Repeating Commands

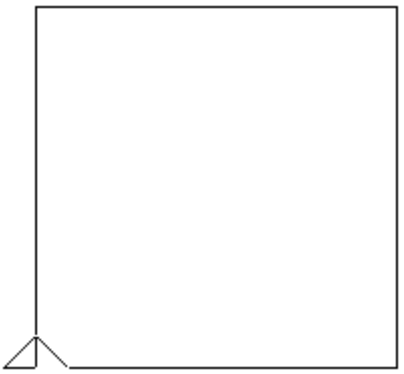
It can get really annoying when you have to type in the same thing again and again.

Being able to 'repeat' a command is great

The way we did a square previously was by writing out each separate command:

But this way is a pain because you are typing the same two commands again and again and it takes a long time.

```
import turtle
wn = turtle.Screen()
bob= turtle.Turtle()
turtle.forward (150)
turtle.right (90)
turtle.forward (150)
turtle.right (90)
turtle.forward (150)
turtle.right (90)
turtle.forward (150)
turtle.right (90)
```



A much better way to do it is with the For command.

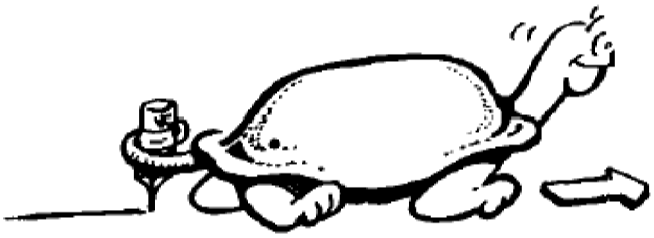
```
import turtle
wn = turtle.Screen()
bob = turtle.Turtle()
for i in range(4):
        turtle.forward(100)
        turtle.right(90)
```

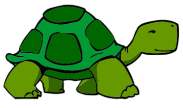
This says "repeat the bit in the For loop 4 times"

Iteration

Remember – you mustn't forget to put your indents in.

This is one TAB space





① *Try out these commands*

For each set of instructions below, draw what you think you will get.
Then test them out on your LOGO program and draw what you actually got.

** Don't forget:

```
import turtle
wn = turtle.Screen()
bob = turtle.Turtle()
```

	Commands	Prediction	Try it out!

■	for i in range(4):
	  turtle.forward(100)
	  turtle.right(90)		

	for i in range(4):
	  turtle.right(45)
	  turtle.forward(76)
	  turtle.right(90)		

■	for i in range(3):
	  turtle.forward(50)
	  turtle.up()
	  turtle.forward(50)
	  turtle.down()		

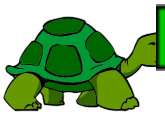
■	for i in range(4):
	  turtle.left(45)
	  turtle.right(90)
	  turtle.forward(50)
	  turtle.left(90)		

② *Try changing the numbers and explain what you see*

```
for i in range(3):
  turtle.forward(50)
  turtle.right(90)
  turtle.forward(50)
  turtle.left(90)
```

Make it bigger

Make it smaller



③ *Draw some polygons using For*

Remember the shapes from last time? Now see if you can make them any quicker using the for command.

```
for i in range(#):
    turtle.forward(#)
    turtle.right(#)
```

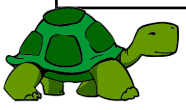
Shape	Angle to Turn
Triangle	120
Square	90
Pentagon	72
Hexagon	60
Octagon	45

No. points

```
for i in range(#):
    turtle.forward(50)
    turtle.right(150)
    turtle.forward(50)
    turtle.left(#)
```

Number of points
Angle to turn

No. Points	Angle to Turn
5	78
6	90
7	99
8	105
9	110
10	114
12	120



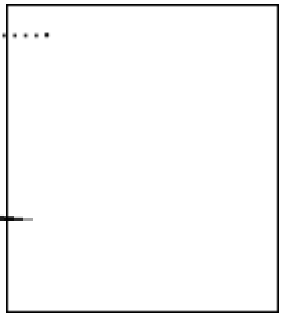
⑤ *What shape do you think these commands will make?*

```
for i in range(360):
    turtle.forward(2)
    turtle.right(1)]
```

I think it will be a

.....

Now check to see if you were right and draw the shape here

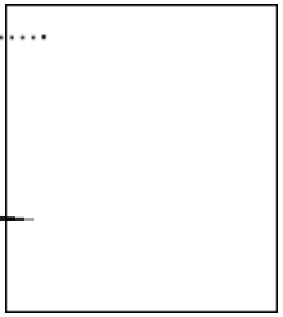


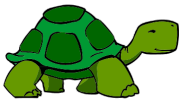
```
for i in range(180):
    turtle.forward(2)
    turtle.right(1)
```

I think it will be a

.....

Now check to see if you were right and draw the shape here





5 *Follow these instructions to draw some balloons using REPEAT*

1. Turn the screen turtle 20° to the left.

```
turtle.right(1)
```

2. Change the pen colour.

```
turtle.color("blue")
```

3. Move it forwards.

```
turtle.foward(150)
```

4. Draw a big dot.

```
turtle.pensize(5)
turtle.forward(1)
turtle.pensize(1)
```

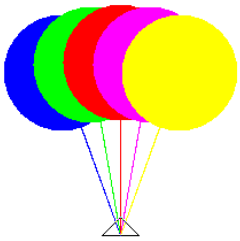
5. Go back home.

```
turtle.backward(151)
```

6. Turn 10° to the right.

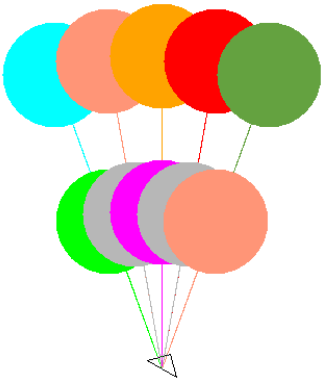
```
turtle.right(10)
```

7. To draw another balloon you would need to repeat steps 2-6 again. Wouldn't it be easier if you used a for command instead?



```
for i in range(4):
    turtle.pencolor("red")
    turtle.forward(150)
    turtle.pensize(5)
    turtle.forward(1)
    turtle.pensize(1)
    turtle.pensize(1)
    turtle.backward(151)
    turtle.right(10)
```

8. Try changing some bits in the code:



- What happens when you change forward 150 and backward 151 to forward 250 and backward 251?
- Can you copy change the balloon colour?
- Can you draw any patterns with the balloons?