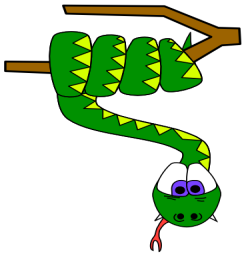


Welcome to …
Introduction to programming in Python

Suffolk One, Ipswich, 4:30 to 6:00
Tuesday Jan 14, Jan 21, Jan 28, Feb 11

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Welcome

- Fire exits
- Toilets
- Refreshments

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Learning objectives of the course

- An introductory course to computer programming and computational thinking using the Python programming language
- Aimed at both primary and secondary teachers
- Assumes no previous knowledge of programming

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Introductions

Nicky Hughes

- Open University Associate Lecturer in Computing Faculty
- Computer Science Teacher Bury St Edmunds County Upper School
- Involved with writing the Edexcel GCSE Computer Science Specification
- Involved with school robotics (RoboCup international competitions)
- Worked in IT industry (BT) for 10 years
- CAS “Master Teacher”

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Please introduce yourself….

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

What is computational thinking…

- The concept of computation existed before computers …
- Computation is about solving problems
- The formal study of computation is based on logic and mathematics and is called computer science.
- Computer science focuses on algorithms – a step by step list of instructions that solves a problem

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Algorithms we use in every day life...

- Making a sandwich
- Sorting a pack of cards
- Searching for word in a dictionary
- Adding up a list of numbers

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

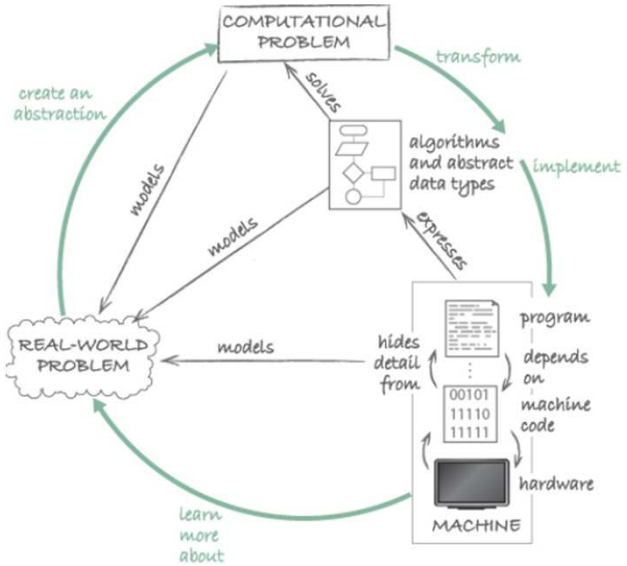


Figure 1.39 Computational thinking overview diagram

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Jeanette Wing, Professor of Computer Science at Carnegie Mellon introduced the concept of Computational Thinking

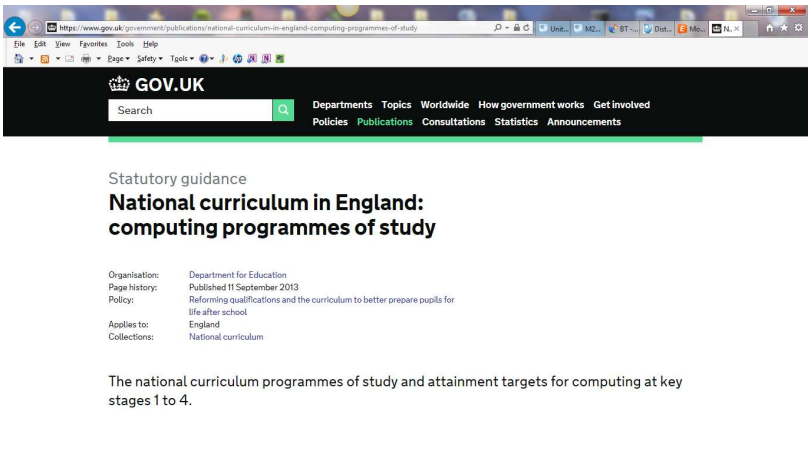
Computational Thinking is not just knowing how to use a particular algorithm but when faced with a problem being able to solve that problem using the techniques and skills of computer science…

.

