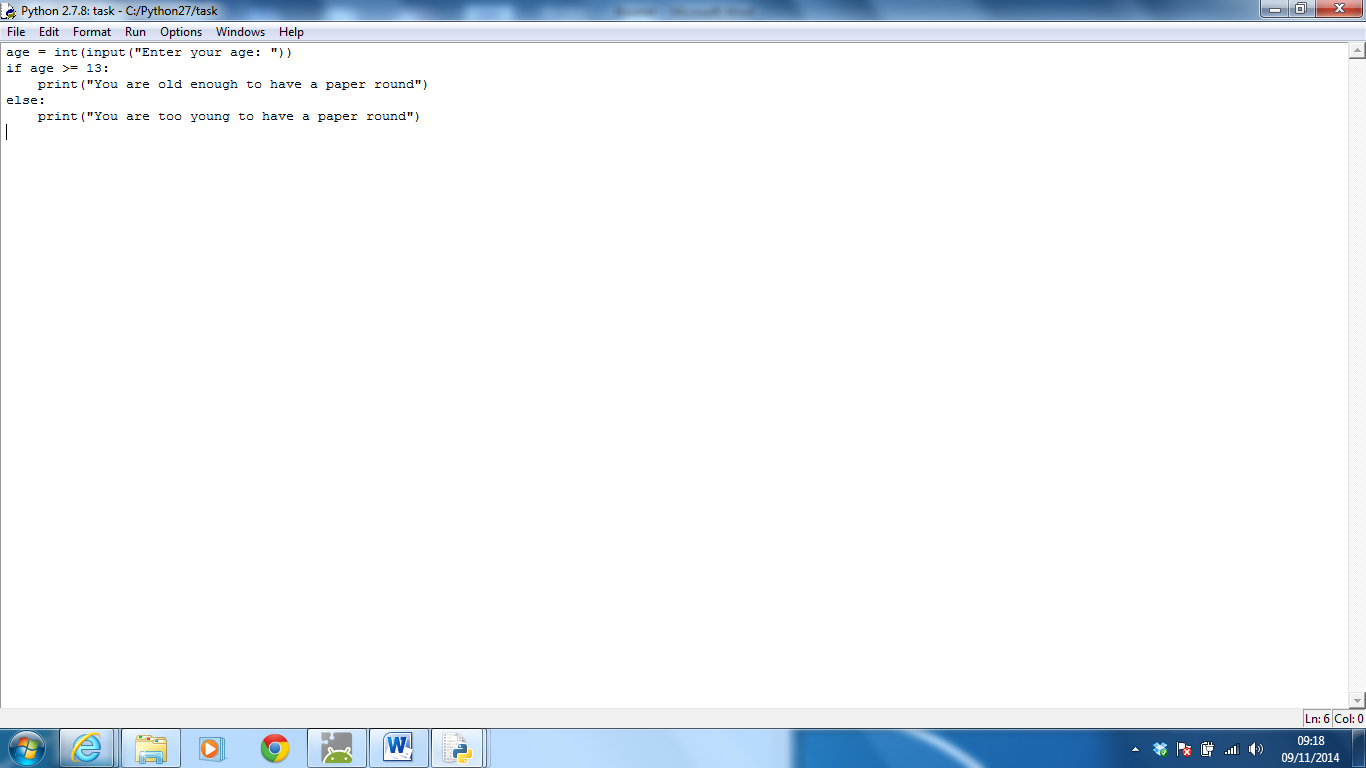
Your teacher will demonstrate this task and you need to complete this activity.

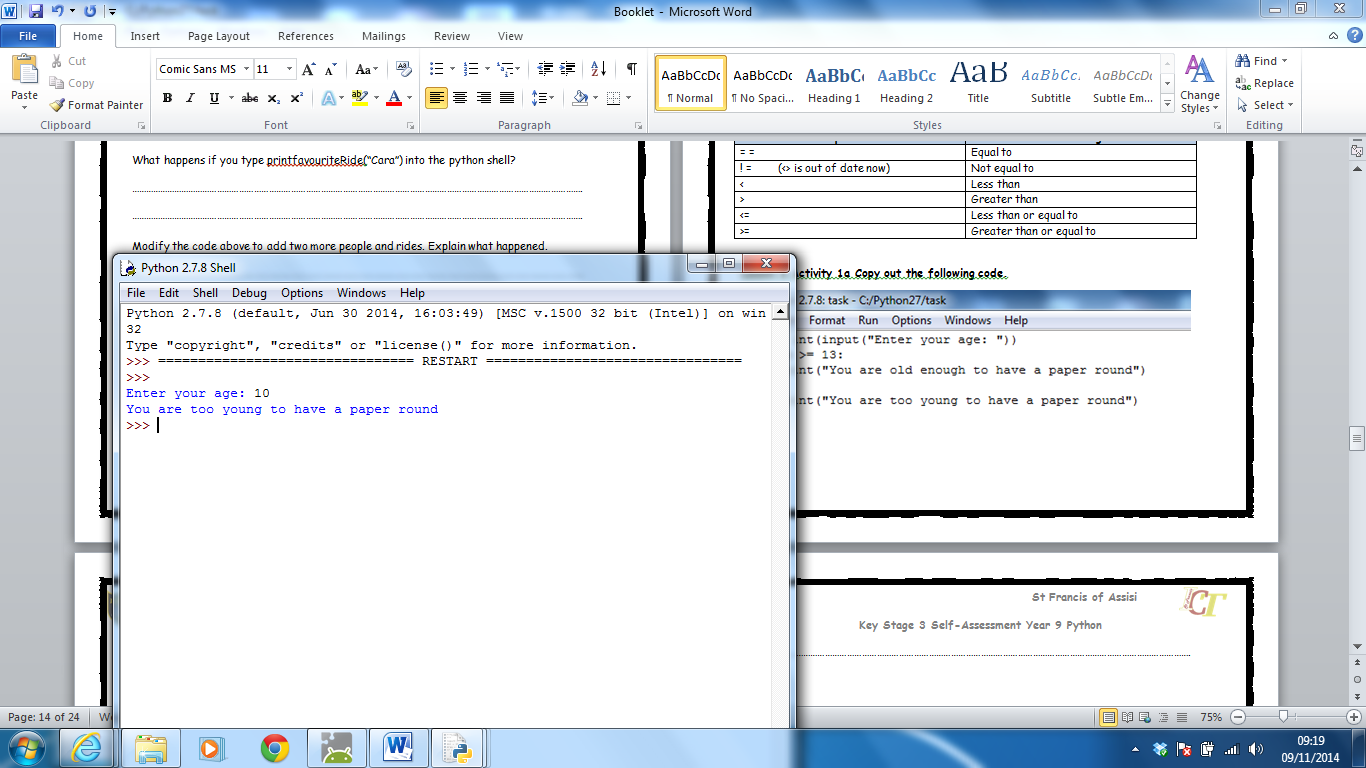
A *Boolean condition* is one that can have only two values **true** or **false** (1 or 0, yes or no).

