

## GK-12 Lesson Plan

**Teacher:** Steven MacDonald

**Period:** **Class:** Lawrence High School Statistics Class

**Date(s):** 10/31/2013

<b>SETTING THE STAGE</b>	
<u>Essential Question</u>	
<u>Content Objective(s)</u> (Student-friendly)	Simulate a homework assignment chosen by Mr. MacDonald in R, use the data to create different plots.
<u>Connection to previous or future lessons</u>	Students learn to apply their new programming skills to solve problems in the format they're used to seeing.
<u>Critical Thinking Questions</u>	Correlation
<u>Key Vocabulary</u>	Correlation, mean, standard deviation, scatter plot, bar plot, histogram.
<u>Materials Needed/Safety</u>	Computer, R Studio
<b>ACTIVE INSTRUCTION</b>	
Launch (Engage)	Two new datasets are explored based on the student textbook.
Investigation (Explore)	Students create build the datasets in MS Excel, and then import them into the R. Similar metric are explored as in previous lessons, with the addition of correlation.
<b>TIME FOR REFLECTION</b>	
Summarization (Explain & Extend)	
Homework	None

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```
HP<-c(200,230,200,148,291,300,295,140,166,138,306,300,212,158,150)
MPG <- c(32,30,30,32,22,20,21,40,34,36,28,18,25,34,30)
cor(HP,MPG)
plot(HP,MPG, col="Blue")
```

```
shutter<- c(1/1000,1/500,1/250,1/125,1/60,1/30,1/15,1/8)
fstop<- c(2.8,4,5.6,8,11,16,22,32)
plot(shutter,fstop)
cor(shutter,fstop)
plot(shutter,fstop^2)
cor(shutter,fstop^2)
```

```
data <- as.vector(read.csv("Drug usage.csv", header=FALSE))
cannabis<-data$V1
other <- data$V2
plot(other, cannabis)
```

```
Food<- matrix(nrow=7,ncol=3)
Food[,1] <- c(19,31,34,35,39,39,43)
Food[,2] <- c(920,1500,1310,860,1180,940,1260)
Food[,3] <- c(410,580,590,570,640,680,660)
plot(Food[,1],Food[,2])
cor(Food[,1],Food[,2])
plot(Food[,1],Food[,3])
cor(Food[,1],Food[,3])
```