

Programming in R

Variables

- A variable is a location where a program can store information for later use.
- Each variable has three pieces of information
 - Name : What is the variable called?
 - Type : What sort of things can you store in the variable?
 - Value : What value does the variable hold right now?

Expressions

- Variables and other values can be used in expressions.
 - To tell computer stuff
 - To ask computer stuff
- Mathematical operators (+ , - , * , / , ^)
- Expressions have to follow the syntax.
 - I cat speak
 - 3 5 +

For loop

- Apply the same operation to everything in the vector
- Syntax

```
for (variable in vector){  
  # do things with variable  
}
```

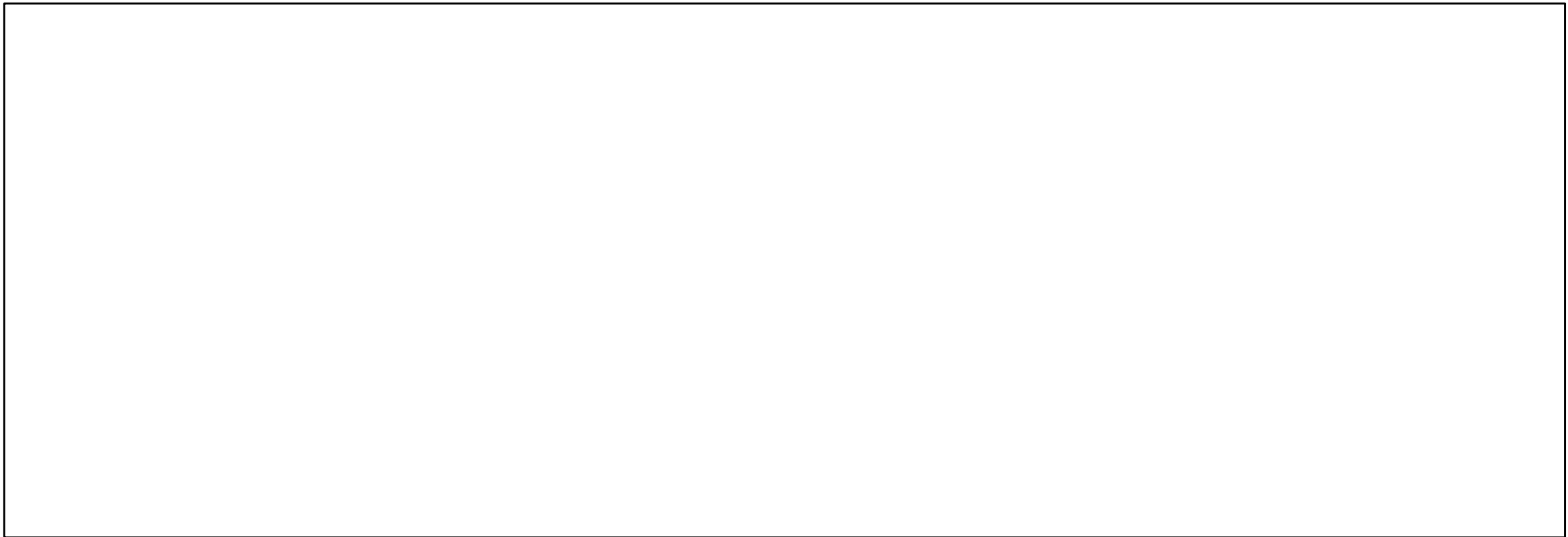
For loop

- Apply the same operation to everything in the vector (one at a time)
- Syntax

```
for (x in 1:10){  
    print x  
}
```

step by step

```
for (x in 1:10){ ← 1 x  
  print x  
}
```



step by step

```
for (x in 1:10){  
  print x  
}
```

1 x



1


step by step

```
for (x in 1:10){ ← 2 x  
  print x  
}
```

1

step by step

```
for (x in 1:10){  
  print x  
}
```



A diagram illustrating the state of a loop iteration. A rectangular box contains the number '2', and the letter 'x' is positioned to its right. A blue arrow points from the box to the 'print x' line in the code above, indicating that the current value of x is 2.

```
1  
2
```

step by step

```
for (x in 1:10){ ← 3 x  
  print x  
}
```

```
1  
2
```

step by step

```
for (x in 1:10){  
  print x  
}
```

3 x



```
1  
2  
3
```

step by step


```
for (x in 1:10){ ← 10 x  
  print x  
}
```

```
6  
7  
8  
9
```

step by step

```
for (x in 1:10){  
  print x  
}
```

10 x



```
6  
7  
8  
9  
10
```