



*Drexel-SDP GK-12 ACTIVITY*

## Activity Template

**Subject Area(s):** Data Analysis & Probability

**Associated Unit:** None

**Associated Lesson:** None

**Activity Title:** Election Math

**Grade Level** 6 (6-7)

**Activity Dependency:** None

**Time Required:** 50 Minutes

**Group Size:** 1

**Expendable Cost per Group:** US \$0

### Summary

In this activity, students gather data on the 2008 presidential election. Students then calculate percentages from the data and compare it to given values. Once the students enter the data into Microsoft Excel, they create a graph to communicate their results effectively.

### Engineering Connection

Engineers need to be able to analyze and communicate data effectively. Collecting data and choosing the optimal method to display that data are vital skills for all engineers. For examples, engineers are frequently asked to present their data to a non-specialist audience. Graphs can be a very useful tool to accomplish this. This activity allows students to practice data collection and communication using data that has current significance.

**Keywords:** data analysis, election, graph, Microsoft Excel, percent

### Educational Standards

- Science: 3.7D
- Math: 2.2B, 2.4F, 2.6A, 2.6F

## **Learning Objectives**

After this lesson, students should be able to:

- Calculate percentages
- Gather and input data into Microsoft Excel
- Create a graph in Microsoft Excel

## **Materials List**

Each group needs:

- A computer with Microsoft Excel and internet access

To share with the entire class:

- None

## **Introduction / Motivation**

You have probably noticed the large map with red and blue states during this year's election. The color of the state, and therefore the winner in that state, is determined by the number of votes each candidate received. The news stations use color to help communicate the winner in each state instead of printing the number of votes received. Today we will use graphs to communicate this data so that is easily understood. Engineers, as well as statisticians, use graphs frequently to help people understand the significance of large numbers. Another way of communicating large numbers is percentages. In the election, percentages help you understand how many people voted for each candidate without actually telling you the exact number of votes. Sometimes, large numbers are hard for people to understand, but percentages help people get a good idea of what is going on.

## **Procedure**

### **Background**

Familiarize yourself with the election data website

<http://www.cnn.com/ELECTION/2008/results/president/> and with Microsoft Excel so you can demonstrate how to make graphs quickly if necessary.

### **Before the Activity**

- Make copies of worksheet.

### **With the Students**

1. Start discussion by asking students how many types of graphs they can name and what each type of graph is usually used for.
2. Hand out worksheet.
3. The first part of the worksheet is gathering data from the website, if students are having trouble, it can help to do an example state on a projector.
4. The second part of the worksheet is calculating percentages, again an example can help.
5. Tell the students to open Microsoft Excel and enter the "number of votes" data they collected.
6. Walk the students through creating a graph, highlighting the data, inserting chart, and choosing a graph.
7. Tell the students to label their axes and create a title.
8. After the graphs and worksheets are completed, start a discussion about the possible differences between the student's calculated percentages and the percentages given on the website.

## **Attachments**

election\_worksheet.doc

## **Assessment**

### **Pre-Activity Assessment**

*Class Discussion:* Have a discussion with the class to see how many types of graphs they know and what each type of graph can be used for.

### **Activity Embedded Assessment**

*Worksheet and Excel Graph:* The worksheet will assess the student's ability to gather data and calculate percentages. The graph will let you know if the student graphed the correct data and presented it in a way that is easily understood.

### **Post-Activity Assessment**

*None*

## **References**

Election Center 2008. Last Updated November 17, 2008. CNN, Accessed December 3 2008.  
< <http://www.cnn.com/ELECTION/2008/results/president/> >

## **Owner**

Drexel University GK-12 Program

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Name: \_\_\_\_\_

## Counting the Election

Step 1: Go to <http://www.cnn.com/ELECTION/2008/results/president/>

Step 2: Pick four states and fill out the charts below.

For Example: To calculate percentage for Obama  
(Number of Votes for Obama) / (Total Votes) \* 100

	Number of Votes		
	Obama	McCain	Total
State 1 _____	_____	_____	_____
State 2 _____	_____	_____	_____
State 3 _____	_____	_____	_____
State 4 _____	_____	_____	_____

	Percentage of Votes			
	Obama		McCain	
	Calculated	From Map	Calculated	From Map
State 1 _____	_____	_____	_____	_____
State 2 _____	_____	_____	_____	_____
State 3 _____	_____	_____	_____	_____
State 4 _____	_____	_____	_____	_____

Step 3: Graph the results using Microsoft Excel

Do your calculated values match up with the values given on the map?

Do the percentages of votes for Obama and McCain add up to 100%? If not, can you think of a reason why?

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