The boolean comparison operators used in python are as follows:

|  |  |
| --- | --- |
| **Operator** | **Meaning** |
| = = | Equal to |
| ! = (<> is out of date now) | Not equal to |
| < | Less than |
| > | Greater than |
| <= | Less than or equal to |
| >= | Greater than or equal to |

**Lesson 6 Activity 1 Copy out the following code.**





Explain what happened.

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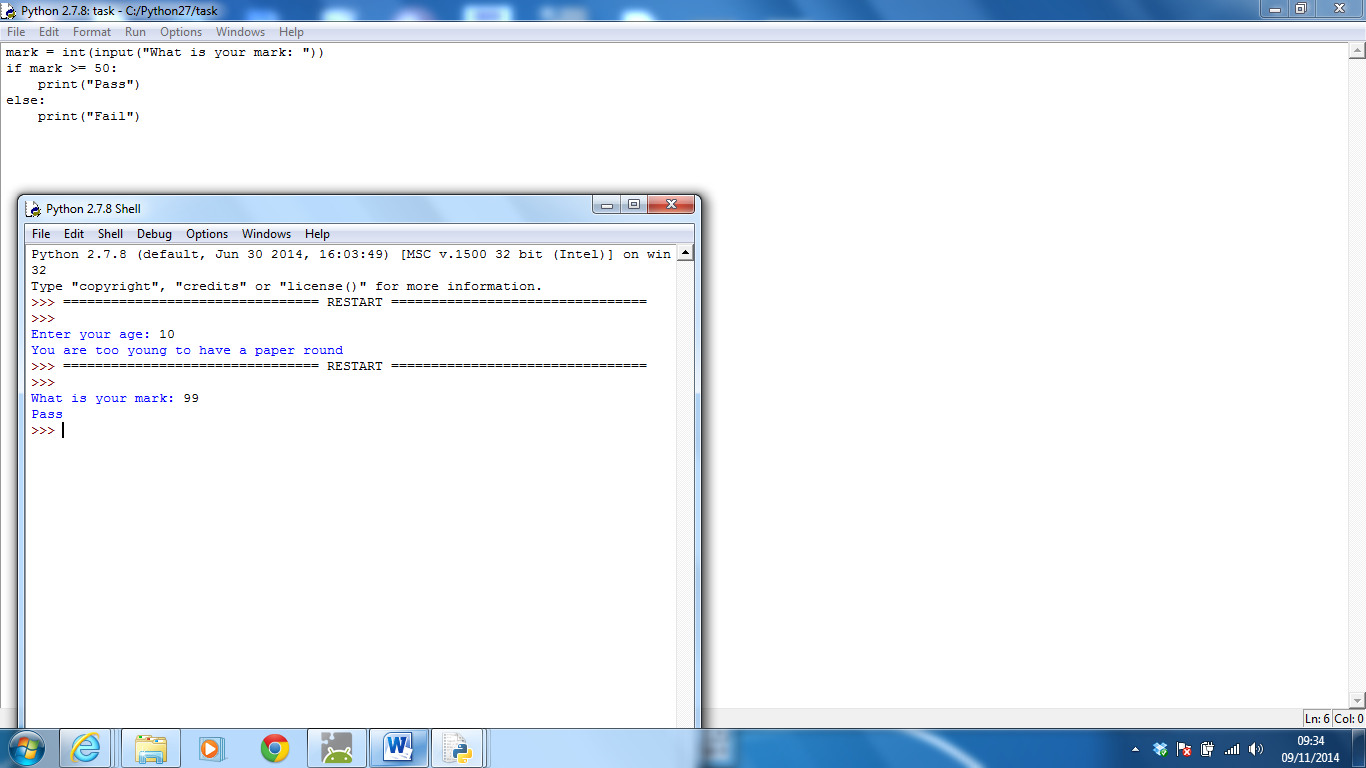
Now adjust the comments for the following scenarios

