Name _____Period _____ Date_____

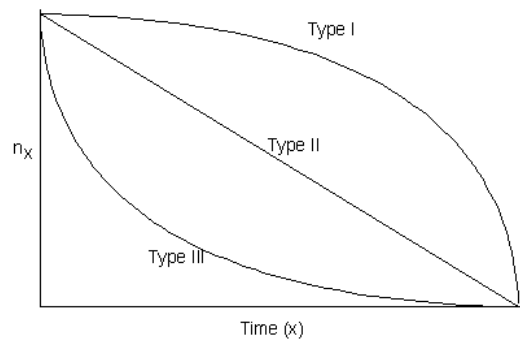# 4:16 Graveyard Smash: Human Survivorship

PURPOSE

To compare the survivorship patterns of people from the 19th and 20th century, be able to predict population patterns, graph survivorship curves, and understand the major historical events that affected human population

MATERIALS

Population data set of St. Helena Episcopal Church and Beaufort National Cemetery
Internet population statistics data bases, Newspapers, Microfiche or other sources
Access to a cemetery with grave markers from Pre-1900 and Post-1900
Clipboard
Calculator

INTRODUCTION

In the graphic below, Type I or "late loss" survivorship curves are for species that have a high survival rate of the young, live out most of their expected life span and die in old age. Good examples are humans in industrialized countries not at war, rotifers, some sheep and phlox. Type II or "constant loss" survivorship curves represent species that have a relatively constant death rate throughout their life span often due to hunting or diseases. Examples of species exhibiting a Type II survivorship curve are coral, squirrels, honey bees, some turtles and are especially common in birds. Type III or "early loss" survivorship curves are found in species that have many young, most of which die very early in their life. Plants, marine invertebrates, fish and internal parasites are examples of species that have Type III survivorship curves.

Name _____Period _____ Date_____

4:16 Graveyard Smash: Human Survivorship

PROCEDURE

Part 1: Survivorship

• Use the information provided from the Beaufort, SC National Cemetery, and Saint Helena Episcopal Churchyard below to complete the survivorship table by subtracting the number of individuals who died from 100.

SURVIVORSHIP TABLE FOR100 PEOPLE BORN PRE-1900

Age Cohort in Years	Number Who Died	Number Who Survived
0-5	6	100-6=99
6-10	0	94-0=94
11-15	1	94-1=93
16-20	3	
21-25	5	
26-30	2	
31-35	6	
36-40	4	
41-45	3	
46-50	5	
51-55	8	
56-60	9	
61-65	10	
66-70	6	
71-75	9	
76-80	7	
81-85	9	
86-90	1	
91-95	6	
95-100	0	

• Prepare a graph of the survivorship data you calculated above on the following page. Plot the 5 year age cohorts as the x-axis (independent variable), and the number who survived on the y-axis (dependent variable).

Advanced Environmental Science© by Matthews and Weatherhead
Published by *Teaching Point* as part of the Expert Systems for Teachers™ Series