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

National Curriculum 2014: Computing programmes of study



NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Aims

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Key stage 1

Pupils should be taught to:

- understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Key stage 2

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Key stage 3

Pupils should be taught to:

- design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems
- understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem
- use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions
- understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]
- understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems
- understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits
- undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users
- create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability
- understand a range of ways to use technology safely, respectfully, responsibly and

NET
EXC

UTING AT SCHOOL
· ENGAGE · ENCOURAGE
n with BCS, The Chartered Institute for IT

How to talk about programming

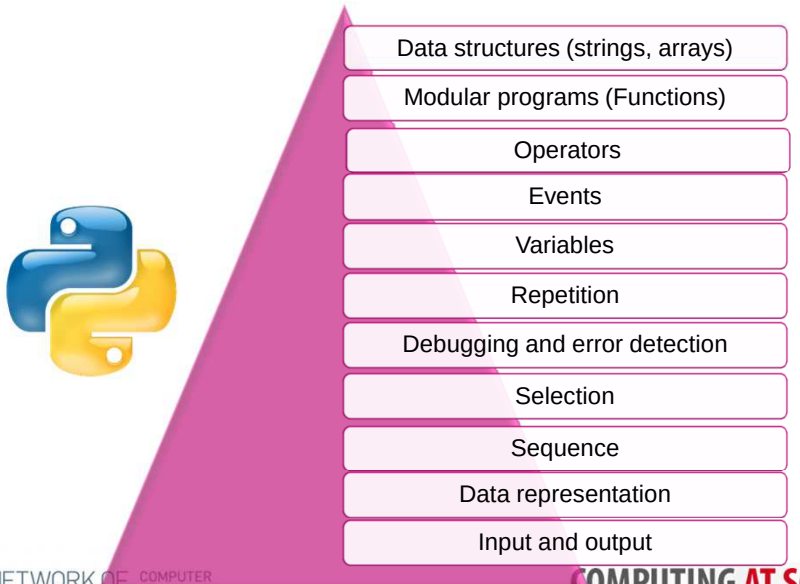
1. The problem to solve
2. Explain the problem in words
3. Explain the problem in "computer science speak"
4. Write the program code to solve the problem

As computer scientists we must be able to explain the code.

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Computational thinking – programming building blocks



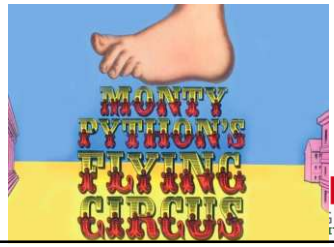
NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Why Python?

- Python was written by Von Rossum
- first version released in 1989 in the Netherlands
- Van Rossum wanted a short name that was mysterious, so he called the language Python..
- Claim that it was named after the TV series “Monty Python Flying Circus”
- There are different versions

of Python. We are using Python 3



NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

Why python?

- Python is open source which means it is being continually improved and free for anyone to contribute
- Easy to use
- Powerful language (programming constructs and data structures)
- Comes with an easy to use development environments (IDLE, Komodo)
- Runs on many different computers and operating systems eg Raspberry Pi
- Object oriented as well as being procedural

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

What has been written in python?

- “You Tube” is written in Python
- Games eg Civilisation
- Google teaches all its programmers Python
- Many universities and schools around the world are now teaching Python.

Just a few of the companies that use Python…..

- IBM, Microsoft, NASA, Red Hat, Yahoo, Electronic Arts, 2K Games, Disney Interactive Media Games etc

Section end

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL EDUCATE · ENGAGE · ENCOURAGE In collaboration with BCS, The Chartered Institute for IT

Starting to program in Python

Learning outcomes

- Be able to run simple program in the interactive mode
- Be able to run programs in the script mode
- Use the print function
- Perform calculations
- Understand data types
- Add comments to your programs
- Use variables
- Use the input function

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Starting to program in Python

Learning outcomes

- Be able to run simple program in the interactive mode
- Be able to run programs in the script mode
- Use the print function
- Perform calculations
- Understand data types
- Add comments to your programs
- Use variables
- Use the input function
- Use the int function

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

IDLE (Integrated Development Environment)

2 ways of running programs in IDLE:

- Use the Python interactive shell >>>
- Use the script mode which lets you save the commands in a .py file

NETWORK OF COMPUTER SCIENCE EXCELLENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Use the Python interactive shell >>>
to say “hello world” using the print function

```
>>> print("hello world")
hello world
```

```
print("Hello world")
```

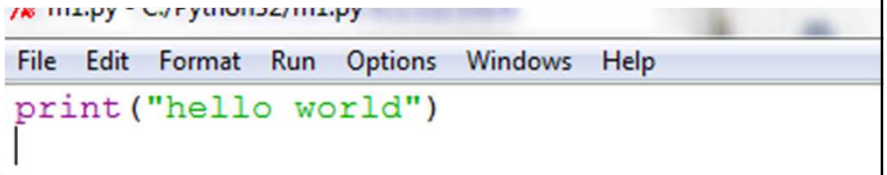
function

arguments

NETWORK OF COMPUTER SCIENCE EXCELLENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Using the script mode to say “hello world!”

- Use file/New window to open a Python window
- Type the commands in the file
- file/save and give the file name with type .py
- Run/Run module will “run” the commands in the file
- Results are displayed in the python shell



NETWORK OF COMPUTER SCIENCE EXCELLENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

File names in Python

- Only use standard characters for file names: letters, numbers, dash (-) and underscore (_).
- White space (" ") should not be used at all (use underscores instead).
- Do not use anything other than a letter (particularly no numbers!) at the beginning of a file name.
- Always save the program with the extension .py

If your commands are not shown colour coded it is because you have not saved as a .py file.

NETWORK OF COMPUTER SCIENCE EXCELLENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Python is case sensitive!

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Using the interactive shell

Separate arguments with commas, this will inserts a space.

```
>>> print("hello","goodbye")
hello goodbye

>>> print("hello\nhello\nhello")
hello
hello
hello
>>>

>>> print("hello" * 10)
hellohellohellohellohellohellohellohellohellohello
>>>
```

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Sequences – Have a go in Python

1) Print on the screen your name

2) Print on the screen (using just one line)
   My name is <your name>
   I live in Suffolk

3) Print on the screen
   “hello world hello world hello world”
   “good bye good bye”

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Sequences – Have a go in Python

1) Print on the screen your name

```
print("Nicky Hughes")
```

2) Print on the screen
   My name is Fred
   I live in Suffolk
   I love programming!

```
print("My name is fred")
print("I live in Suffolk")
print("I love programming")
```

```
print("My name is fred\n I live in Suffolk \n I love programmi
```

3) Print on the screen
   hello world hello world hello world
   good bye good bye

```
print("hello world hello world hello world")
print("good bye")
print("hellow world "*5,"good bye "*2)
```

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
In collaboration with BCS, The Chartered Institute for IT

Detecting and Correcting Errors in Python

- Syntax errors occur in Python when you make a mistake entering the language commands – it means that the language you have used does not follow the correct rules.

What is wrong with this command? Experiment with making mistakes.

print hello world

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Errors in Python appear in red

Look carefully at the error messages they try to tell you what is wrong.

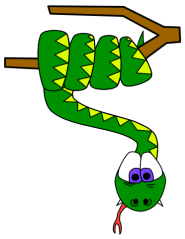
```
>>> prinn(hds)
Traceback (most recent call last):
  File "<pyshell#60>", line 1, in <module>
    prinn(hds)
NameError: name 'prinn' is not defined
```

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

DEBUGGING ….

It is OK to fail when programming – this is how you learn



NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Calculations in Python

```
>>> 67 + 9
76
>>> 78 - 9
69
>>> 4 * 5
20
>>> 20 / 8
2.5
```

+ add
- subtract
/ divide
* Multiple
** exponential
// integer division
% modulus (remainder after division)

Numbers are either integer (int) or "real numbers (float)
Integer are whole numbers eg 8,98, -65
Float numbers are numbers with a fractional part eg 5.2, 78.455

Dividing one integer by another integer gives a float

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Use the interactive shell >>>> to calculate

78 plus 56 ?
89 divided by 6 ?
90 multiplied by 65 ?
76 minus 67 ?
The remainder when 13 is divided by 2 ?
How many times can 21 be divided exactly by 5?

