**VARIABLES:**

**Integers** = whole numbers (+/-/0) – no decimals

**Floating Point** (double) includes a fractional part

**String** = a group of characters

**Char** = single characters

**Boolean** = True/False

**VAR** = variable = a declaration

**IDENTIFIERS:**

* Must begin with a letter (upper/lower case) or \_ or – in some cases – a $
* May contain only letters, numbers, \_, or $
* May NOT contain spaces
* May NOT be reserved words (if, else, while, do, etc.)
* No punctuation or other special characters

**“CAMELCASE” =** since you cannot have spaces, you need to either CAPS certain words, or use under scores – such as numberOFstudents, or number\_of\_students.

**CONDITIONAL:**

== equality

!= inequality

> greater than

< less than

>= greater than or equal to

<= less than or equal to

=== strictly equal to

!== strictly not equal to

**ASSIGNMENT:**

+= Add

-= Subtract

\*= Multiply

/= Divide

%=

<<=

>>=

**LOGIC EXPRESSIONS:**

&& And

|| Or

^^ Exclusive Or (also spelled as 'XOR')

\*\*NOTES:

+ Comparison operations have a higher priority than the logical operations.

+ Logical operations progress from left to right.

+ You can make one logic expression take higher priority over another by using parenthesis ( ).

**ARITHMETIC:**

+

-

\*

/

%

unary -

unary +

+ + (is an increment)

- - (is a decrement)

y = ++x; is a “pre” increment, y=x++; is a “post” increment

Priority of order is = MDAS

**BITWISE:**

& ~ bitwise 'and'

| ~ bitwise 'or'

^ ~ bitwise 'exclusive or'

>> ~ shift it to 1 bit right

<< ~ shift it to 1 bit left

>>1 ~ is divide by 2

>>2 ~ is divide by 4

>>3 ~ is divide by 8, etc.

**STRING:**

Joe+Fred, if “Joe” is an integer, then we're adding Joe to Fred. If Joe is a string, then we're joining Fred to Joe. So it is what comes before the operator that determines what the operator will do.

**WHAT MAKES AN “OBJECT” AN OBJECT?**

An object must have 'properties' and 'methods.'

Creating an object “**Car**.”

Car's properties = wheels, doors, windows, etc.

Car's methods = start (), turn left (), turn right (), move (), stop ()

Creating a variable named 'Toyota' = Car (object)

Toyota.start();

Toyota.doors.open();