

## Using Python to make Sums

Welcome Back! Today we're going to explore how to use Python to sum a set of numbers.

1. Start by entering the following code in the Python Console at CEMC.

**Recall the console is available at <https://cscircles.cemc.uwaterloo.ca/console/>**

```
sum = 0
for n in range(1, 11):
    sum = sum + n
print(sum)
```

2. What does it print? What numbers did it sum?

3. Modify your code to find the sum of the first seven natural numbers.

4. Modify your code to find

a) The sum of the first 20 natural numbers

b) The sum of the first 10 non-zero even numbers. Hint: You'll need to recall the work we did last on printing the even numbers.

c) What is the relationship between the sum of the first ten natural numbers and the first ten non-zero even numbers?

d) Does this same relationship hold true for the sum of the five natural numbers and the first five non-zero even numbers?

5. Write the code to find the sum of the numbers from 2-11.

6. How does the sum of the numbers from 2 - 11 relate to the sum of the numbers from 1-10?

7. Hypothesize a relationship between the sum of numbers from 5-10 and the numbers from 1-6.

8. Write code to find both of the sums discussed in question 6 and confirm or disprove your hypothesis. If your hypothesis was incorrect write down the correct relationship between the sums.

9. Write the code to print the first five odd numbers. Hint: Start from your code to write five even numbers and think about how you could modify it.

10. Now combine this with what you learned earlier to write the code to sum the first five odd numbers.

11. Use this code to complete the following table:

n	Sum of first n odd numbers
1	
2	
3	
4	
5	
6	

12. What relationship do you see between the number n and the sum of the first n odd numbers?