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

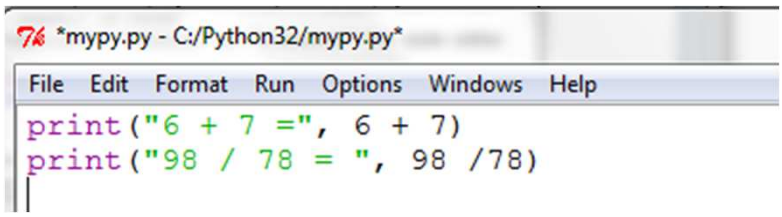
Use the interactive shell >>>> to calculate

78 plus 56 ?
89 divided by 6 ?
90 multiplied by 65 ?
76 minus 67 ?
The remainder when 13 is divided by 2 ?
How many times can 21 be divided exactly by 5?

```
>>> 78 + 56
134
>>> 89 / 6
14.833333333333334
>>> 90 * 65
5850
>>> 76 - 67
9
>>> 13%2
1
>>> 21//5
4
```

NETW EXCEL
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Run these commands from a .py file
Use the print function to display the answers



NETWORK OF COMPUTER SCIENCE EXCELLENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Brackets () can be used to control the order in which the calculation occurs.

- The precedence order is:

Brackets, **E**xp**O**nential, **D**ivision and **M**ultiplication, **A**ddition and **S**ubtraction

B E D M A S (or BODMAS)

Experiment at the interactive prompt and explain the answers

>>> 6 + 5 / 2

>>> (6 * 5) / 2

>>>3 + 2 / 2 * 5

>>>(3+2) / (2 * 5)

NETWORK OF COMPUTER SCIENCE EXCELLENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Brackets () can be used to control the order in which the calculation occurs.

- The precedence order is:

Brackets, **E**xp**O**nential, **D**ivision and **M**ultiplication, **A**ddition and **S**ubtraction

B E D M A S (or BODMAS)

Experiment at the interactive prompt and explain the answers

```
>>> 6 + 5 / 2
>>> ( 6 * 5) / 2
```

```
>>> 6 + 5 / 2
8.5
>>> (6 * 5) /2
15.0
```

```
>>>3 + 2 / 2 * 5
>>>(3+2) / (2 * 5)
```

```
>>> 3 + 2 / 2 * 5
8.0
>>> (3 + 2) / (2 * 5)
0.5
```

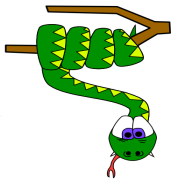
NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Data types in Python
Every object in Python has a data type which determines what you do with it:

Type	Example
Strings	“this is a string”
Integer number	23
Floating point numbers(real)	5.6
Boolean	True or False

.



NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Use the **type** function to display the type the data.

```
>>> type (6)
<class 'int'>
>>> type(65.9)
<class 'float'>
>>> type("string")
<class 'str'>
>>> type(True)
<class 'bool'>
```

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Use the interactive shell to explore data types

Data types

Use the “type” function to find out the data types for these values.

>>>type("Fred")

>>>type(198)

>>>type(88.9)

>>>type(True)

>>>type(False)

Hint: Remember that True and False must start with a capital letter.

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

IDLE Colour coding of commands

IDLE colour coding	What does it show	Example
green	strings	“hello”
purple	functions	print()
black	variables and data	myName
orange	key commands	if
Dark red	comments	# This is a comment
red	Error messages	NameError: name 'jfkd' is not defined

Python uses colour coding of commands)

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Variables

- Variable are like a box in which you can store things
- You can store values in variables to use them later in your program.
- Give the variables a meaningful name
- Values are assigned to variables using the equals sign

```
>>> myName = “Fred”
>>> number = 56
>>> age = 67
```

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Experiment with variables at the interactive prompt.

```
>>> myName = "Nicky"
>>> myAge = 21
>>> myCat = "Roofie"
```

Use the print command to display the value assigned to the variables.