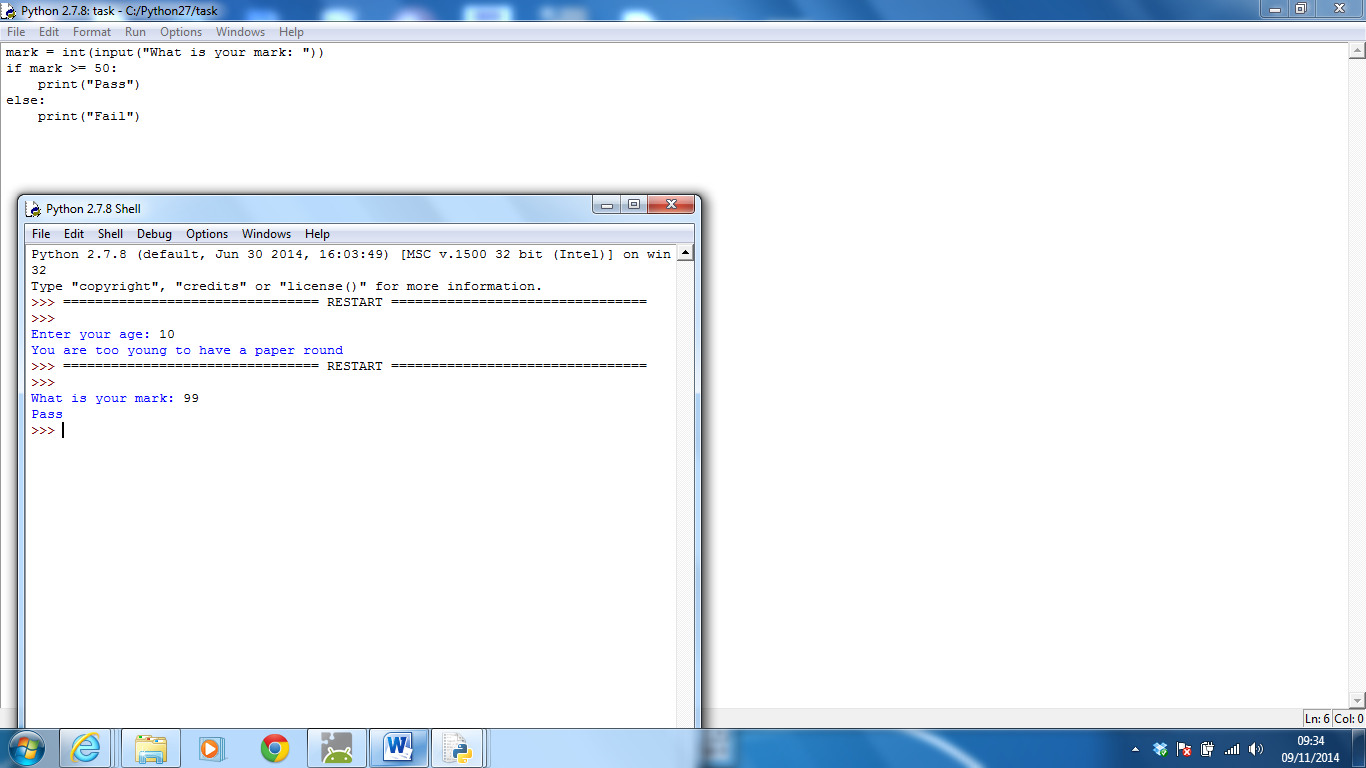
1. To have a credit card at the age of 18
2. To collect a pension at 67
3. To go see X Men Film with “12 Certificate”

Copy out the code above. Explain what happened.

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Copy out the code above. Explain what happened.

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| Date: |  | Lesson Number | **7** |
| Learning Objective/s: | * Learn about the IF and IF ELSE statement * Learn about operators * Learn about arrays. | | |
| Plenary: | Have you met todays learning objectives? Tick (✓) the ones you have and cross (🗶) the ones you haven’t above. | | |
| What I have learnt this lesson? |  | | |

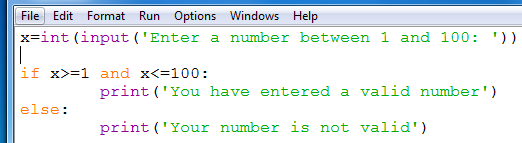
We can tell the computer to do something different when the condition isn’t true using the **else** keyword.

You can extend the IF statement by using an abbreviation of the ELSE IF Function in Python this is written **elif.**

For more complex conditions we can use **and** to create a range between two numbers.

**Lesson 7 Activity 1**

Copy out the following code.



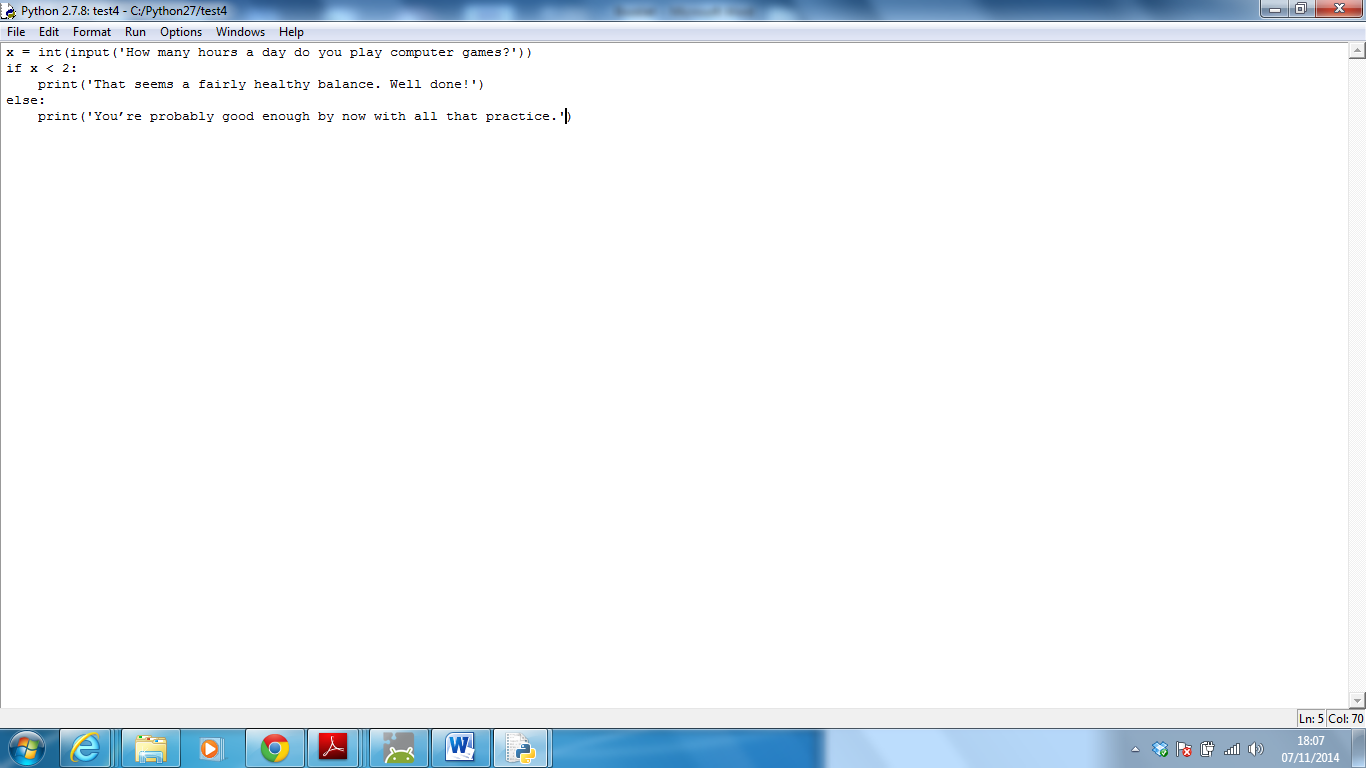
Copy out the code above. Explain what happened.

