

Programming for Biologists

Loops

Learning Objectives

- Creating a while loop
- Creating a for loop
- When is one preferred over the other.
- Avoid infinite loops

Loops

- You can test for things numerous times using statements that repeatedly test a condition.
- You can repeat code a certain number of times

While loop

— — —

- Repeat code while a condition is True

```
[ ] to_stop = 10
    counter = 0
    while (counter < to_stop):
        print(str(counter)+" "+str(to_stop))
        counter += 1
```

```
0 10
1 10
2 10
3 10
4 10
5 10
6 10
7 10
8 10
9 10
```

For loop

- Repeat code specific number of times.

```
[ ] for i in range(to_stop):  
    print(str(i)+" "+str(to_stop))
```

0 10

1 10

2 10

3 10

4 10

5 10

6 10

7 10

8 10

9 10

Loops can have else statements as well

When the while loop condition is no longer True or when for loop is complete, you can have an else statement.

```
▶ to_stop = 5  
  counter = 0  
  while (counter < to_stop):  
      print(str(counter)+" "+str(to_stop))  
      counter += 1  
  else:  
      print("condition is no longer True")
```

```
0 5  
1 5  
2 5  
3 5  
4 5  
condition is no longer True
```

Exercise

Update the function **f2c**

- Input parameter `f` is a list of fahrenheit values.
- Output is a list of celsius values.