LESSON_10_ While Loops + Conditions

OBJECTIVES

Students will be able to:

- Understand the structure and the syntax of a while loop
- Practice reading and analyzing while loops of various conditions

STANDARDS

- 7-8.CT.7, 7-8.CT.8, 7-8.CT.9

WARM-UP (REVIEW HOMEWORK)

Write a while loop that produces the following output:

1

2

4

8

```
count =1
▼ while (count<9):
    print (count)
    count = count * 2
```
Sample Solution

LESSON DEVELOPMENT _WHILE Loops & Conditions (WHOLE GROUP)

Comparisons

Operators	Description	Example
==	Equal	5 == 5 ➜ True 6 == 10 ➜ False
!=	Not Equal	4 != 5 ➜ True 7 != 3 + 4 ➜ False
>	Greater Than,	3 > 1 ➜ True 4 > 6 ➜ False
>=	Greater Than or Equal To	7 >= 7 ➜ True 10 >= 11 ➜ False
<	Less Than,	31 < 50 ➜ True 4 < 1 ➜ False
<=	Less Than or Equal To	-7 <= -7 ➜ True 10 <= 9 ➜ False

More Than One Condition

Operators	Description	Examples
and	**TRUE** only when <u>ALL</u> conditions are "TRUE"	5 > 3 and 4 < 5 ➜ True 2 > 1 and 3 < 1 ➜ False
or	**TRUE** when <u>AT LEAST ONE</u> condition is "TRUE"	4 == 4 or 3 == 2 ➜ True
not	**TRUE** when "FALSE"	Not 3 > 2 ➜ False Not 10 < 20 ➜ False Not 28 < 9 ➜ True

1. Write a program that asks the user to guess your magic number
2. The number should initially be set to 7
3. It keeps asking them for the number until they get it correct.
4. For the correct number it should say "Correct! You got it…."
5. And then it ends program
6.

```
1    answer = 7
2    guess = int(input("What's the magic number?"))
3
4  ⊟ while guess != answer:
5        guess = int(input("Nope, try again!  What's the
         magic number?"))
6
7    print("Good guess!")
```

Let's visualize it

check For Understanding

CODE PREDICTION (WORK IN PAIRS)

Case#1: Condition Never True!

CODE	OUTCOME????

```
1    count = 6
2  ⊟ while count < 5:
3        print("hi!")
4        count = count + 1
5    print("Good bye!")
```

Case#2 condition Always True!

```
1    count = 6
2  ⊟ while count > 5:
3        print("hi!")
```
Congratulations, you've crashed your browser!

!

The syntax for a WHILE loop is simpler than a FOR loop:

while condition is true:

repeat this code In other words, it will repeat the indented code as long as the condition or boolean is true (it checks at the beginning of each loop)