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**Lesson 7 Activity 2**



Copy out the code above. Explain what happened.

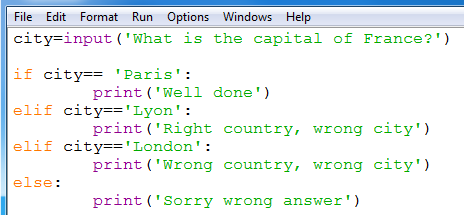
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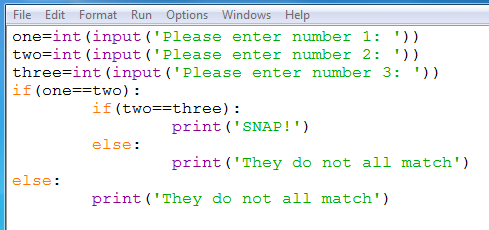
Copy out the code below.

**Lesson 7 Activity 3**



Below is a program that asks for three numbers and outputs SNAP if they all match. Use your knowledge of the **and**, **or** and **not** operators to make the program more efficient.

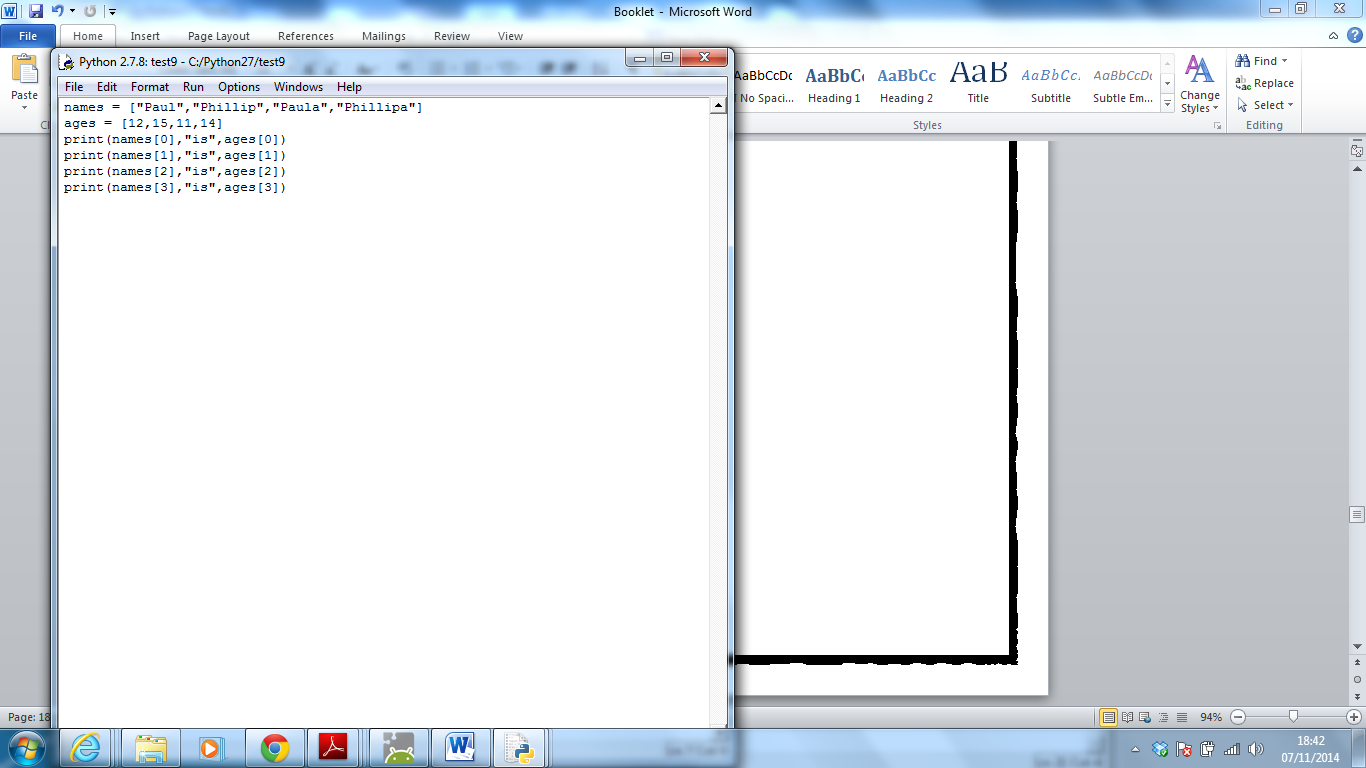
**Lesson 7 Activity 4**



**Lesson 7 Activity 5: Arrays**

An array is a collection of words, numbers or objects that will follow a specific pattern. In programming you may wish to store a set of names and associate these names with a number.

E.g. storing someone’s age, address or phone number in a database.



Copy out the code. Explain what happened.

