

loops-prep.Rmd

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Basic For Loops in R

```
for (item in list_of_items){  
  do_something(item)  
}
```

```
volumes <- c(1.6,3,8)  
for (volume in volumes){  
  mass <- 2.65 * volume^0.9  
  mass_lb <- mass * 2.2  
  print(mass)  
}
```

```
## [1] 4.045329  
## [1] 7.12287  
## [1] 17.21975
```

```
volume <- volumes[1]  
mass <- 2.65 * volume^0.9  
print(mass)
```

```
## [1] 4.045329
```

```
volume <- volumes[2]  
mass <- 2.65 * volume^0.9  
print(mass)
```

```
## [1] 7.12287
```

```
volume <- volumes[3]  
mass <- 2.65 * volume^0.9  
print(mass)
```

```
## [1] 17.21975
```

Looping By Index

```
volumes <- c(1.6,3,8) # i is short for index
masses <- vector(length = length(volumes), mode = "numeric")
for (i in 1:length(volumes)){
  mass <- 2.65 * volumes[i]^0.9
  masses[i] <- mass
}
```

Looping Over Multiple Objects

```
volumes <- c(1.6, 3, 8)
b0 <- c(2.65, 1.28, 3.29)
b1 <- c(0.9, 1.1, 1.2)
masses <- vector(length = length(volumes), mode = "numeric")
for (i in 1:length(volumes)){
  mass <- 2.65 * volumes[i]^b1[i]
  masses[i] <- mass
}
```

Looping Using Functions

```
est_mass <- function (volume){
  if (volume > 5) {
    mass <- 2.65 * volume ^ 0.9
  } else {
    mass <- NA
  }
  return(mass)
}
```

```
volumes = c(1.6, 3, 8)
masses <- vector(mode = "numeric", length = length(volumes))
for (i in 1:length(volumes)) {
  mass <- est_mass(volumes[i])
  masses[i] <- mass
}
```

```
masses_apply <- sapply(volumes, est_mass)
```

Looping Over Files

```
download.file("https://www.datacarpentry.org/semester-biology/data/locations.zip", "locations.zip")
unzip("locations.zip")
```

```
data_files<- list.files(pattern = "locations-")
```

```
results <- vector(mode = "integer", length(data_files))
for(i in 1:length(data_files)){
  data <- read.csv(data_files[i])
  count <- nrow(data)
  results[i] <- count
}
```