Teacher Notes

The Electoral College

Activity 1
The Electoral College Controversy

Activity at a Glance

- **Subject:** Social Studies
- **Subject Area:** American Government
- **Category:** The Constitution
- **Topic:** The Electoral College
- **Grade Level:** 11 - 12
- **Prerequisites:** Students should be familiar with the workings of the Electoral College, the relationship between electoral and popular vote, the rationale behind its creation, and the distribution of electoral votes among the states. Students should also be familiar with the concept of correlation, and how to read a scatter plot graph.
- **Total Teaching Time:** 45 minutes

Materials

- TI-83 Plus or TI-83 Plus Silver Edition
- CellSheet™ Application
- CellSheet™ File: **ELECT.8xv**
- Student Work Sheet: **The Electoral College Controversy**
- TI Connectivity cable or TI-Navigator™ System
- Instructions for using the CellSheet™ Applicationon the TI-83 Plus

Activity Overview

In this activity, students will examine presidential election results since 1824 to answer the following question: Throughout history, is the Electoral College irrelevant or is there justification for the Electoral College system?

Directions

Before the Activity Begins

1. Be sure that each student has a TI-83 Plus device that is loaded with the CellSheet™ Application.

2. Begin by reviewing the basics of the Electoral College. Key points to review:

a. Electoral votes versus popular votes

b. The assignment of electoral votes based on census population data

Warm-up Activity

The students should already have some background information on the purpose and rationale of the Electoral College, how the electors are divided among the states, and how the electors are appointed for each state. Begin the activity by exploring with the students the controversy of the presidential election in 2000. Ask:

1. Who won the popular vote in the 2000 presidential election, Al Gore or George Bush?

2. Why was Bush declared the winner of the election despite the fact that he received a minority of the popular votes?

3. Has this situation ever happened before? When?

4. What was the reaction in the media and among those you talked with about the election?

Finish the discussion by telling the students that they will examine data from all the presidential elections since the development of the Electoral College. They will then determine for themselves how valuable and representative of the popular will this system has been.

During the Activity

1. Transfer the CellSheet™ file called **ELECT.8xv** to the students' devices using the unit-to-unit link cable or the TI-Navigator™ System (if available).

2. Tell the students that the **ELECT.8xv** file contains a spreadsheet that lists the winning candidate's percentage of the electoral vote and the percentage of the popular vote from each presidential election from 1824-2000.

3. Have the students create a scatter plot graph of the two variables (percent electoral vote and percent popular vote) using the Cellsheet™ application on the TI-83 Plus.

4. Pass out the Student Work Sheet, **The Electoral College Controversy**.

5. Students should examine the graph they created and determine if they believe there is a correlation between the percentage of popular and electoral votes won. Students should complete the work sheet as they analyze their scatter plot graph.

6. Pose the following questions to the students:

a. Is there a positive, a negative, or no correlation between the two variables? [Answer: There is a positive correlation between the two.]

b. Is the correlation perfect? Why or why not?

c. Roughly how many outliers are there on the plot? Do these outliers negate the correlation found or is this to be expected?

d. What exactly does it mean that the two variables are correlated?

After the Activity

Given the fact that there is a positive correlation between the winner of the popular vote and the winner of the electoral vote, instruct the students to answer the following questions (also available at the bottom of the Student Work Sheet) for homework. Remind students to be sure to support their position with a logical rationale, based on the data provided.

1. Do you believe that this correlation between popular and electoral votes is a justification for using the Electoral College system? Why or why not?

2. Could it be argued that because the correlation is strong, there is no reason to have the Electoral College? Why or why not?
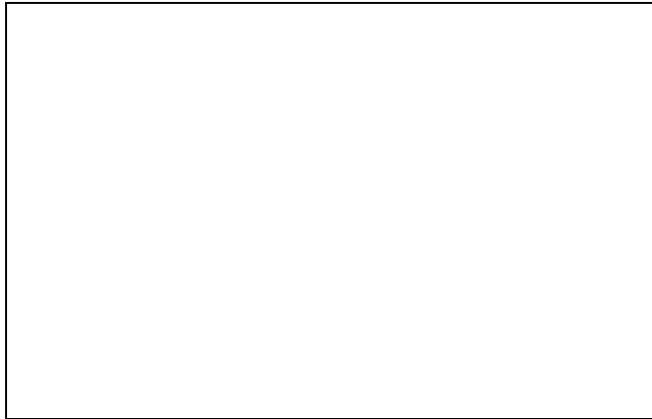
Student Work Sheet

The Electoral College Controversy

Name: _____

Date: _____

Using the **ELECT.8xv** file on your TI-83 Plus, answer the following questions.

1. Draw an approximation of the scatter plot chart you created on your TI-83 Plus using the **ELECT.8xv** file as a guideline.

2. Is there a positive, a negative, or no correlation between the two variables?

3. Is the correlation perfect? Why or why not?

4. Roughly estimate how many outliers are on the plot. _____

5. Do these outliers negate the correlation found or is this to be expected?

For Homework

Answer the following questions:

1. Do you believe that this correlation between popular and electoral votes is a justification for using the Electoral College system? Why or why not?