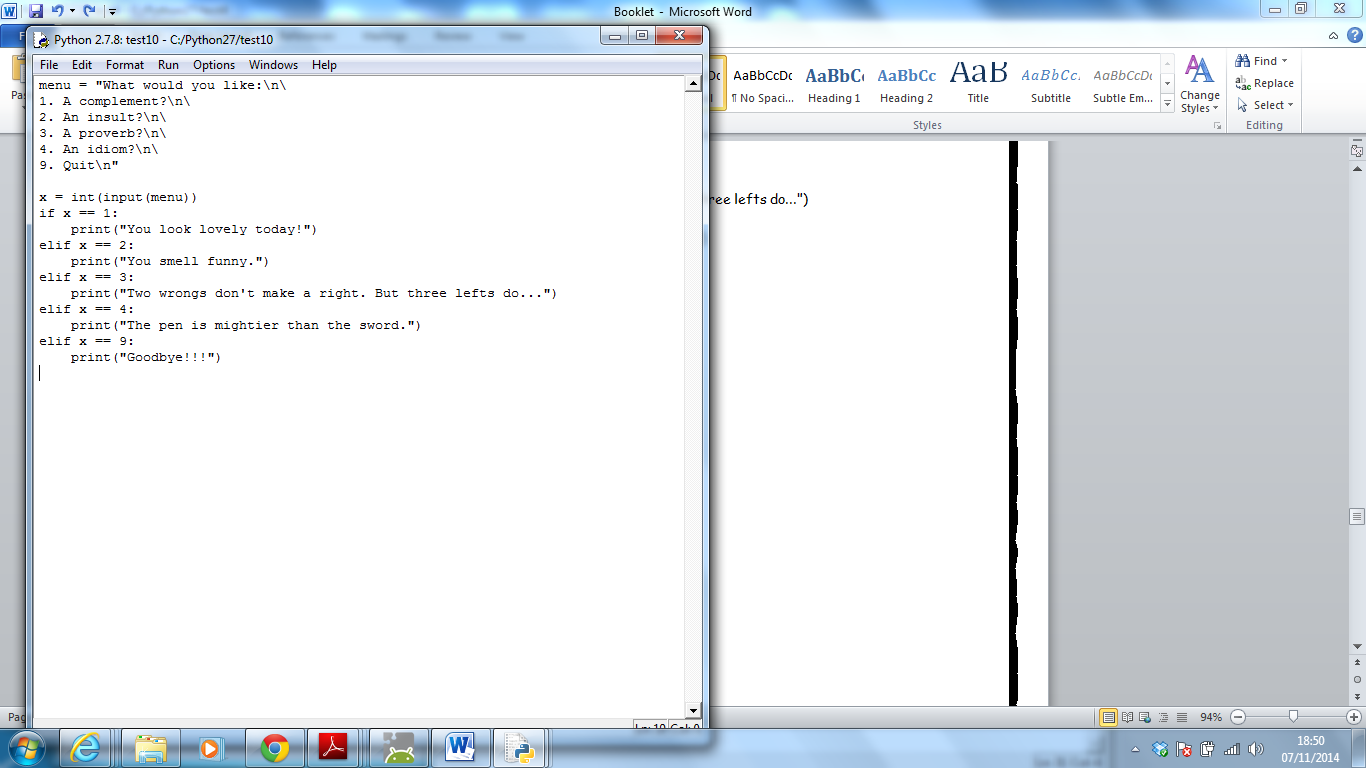
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| Date: |  | Lesson Number | **8** |
| Learning Objective/s: | * Recap n/ commmand * Learn about creating Menu’s * Learn about storing variables and recap the print command. * Learn about the len() command | | |
| Plenary: | Have you met todays learning objectives? Tick (✓) the ones you have and cross (🗶) the ones you haven’t above. | | |
| What I have learnt this lesson? |  | | |

