

Key Terms

| | |
|---------------------|---|
| Python | A programming language close to English |
| Programming Code | The process of writing computer programs . The instructions that you write to program a computer |
| Sequence | Parts of the code that run in order |
| Selection | Selects pathways through the code dependent on conditions |
| Iteration | Code is repeated (looped) while something is true or for a number of times |
| Algorithm | A set of rules / instructions |
| Variable | A value that can be changed (speed, lives, score) Function Inbuilt code that performs a specific task |
| String | A sequence of characters that can include letters, numbers, symbols |
| Integer | Whole numbers, no decimal point |
| Booelan | Can only output the result of True or False |
| Float | Decimal Numbers |
| Concatenation | Operation that joins two string together ('Tall + 'Giraffe') |
| Data Type | Format in how data is stored (float, integer, string) |
| Indentation | Moves code inwards to show it belongs to the same subsection of code |
| Syntax | Spelling and grammar of a programming language so that the computer can understand it |
| Comparison Operator | When comparing data, a comparison operator is used to test the condition |

Search & Sort

| | |
|------------------|--|
| Binary Search | Finds a value in a sorted list by repeatedly finding the middle value and comparing val- |
| Linear Search | Searches a sorted list one by one until a match is found or the entire list has been |
| Insertion Search | Builds the final sorted array (or list) one item at a time, by placing the value in at the correct place |
| Bubble sort | Repeatedly steps through the list, compares adjacent elements and swaps them if they are in the wrong order. Pass through the list |
| Merge sort | Breaks the list down into individual elements before rearranging in order |

Comparative Operators

| | |
|----|--------------------------|
| == | Equal to |
| != | Not equal to |
| < | Less than |
| >= | Greater than or equal to |
| <= | Less than or equal to |

Arithmetic Operators

| | |
|----|------------------|
| + | Addition |
| - | Subtraction |
| * | Multiplication |
| / | Division |
| // | Integer division |
| % | Remainder |
| ** | Exponent |

Python to English

| | |
|--------------------|--|
| Print('hello') | Prints a value on the screen |
| input("") | Inputs a value into the computer |
| x=input("") | Inputs a value and stores it into the variable x |
| if name == 'Fred': | 'Checks to see if the variable 'name' has a value that is equal to 'Fred' |
| else: | The other option if the conditions for an if statement are not met (eg. name = 'Bob' when it should be Fred) |

Variables / IF / ELSE / WHILE LOOPS

A **variable** can hold a value that can be changed. We can assign a value to a variable by using an equals(=) sign.

```
Fname = "Paul"
Sname = "Smith"
print(Fname+Sname)
```

We can add 2 strings together using +, this is known as concatenating.

```
name = input("What is your name")
print("Your name is "+name)
```

We can get a keyboard input from the user using the input function. This example will ask the user for their name and store it in the "name" variable. We can then print that value. Combine the inputs with other Strings to print a clear message.

```
obtainedKey = True
if obtainedKey == True:
    print("Door opened")
```

If statements allow a section of code to only run when a certain condition is met. The print will only happen if the player has the key (the variable being True).

```
if score == 3:
    print("Excellent")
elif score == 2:
    print("Good")
elif score == 1:
    print("Poor")
elif score == 0:
    print("Terrible")
else:
    print("Not a valid score")
```

ELIF and **ELSE** allows us to check variables against more conditions. We can have as many ELIF as we need but only one if and else in an else if state- ment block.

A **while loop** will keep repeating code until a certain condition is met. For example repeat until lives do not equal 0.

```
lives = 3
while lives != 3:
    answer = input("enter the correct password")
    if answer == "3nt3r"
        print("access granted")
    else:
        lives=lives-1
```