Unit 1 Review:

1. Data types

* Know the 4 types of data
* know how you get data into the computer (input)
* know how you put data out (print)

1. Operators

* know all the mathematical operators, including;
  + % (modulus)
  + // (floor division)
* know all the relational operators:
  + > (greater than), < (less than) , >=, <=, !=

1. If statements

* if, elif, else – what do these mean?
* Understand how elif is different from if
* Understand why we use indents
* Nested IF statements
* compound if statements (using and, or, not)
* conditional equality (==) vs assignment (=) eg. if x = 3: will cause an error (reads “if make x equal to 3”). Should be if x ==3:

1. For loops

* For loops are good for repeating code a specific number of times
* range(n)
* Loops usually start at i=0 and end at i = n
* range(n1,n2, step) starts at n1, ends at n2 and jumps by step
* Nested for loops (loop inside of loops)

1. While loops

* while loops are good for repeating code an indefinite number of times

(we don’t know ahead of time how many loops we need)

* continues while condition is true
* while True: will loop forever

For while and For loops:

* Use break to quit a loop
* Use continue to skip a step

1. Flags

* A flag signals a state. Examples of states: On/Off, Up/Down, Left/Right, Alive/Dead, True/False
* A flag is useful when you want to remember an event long after the event happened. For example, in video games you can press a key to make an object move. In some games you have to keep pressing the key to make it move. In most games, you only have to press it once and it will keep moving. This requires a flag that goes up when you press the key (e.g. move = True). As long as the flag is up, the object moves. The flag is lowered by another event (e.g. you press another key or the object hits another object like a wall).
* Flags are usually used in the following way:
  + They are set to false at the start of the code block (e.g. move = False)
  + They are set to true when an event (the trigger) happens (e.g. if key is pressed, move = True). This section is usually inside a loop.
  + They are checked later on and acted upon (e.g. if move == True, move the player). This section is usually outside of the loop.