**Lesson 8 activity 1 Copy the code**



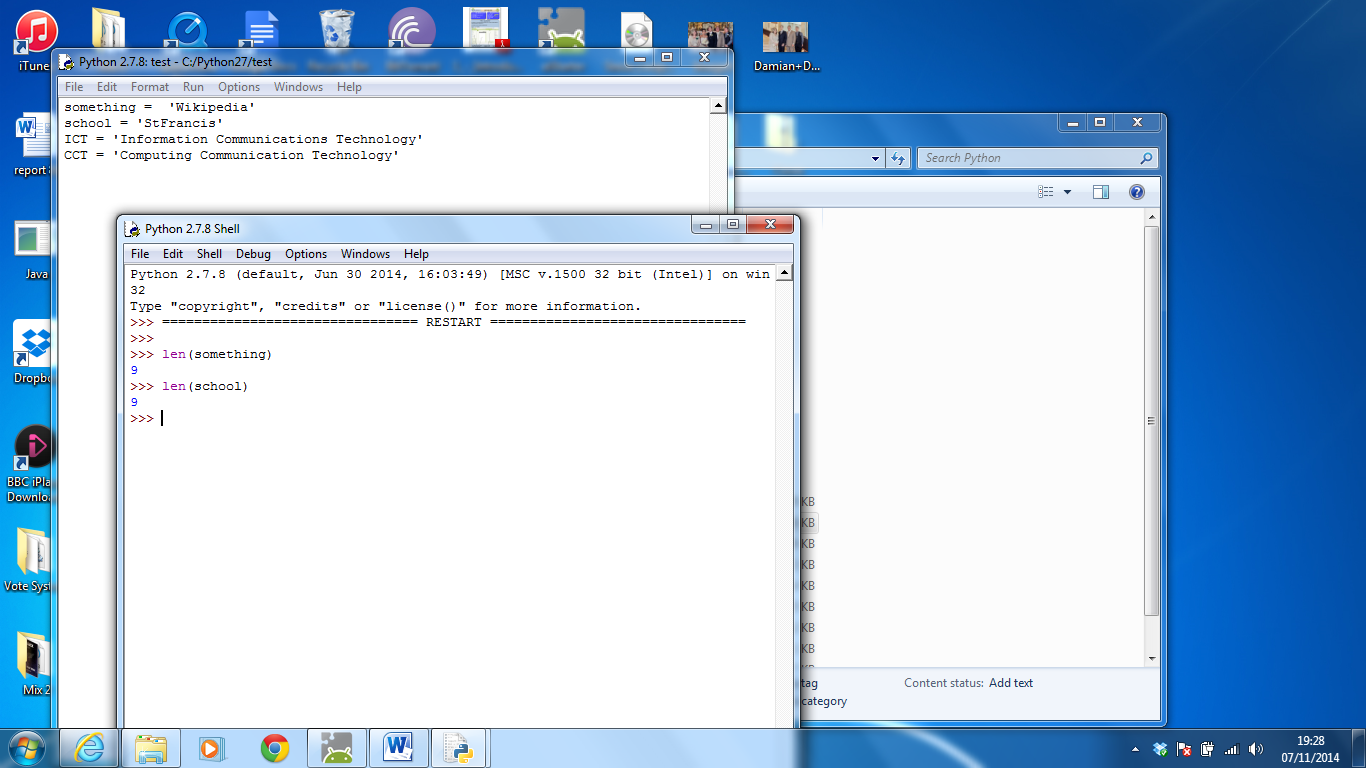
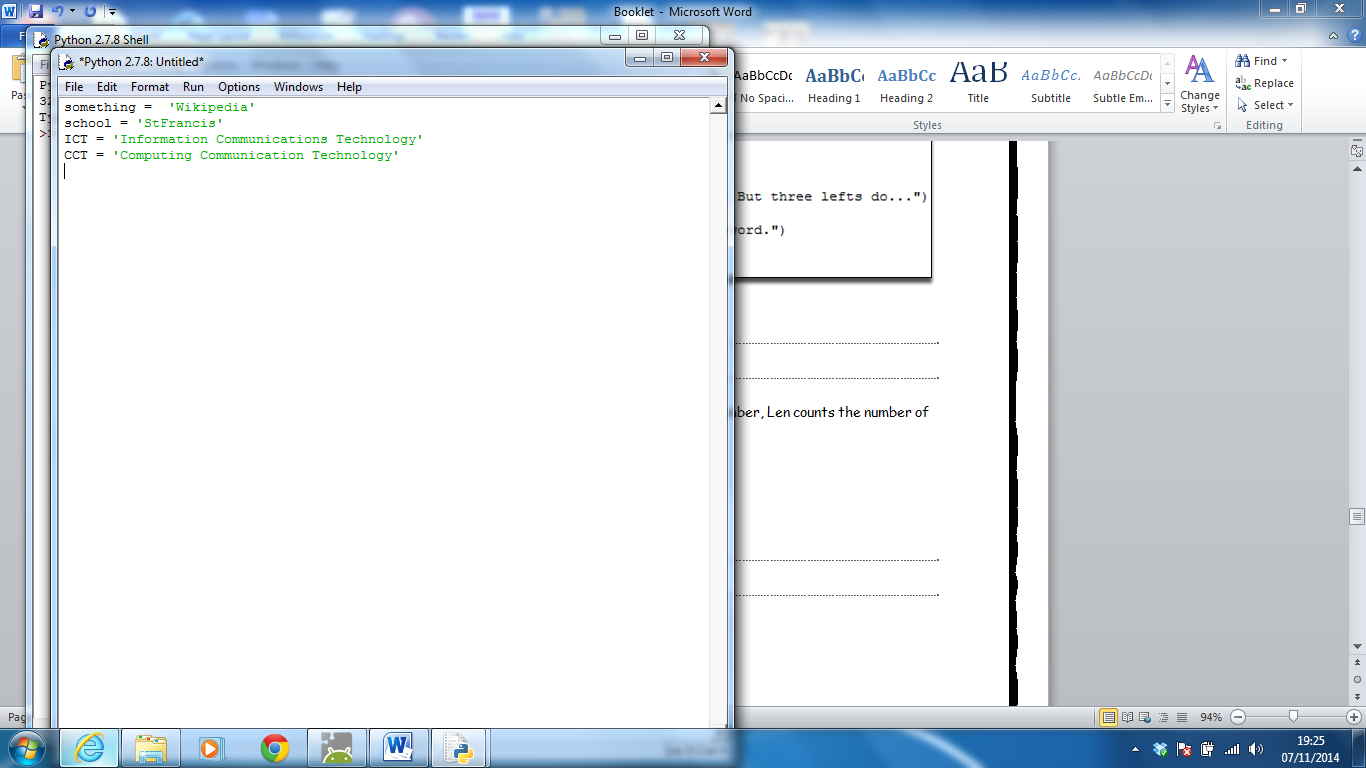
Copy out the code above. Explain what happened.

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The Len is used to denote the length of a string. Remember, Len counts the number of spaces.



Copy out the code above. Explain what happened.

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| --- | --- | --- | --- |
| Date: |  | Lesson Number | **9** |
| Learning Objective/s: | * Learn about using Python Turtle graphics * Learn about movement using Turtle (FW, LEFT) | | |
| Plenary: | Have you met todays learning objectives? Tick (✓) the ones you have and cross (🗶) the ones you haven’t above. | | |
| What I have learnt this lesson?  Ticks (✓) |  | | |

**Starter**

**Try this command…**

import random

x = random.randrange(100)