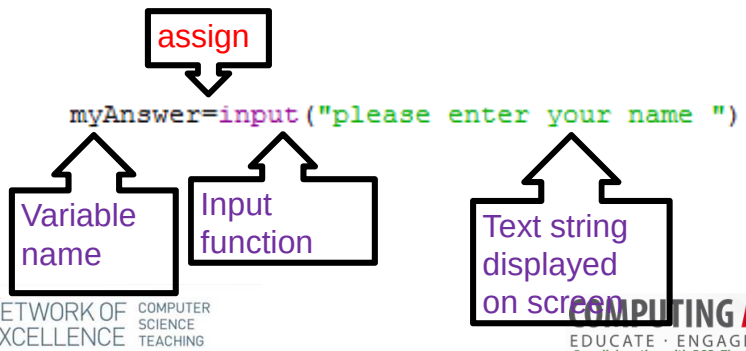
```
>>> print(myName,myAge,myCat)
```

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Use the input function to prompt user to enter a value and assign it to a variable

```
myAnswer=input("please enter your name ")
print(myAnswer)
```

What does the command do?



NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Enter this command in the script mode.
What does this program do?

```
myAnswer=input("please enter your name ")
myAge=input("Please enter you age ")
print("My name is ", myAnswer," I am", myAge,"years old")
```

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

The input function expects a string so we have to change it into an **integer** using the function int when entering a number

```
number=int(input("Please enter your first number "))
print(number)
```

Order of evaluation: inner brackets first

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

What does this program do? Have a go in Python

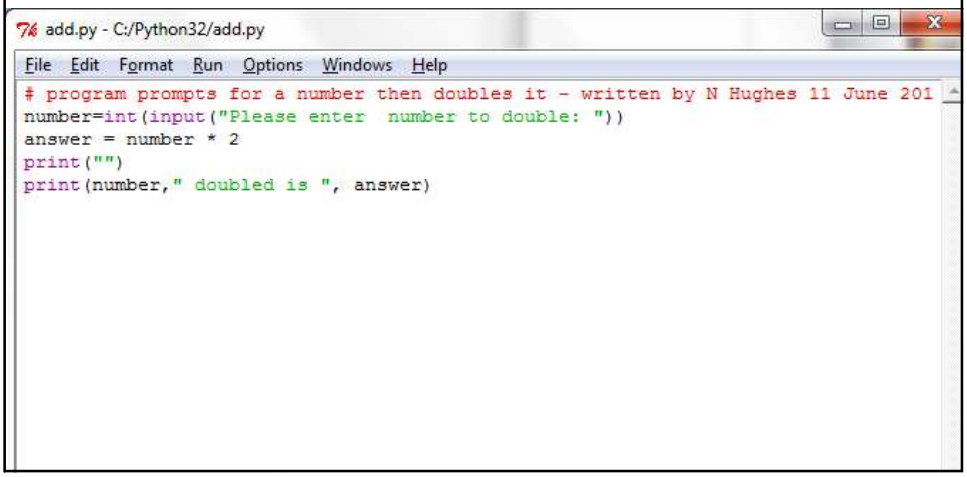
```
numberOne=int(input("Please enter first number: "))
numberTwo=int(input("Please enter second number: "))
answer = numberOne + numberTwo
print("")
print("the answer is: ", answer)
```

Try it!

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Write a program that asks you to enter a number then displays the number doubled.



Have a go in Python

Write a program that asks you to enter a number then displays the number doubled.

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Starting to program in Python

Learning outcomes

- Be able to run simple program in the interactive mode
- Be able to run programs in the script mode
- Use the print function
- Perform calculations
- Understand data types
- Add comments to your programs
- Use variables
- Use the input function
- Use the int function

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING
COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Computational thinking – programming building blocks

- Data structures (strings, arrays)
- Modular programs (Functions)
- Operators
- Events
- Variables
- Repetition
- Debugging and error detection
- Selection
- Sequence
- Data representation
- Input and output

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT

Useful resources

http://www.pythonschool.net/

http://www.edexcel.com/quals/gcse/gcse-2013/computer-science/Pages/default.aspx

Downloadable scheme of work to teach Python (Year 10)

NETWORK OF EXCELLENCE COMPUTER SCIENCE TEACHING

COMPUTING AT SCHOOL
EDUCATE · ENGAGE · ENCOURAGE
In collaboration with BCS, The Chartered Institute for IT