

Teacher Notes



Truman's Decision to Drop the Atomic Bomb

Activity 3 Graphing Casualties

Activity Overview

This activity provides students with the opportunity to use technology to visually enhance their understanding of the impact that dropping the atomic bomb had upon the people of Japan. They will create a scatter plot of the casualties from firebomb raids and from the atomic blasts. Specifically, students graph population and casualty rates for Tokyo, Hiroshima, and Nagasaki.

After creating the graph, students further their investigation to see if there is a linear correlation between the three separate events.

Tip

This activity can be worked independently or in small groups. Each student will create a graph and then use it to answer questions. Answers are stored in a new NoteFolio™ file, and when completed, the students submit their file to the teacher for review and evaluation.

Activity at a Glance

- ◆ **Subject:** Social Studies
- ◆ **Subject Area:** U. S. History
- ◆ **Category:** World War II
- ◆ **Topic:** The Atomic Bomb
- ◆ **Grade Level:** 11
- ◆ **Prerequisites:** Students should understand the reasons for support and opposition for the decision to use the atomic bomb to force Japan's surrender during World War II.
- ◆ **Total Teaching Time:** 45 minutes

Materials

- ◆ TI-83 Plus
- ◆ TI External Keyboard
- ◆ TI Connectivity Cable and TI Connect™ software or TI-Navigator™ Classroom Network
- ◆ NoteFolio™ and TlmeSpan™ Apps installed on each student's TI-83 Plus
- ◆ Student Work Sheet: **Graphing Casualties**

Directions

Before the Activity Begins

Make sure each student has a TI-83 Plus with the NoteFolio™ application installed. They will also need a TI External Keyboard.

Make enough copies of the Student Work Sheet so that each student can receive a copy. If you plan to let students work in groups for this activity, then it is a good idea to determine the groups beforehand and mix the groups so that there is at least one student in each group who is very proficient in using the applications on the TI-83 Plus.

Whether the students work in groups or individually, each student is responsible for creating his or her own graph. It is recommended that you allow the students to assist each other through this process.

During the Activity

Begin the activity by handing out the Student Work Sheet, **Graphing Casualties**. Review the instructions for the activity, and answer any questions the students may have about this assignment. If the students are to work in groups, then divide the class into groups before allowing them to begin work.

Monitor student progress throughout the activity. Check the students' graphs once they have completed that part of the activity. Remind students to use what they learned from the graphs to complete the questions. Once they have completed the questions, have the students transmit their NoteFolio™ file to your computer.

After the Activity

When the students have all submitted their files, debrief the activity with a discussion using the Student Work Sheet questions as a starting point. This is a good opportunity for students to discuss why the events are seen so differently. They can also discuss the various effects of the decision to use the atomic bomb. Students can refer to the TimeSpan™ files they created and stored on their TI-83 Plus to review information and time lines relating to war in the Pacific and other specific events covered in this activity.

Student Data Sheet
Graphing Casualties

Name: _____

Date: _____

Directions

You will create a graph and scatter plot from the information in the chart provided below. You will also use the information from the chart and graph to answer the questions contained in this Work Sheet. Enter your responses in a new NoteFolio™ file on your TI-83 Plus. Submit this file to your teacher for review and evaluation.

	Tokyo	Hiroshima	Nagasaki
Pre-raid Population	678	255	190
Killed	97	60	39
Wounded	125	69	25
Total Casualties	220	135	64

Note: The population figures above are in units of hundred thousands.

Answer the following questions. Type your answers in a new NoteFolio™ file on your TI-83 Plus.

Part I

1. Identify the percentages of casualties for each of the three Japanese cities.
A. Tokyo -
B. Hiroshima-
C. Nagasaki -
2. Describe what some of the similarities are between the cities and the number of casualties.
3. Give an explanation concerning why there is so much more of a focus on the number of people who were casualties of the atomic bombs that hit Hiroshima and Nagasaki compared to the casualties of Tokyo and the fire bombing raids on March 10, 1945.

Part II

Use the following instructions to create a scatter plot and linear expression of the graph.

- ◆ Plot the number of casualties against the population of all three cities.
- ◆ Follow the steps on the scatter plot instruction sheet and see if the relationship between the events is linear. Explain what this relationship says concerning the three events.

Have the teacher check your graphs as you plot them.




Graphing Instructions

The following guide will assist you in completing the scatter plot and exploring whether the number of casualties in Tokyo is similar to the number of casualties in Hiroshima and Nagasaki.

1. Two lists are needed: the total populations of Tokyo, Hiroshima, and Nagasaki and their respective number of casualties suffered during the bombings. To enter these data, access the **STAT EDIT** table by pressing **[STAT]** **[ENTER]**. Clear the table and enter in **L1** the total populations of each city and in **L2** the number of casualties, taking care that opposite each population in **L1** is the corresponding number of casualties in **L2**.

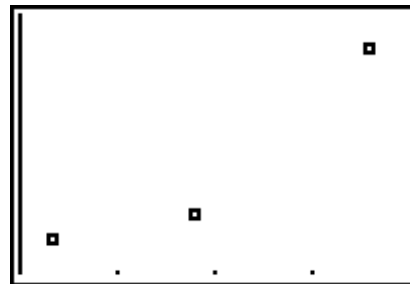
L1	L2	L3	3
222	678		
135	255		
64	195		
-----	-----		
L3(1)=			

2. To determine whether there is a relationship, plot the three points. To do this, turn off all statistical plots by pressing: **[2nd]** **[STAT PLOT]** **4** **[ENTER]**. When the plots are turned off, press **[2nd]** **[STAT PLOT]** **[ENTER]**.

Plot1	Plot2	Plot3
Off	Off	Off
Type:		
Xlist:	L1	
Ylist:	L2	
Mark:		+ .

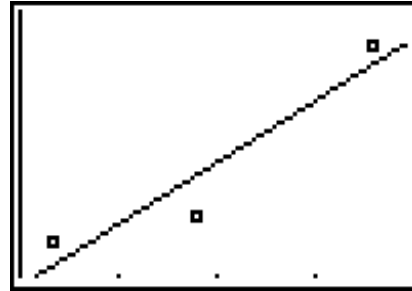
Define **Plot1** by selecting the options shown in the example at the right. Choose the first icon in the **Type** row. This is the scatter plot graph. Enter **L1** (**[2nd]** **1**) as the **Xlist** and **L2** (**[2nd]** **2**) as the **Ylist**.

Press **[ZOOM]** **9** to graph the plot. It should look like the display shown at the right.



- To calculate the equation of the regression line (with equation of the form $Y = ax + b$) press **STAT** **▶** to **CALC**. Press **4** **ENTER**. Define this equation as **Y1** on the **Y=** list by pressing **Y=**. (Press **CLEAR** if an equation is already entered into **Y1**.) Press **VARS** **5** **▶** **▶** to **EQ**. Press **ENTER**.

- Press **GRAPH** to see the display shown at the right.



Part III

- Now that you have created a visual that illustrates the relationship between the three separate events what conclusions can you draw?

When this assignment is completed, send your answer file for Questions 1-4 to the teacher. Use your first initial and last name as the name for this file. For example, if your name is John Doe, the file would be saved with the title **JDOE**. Save and name your file before you transmit it to your teacher.