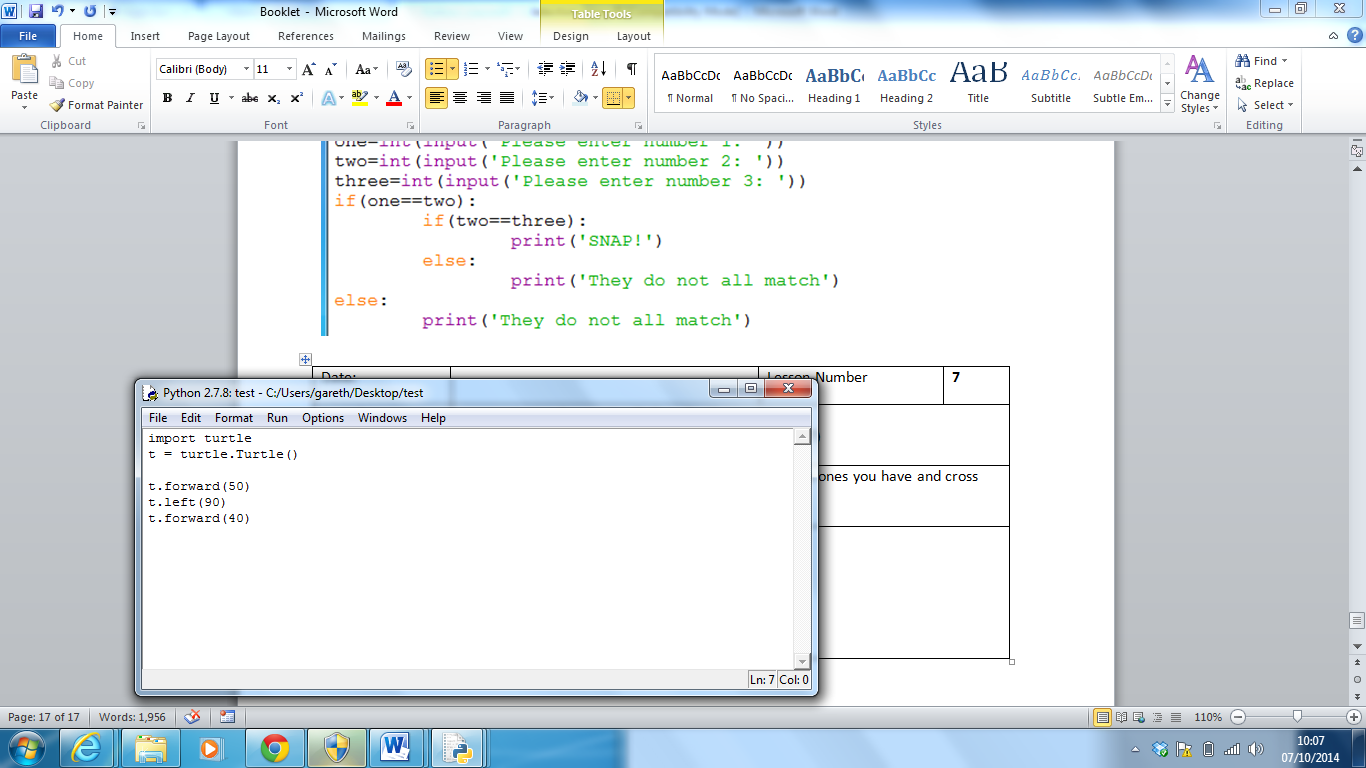
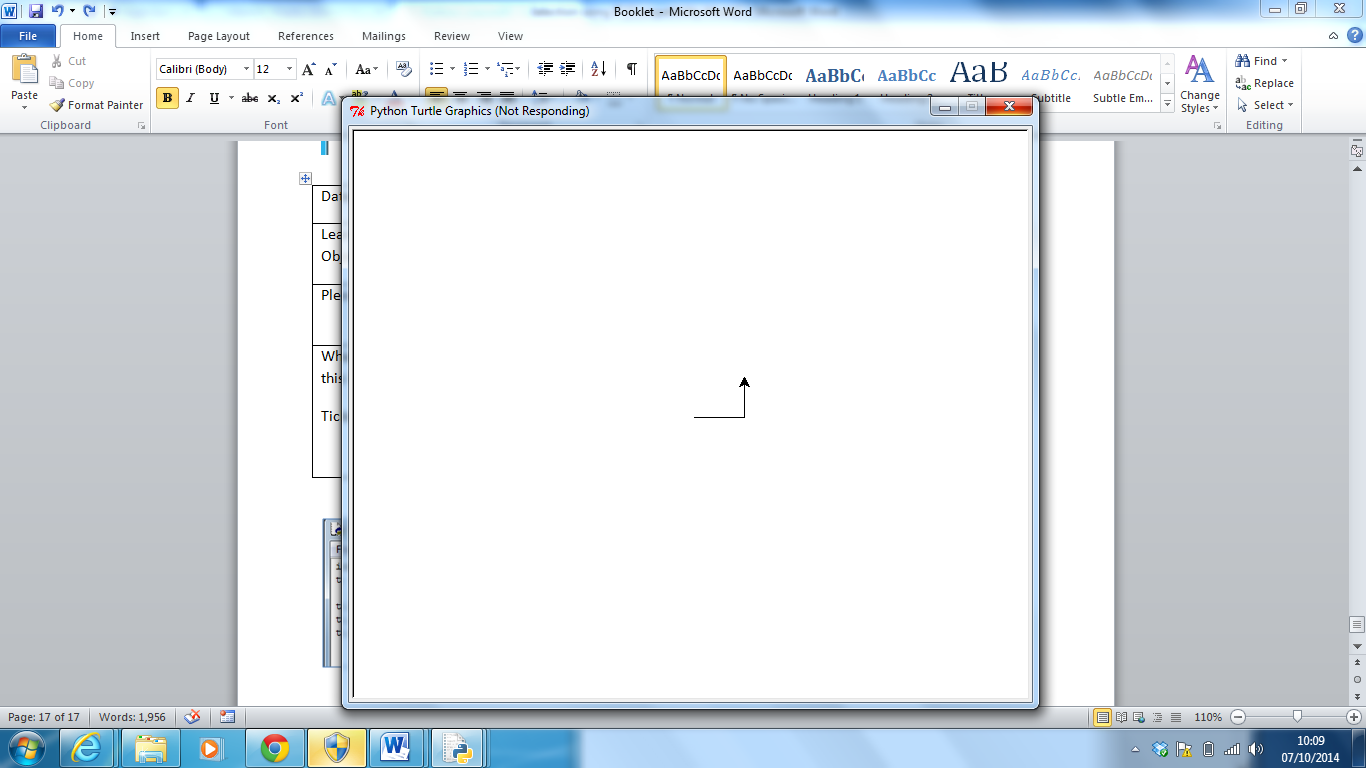
print x

**Lesson 9 Activity 1**

Using a suitable search engine, find out what the following codes to and provide an explanation on the right hand side.

|  |  |
| --- | --- |
| **Code** |  |
| **Program** |  |
| **Variable** |  |
| **Loop** |  |
| **Else** |  |
| **IF** |  |
| **ELIF** |  |
| **While** |  |
| **For** |  |

Try this…..

