Chapter 2: Iteration P1
Question Sheet 1

Instructions
You will need to use the textbooks from the shelf to complete the questions/tasks. GCSE for OCR Computer Science Student Book. You have all been given your own copy, so just type directly into this document.

1. What does the term iteration mean? Iteration is the act of repeating a process until there is a desired result.
2. What is the program construct called that causes iteration? Loop
3. What are the key programming terms that are used in most programming languages that signify a loop? Loops can be seen by key terms such as for and while
4. What is the difference between a **definite loop and an indefinite loop**? In definite loops, the number of iterations is known before the execution of the loop is started. An indefinite loop (also known as conditional iteration) is when the number of iterations isn't known before the loop is started. The iterations stop when a certain condition becomes true or false.
5. Look at the pseudocode at the bottom of page 27 in the text book. To program that in Python you need to type the following. Type the code below into Python or Repl.it and explain what happened when you run the code. It printed dog, cat, llama and goat.

```
1 for i in ["dog", "cat", "lama", "goat"]:   # repeat four times
2     print (i)
3
```

The letter i is just a variable we created to count the number of items in the list. We could've used the word WOW in replace of i and the program would still work.

6. What kind of loop was used in the code above? A for loop. A definite loop because we know the number of iterations is four. It doesn't need a condition to become true or false.
7. Look at the pseudocode near the top of page 28 in your textbook. The code below is how you would program that pseudocode in Python. Type the code below into Python or Repl.it and explain what it does. It counts from 0 to 9

```
1 i = 0
2 while i <10:
3     print (i)
4     i = i +1
5
```

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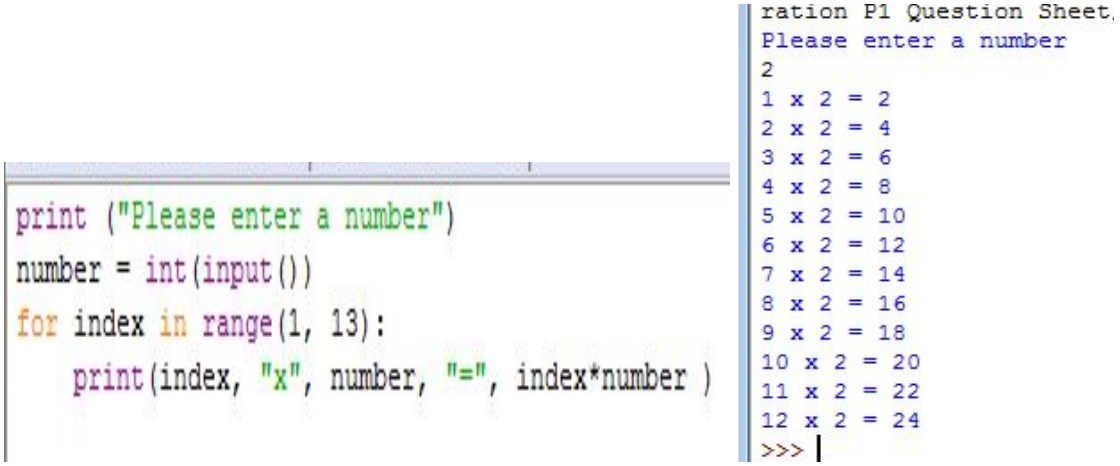
8. What kind of loop was used in the code above? A while loop. An indefinite loop because it would keep on iterating until the condition was false (Until i became 10). When i became 10 it stopped printing.
9. Were the two code examples above definite or indefinite examples of iteration? Question 5 was definite because it had an amount of iterations known and Question 7 was indefinite as it iterated until a condition was met.
10. Look at the worked example at the bottom of page 28 in the textbook. Try and program this pseudocode design in Python. Remember it is just pseudo code (English steps to solve a problem) so typing that as it is into Python wont work. Print screen your code below. Some tips that might help you:
    a. The input will need to be changed into a number by using int
    b. You will also need a variable to count how many times it has been around the loop



11. The code below is slightly different to the task above. Explain how the code below is different from the example above? How do you get the program below to print different times tables? It uses a while loop instead of a for loop and you would change the times table by changing the number in TimesTable(4).

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```
1   #Definite Loops
2
3   def TimesTable(times):
4     till = 12
5     counter = 0
6     while counter < till:
7       answer = counter * times
8       print (times, "X ", counter, "= ",answer)
9       counter = counter + 1
10
11    print("Times Table Complete")
12
13  TimesTable(4)
14
```

12. You have now finished all the tasks for today. If there is still time left in the lesson please continue to read the rest of Chapter 2. Do not pester your cover teacher and behave like good boys and girls :)