Name: Programming: Data and Data types

A	Key vocab
Alphanumeric	Containing letters, digits and symbols
Data	A unit of information without context, measured in bits
Information	Data, made intelligible by context
Typecast	Force a variable into a certain data type

B	Number Systems
Binary	Counting system using 1s and 0s. Computers use it because transistors can be used as switches: 1 is 'on' and 0 is 'off'.
Denary	Our normal numbering system with digits from 0 to 9
Hexadecimal	A number system using the digits from 0 to 9 and A to E. Easy to convert to and from binary and easier to read than binary

C	Data types	Python
Array	An indexed list of values. The index normally starts at 0. Unlike a Python list, all values have the same data type and the maximum size is normally declared	['o','m','g'] [6, 0, 8, 1] [0.1, 5.0]
Boolean	A data type which is either true or false	True, False
Character	A single alphanumeric symbol	'B', '@', '8'
Integer	A data type which is a whole number	50, -7, 2
List	An indexed collection of data in Python	["a", 2, True]
Real / Float	A number with a decimal point	5.0, 3.14, 1.9
String	A data type which is a collection of any number of characters	"hello", "", "01273"

D	Data measurements	
Bit	A single unit of information. A 1 or a 0. A binary digit.	*b*
Nibble	Half a byte. Four bits.	
Byte	Eight bits	*B*
Kilobyte	1000 B	*KB*
Megabyte	1000 KB	*MB*
Gigabyte	1000 MB	*GB*
Petabyte	1000 GB	*PB*
Terabyte	1000 PB	*TB*

E	Binary manipulation
Binary shift	Adding or taking a zero at the end of a binary number
Left shift	Adding a zero to the end of a binary number, multiplying it by 2
Right shift	Taking a bit from the end of a binary number, dividing by 2 and rounding down
Binary addition	Adding binary numbers together
Overflow	A carried digit which is lost because the number is too big for the space allotted to it. ie 1111 + 0011 = 0010 (4 bit addition)