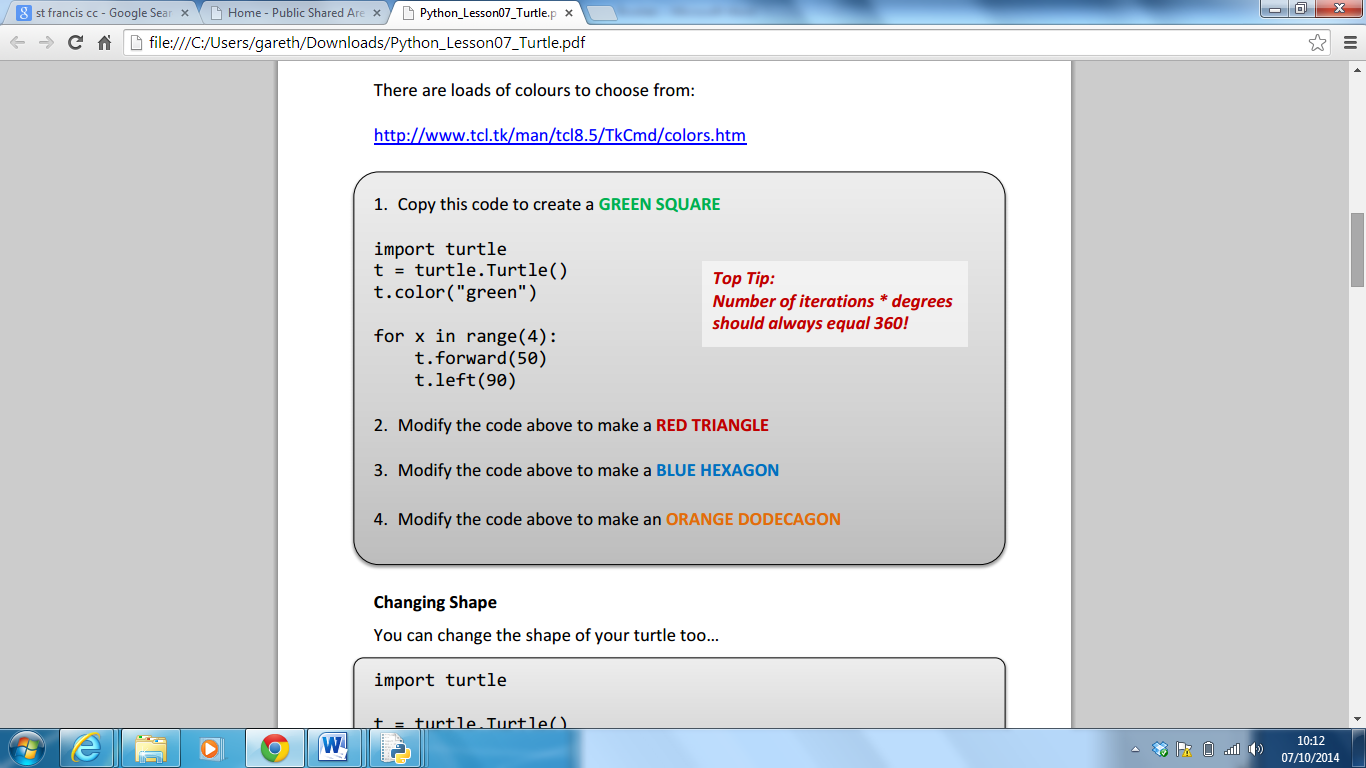
 

Copy out the code above. Explain what happened.

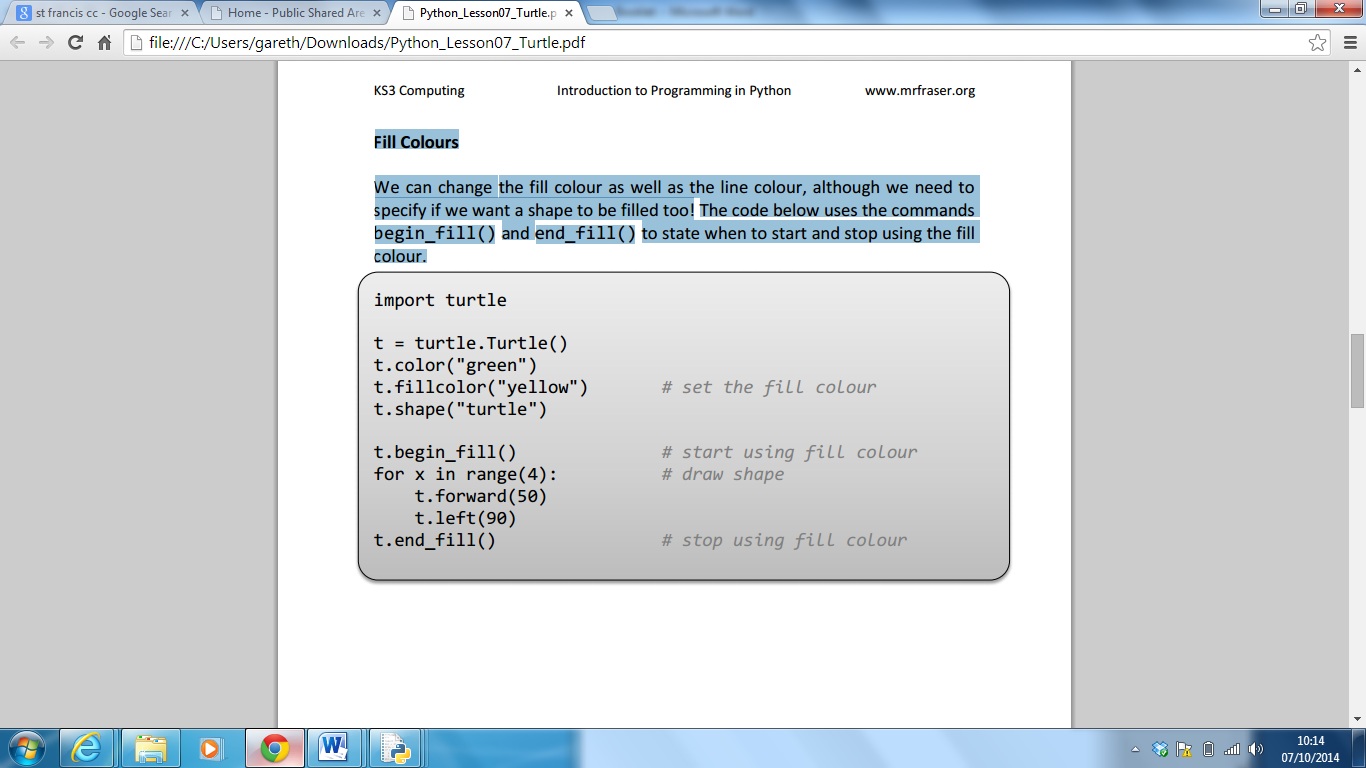
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Now try this to create a Green Square.



**Lesson 9 Activity 1 - Fill Colours**

We can change the fill colour as well as the line colour, although we need to specify if we want a shape to be filled too! The code below uses the commands begin\_fill() and end\_fill() to state when to start and stop using the fill colour.

Now experiment with the Turtle codes using the comments overleaf.

