

## GK-12 Lesson Plan

**Teacher:** Steven MacDonald

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

**Date(s):** 11/15/2013

<b>SETTING THE STAGE</b>	
<u>Essential Question</u>	What is Boolean Logic?
<u>Content Objective(s)</u> (Student-friendly)	Students are introduced to boolean operators and logic
<u>Connection to previous or future lessons</u>	Students use R, along with the statistical concepts introduced in previous classes.
<u>Critical Thinking Questions</u>	How can and and or statements be used to help R make decisions?
<u>Key Vocabulary</u>	Boolean, AND, OR, NOT, XOR
<u>Materials Needed/Safety</u>	Computer, R Studio
<b>ACTIVE INSTRUCTION</b>	
Launch (Engage)	Boolean operators can be used to help a program make decisions.
Investigation (Explore)	Students are introduced to truth tables for various boolean operations before actually beginning to explore how R handles these same operations. Students then write a primitive if statement.
<b>TIME FOR REFLECTION</b>	
Summarization (Explain & Extend)	Students gain an insight to how an actual program can make decisions based on boolean logic.
Homework	None

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# Boolean

```
test1 <-c(1,2,3,4,5,6,7,8,9,10)
```

```
bin1 <-c(1,1,1,1,0,0,0,0)
```

```
bin2 <-c(1,0,1,0,1,0,1,0)
```

```
log1<-c(T,T,T,T,F,F,F,F)
```

```
log2<-c(T,F,T,F,T,F,T,F)
```

```
test1 <= 5
```

```
test1 < 5
```

```
test1 >5
```

```
log1&log2
```

```
log1|log2
```

```
!log1
```

```
!log1&log2
```

```
log1&!log2
```

```
xor(log1,log2)
```

```
test1 <=5 & test1 >2
```

```
k<- 0
```

```
for (i in 1:10)
```

```
{
```

```
k <- k+1
```

```
}
```

```
m<-0
```

```
for (i in 1:10){
```

```
  for (i in 1:10){
```

```
    m<- m+1
```

```
  }
```

```
}
```

```
}
```

```
n <- 0
```

```
#Bringing it all together
```

```
for(i in 1:100){
```

```
  if(i >= 20 & i <= 30){
```

```
    n <- n+2
```

```
  }
```

```
  else{
```

```
    n <- n+1
```

```
  }
```

```
}
```