2. Could it be argued that because the correlation is strong, there is no reason to have the Electoral College? Why or why not?

Using the CellSheet™ Application on the TI-83 Plus

The CellSheet™ application is a spreadsheet program. Cellsheet™ files are made up of cells that can contain numbers, letters, or formulae. Cellsheet™ files can be created on the device itself or converted from computer spreadsheets like Microsoft® Excel.

1. Open the CellSheet™ application by pressing APPS and selecting **CelSheet**. After the title screen, a help screen will appear. Press any key to open the application.
   Note: The help screen can be accessed from the application screen by pressing GRAPH to bring up the menu.

2. The last CellSheet™ file used automatically opens. To open a different file, press GRAPH to display the **MENU**. Choose **1:File** to access the file menu. From this menu, select **1:Open** to create a new CellSheet™ file or open a previously saved file.
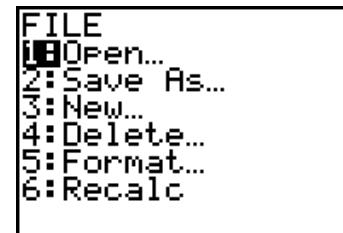
3. To enter data, use ◀ ▲ ▶ ▼ to move to the desired cell, type the data, and press ENTER to place it in the selected cell. Note that before ENTER is pressed, the data typed is shown at the bottom of the screen. To enter a formula, press STO▶ before entering the formula. To enter text, first press ALPHA + to place quotation marks before the text.

4. To graph data from a CellSheet™ file, press GRAPH to display the **MENU**. From the menu, choose **4:Charts** to display the graph menu. Data can be graphed as a scatter plot by choosing **1:Scatter**, as a line graph by choosing **3:Line**, as a bar graph by choosing **5:Bar**, or as a pie chart by choosing **7:Pie**.
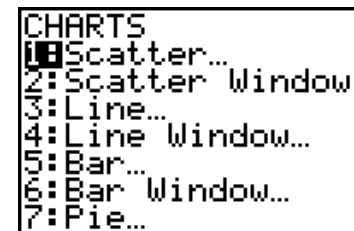
5. After selecting the graph type (in this example, a line chart), enter the range by indicating the cells using the letter and numbers of the cells separated by a colon. For example, to graph the data in columns A and B for the first 50 cells, enter A2:A50 as the X range or as series depending on the type of graph, and then enter B2:B50 in the y range. Enter a title for the graph, if desired, and press ENTER to accept **AxesOn** and **DrawFit**. The device draws the graph and displays it.
Note: The program will not graph if any of the selected cells have non-numeric data.

```
LINE CHART
XRange:A2:A50
YRange1:B2:B50
YRange2:
YRange3:
Title:█
AxesOn AxesOff
DrawFit Draw
```

For complete instructions on using the CellSheet™ application, see:

education.ti.com/guides.

Transferring Files from One TI-83 Plus to Another

1. Connect the devices using the unit-to-unit cable. Press the cable firmly into the port at the base of each device.

2. Prepare the student (or receiving) device to receive data.

    a. Turn the device on.

    b. Press [2nd] [LINK] to prepare the TI-83 Plus to receive data.

    ```
    SEND RECEIVE
    1:All+…
    2:All-…
    3:Prgm…
    4:List…
    5:Lists to TI82…
    6:GDB…
    7↓Pic…
    ```

    c. Highlight **RECEIVE** by pressing [▶].

    ```
    SEND RECEIVE
    1:Receive
    ```

d. Press ENTER. **WAITING** is displayed on the device.

```
WAITING...
```

3. Prepare the teacher's (or sending) device to send data.

a. Turn the device on.

b. Press 2nd [LINK] to prepare the device for linking.

```
SEND RECEIVE
1:All+…
2:All-…
3:Prgm…
4:List…
5:Lists to TI82…
6:GDB…
7↓Pic…
```

c. Press ▲ or ▼ until **D:AppVars** is highlighted.

```
SEND RECEIVE
B:String…
C:Apps…
D:AppVars…
E:Group…
F:SendId
G:SendSW
H:Back Up…
```

d. Press ENTER to view the AppVars. Move the cursor to the file (AppVar) you want to send, and press ENTER. In these instructions, the **ECONDEF** file is used.

```
SELECT TRANSMIT
 *Address   AVAR
▶*ECONDEF   AVAR
 *ORGINFO   AVAR
 *SAMPLEST  AVAR
 *Schedule  AVAR
 *TIINFO    AVAR
  TISCRSLT  AVAR
```

e. Press ▶ to highlight **TRANSMIT**. Press ENTER to start data transfer.

```
SELECT TRANSMIT
1:Transmit
```

4. If the transfer is successful, then the sending and receiving devices will display the following on their screens. Download the AppVar to other students using the same method. Once a student has the file on his or her device, he or she can share it with other students by using the procedure for the teacher's (sending) device.

```
▶ ECONDEF   AVAR
              Done
```

```
Receiving…
▶ ECONDEF   AVAR
              Done
```

Teacher TI-83 Plus   Student TI-83 Plus