A Little Bit Of Python 3

For the three code-club sessions before half-term we are going to learn a little bit about a programming language called **Python**. We will be using Python 3.

Everything about Python is free: you can download and use it for free, there are excellent manuals and examples and tutorials on the web, all accessible for free.

The first thing to know about Python is that it is not a "toy" language; it is used for real and important tasks, at companies like Google and YouTube and at places like CERN (the atom smashers) and NASA (those guys who went to the moon). So, if you enjoy this little introduction to Python, there is lots more to learn! If you enjoy it (and you get good enough!) you could get a job writing Python programs!

From the windows Start menu, click on Python (you may need to scroll down) and select **IDLE**

This window is called the "**Python Shell**" (there, it says so at the top of the window). The ">>>" is called the "**prompt**" – it's inviting you to type something it. Try typing some of these lines in carefully, one by one. Press the "**return**" key after each line and see what happens. If you make a mistake before you press "return", use the "**backspace**" key to correct it. If you get an error message after you press "return", don't worry; try again (the python shell prints error messages in red, so that you can spot them easily).

```
print ('hello')
print (4 + 6)
print ('hello' + 'children') # this is a comment - don't type it.
print ('4' + '6')
print (4 + 6)
print ('4' + 6)              # this will give an error
print (int('4') + 6)
print ('4' + str(6))
```

Good. Now let's try our first (really simple) program:

```
def greet():
    print ('I am named Walkers Crisps, what is your name?')
    a_name = input()
    print ("Hello " + a_name)
    if (a_name == 'Walkers Crips'):
       print ('What an amazing coincidence!')
```

Don't type it in yet! Read through it. There are some **braces**, **quotes** and **colons** and an **equals sign** ( ) ' := -- take a look and find them on the keyboard (shift 9, shift 0, quote is two along from L and looks as though it might be a comma. Colon is shift semi-colon, next to L. Equals is next to the backspace key). Also, notice that there are some spaces at the start of some lines. This is called "**indentation**" and Python will complain bitterly if you don't use it to keep your program neat and tidy. The good news is that IDLE will put that indentation in for you automatically. When you get to the end of the program, press "return" until you get back to the prompt (">>>", remember). OK, now type it in.

If you get all the way to the end and get back to the prompt, you can try your program out:

```
greet()
```

You should see a message printed on the screen. Type in your name and press "return". Once you see the prompt again, your program has finished. You can run it again in exactly the same way. Try pretending that your name is Walkers Crips. Can you see what how program is working? What happens if you pretend that your name is walkers crips or WALKERS CRISPS?

The trouble with typing in programs in the Python Shell is that it's hard to fix a mistake if you don't spot it before you've pressed "return". Instead, we will open an "**editor window**" for entering our programs in:

In the Python Shell find the "**menu bar**" at the top and select **file** then **open** (this is normally written as **file->open –** the right arrow indicates following first one menu then another). Now, use the **file dialogue** to **navigate** to the "S:" drive and then to the "code club" **folder** then "python". Finally, select the **file** py_bits_ .py

Now you should have 2 windows. The old one still has the title "Python Shell". The new one, which we'll refer to as the "**editor window**" has a title something like "py_bits_ .py". You might want to move the windows so that they are side-by-side. Before you can type in one of the windows, you'll need to click in it with the left mouse button to **select** the window.

Notice that the text in the editor window is in different colours. The editor does that for you automatically. Let's run the **code**.

In the editor window find the menu bar and select Run->Run Module. Now select the Python Shell. It should be inviting you to type in your name. Follow the instructions printed in the Python Shell and see if you can look in the editor window and see each piece of code and what it does in the Python shell.

Eventually, you will get back to the **prompt**. Loading that file has left some programs for you to run. Try them out:

```
who()
dice()
add_2(19)
guess()
```

Notice that, as you type them in, little **tool tips** pop up to show you what sort of thing the Python Shell is expecting you to type.

Try making some changes to the **code** in the editor window and running it again with Run->Run Module. The editor will offer to save your program (say yes). If you get an error message, the Python Shell will tell you what line the error was on; go back and try to fix it and run the code again.

That's all for today. There were lots of new ideas here (I tried to use **bold text** for most of them). IF you got this far, and some of the code in the editor window make sense, you're doing really well! Next week we are going to use some of these ideas to draw some turtle graphics.

You can take this sheet home with you to read through again if you want to.

If you have access to a PC at home, you can download python from www.python.org (select version 3.3.3 or 3.4.0). Learn more Python at http://inventwithpython.com/chapters/ (online book)