Name _____Period _____ Date_____

4:16 Graveyard Smash: Human Survivorship

DATA

Title_____

Name _____Period _____ Date_____

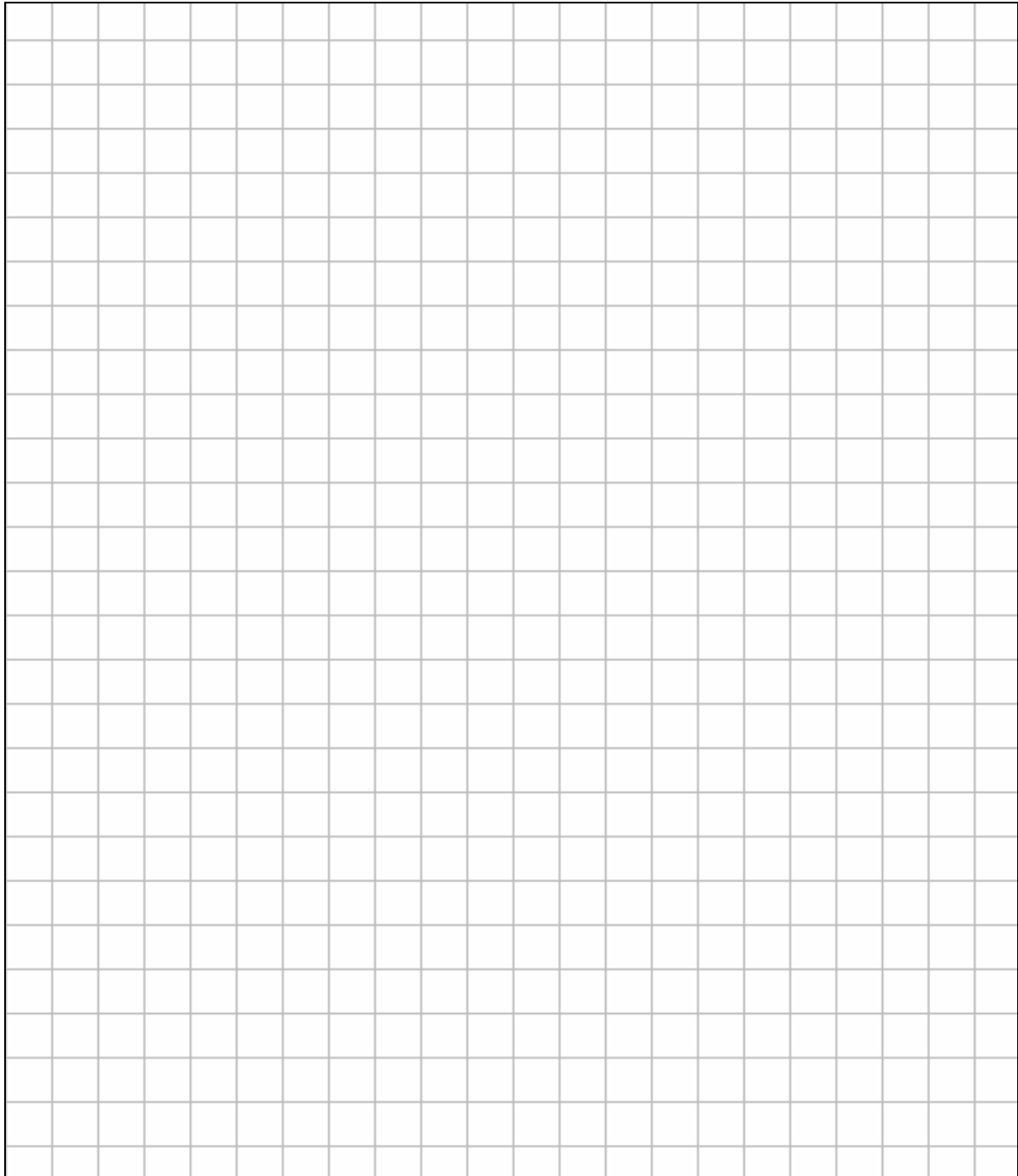*4:16 Graveyard Smash: Human Survivorship*

Part 2: Graveyard Field Study
• Look at recent newspapers, microfiche or find an Internet website and make a list of 100 people who died before 1900, their sex and their ages at death. Indicate the source you use for the obituaries indicating dates and city of publication. Do the same thing for 100 individuals who died after 1900.

• Go to an old cemetery and gather the survivorship information from tomb stones for 100 individuals who died before 1900. Find 100 grave markers for individuals who died after 1900 and record the same information for this group as above (sex and age at death).

• For each set of data, count the number of people who died at various 5 year age cohorts as shown in part 1 (age 0-5, 6-10, 11-15, etc).

• Calculate the number out of 100 who survived past age 5, 10, 15, etc. as you did in Part 1. Record these in the data tables for Pre-1900 and Post-1900 on the following pages. Record the survivorship numbers for males versus females in the appropriate age cohort categories.

PRE-1900 SURVIVORSHIP DATA TABLE

Age Cohort in Years	Number Who Died	Number Who Survived	# Males Who Survived	#Females Who Survived
0-5				
6-10				
11-15				
16-20				
21-25				
26-30				
31-35				
36-40				
41-45				
46-50				
51-55				
56-60				
61-65				
66-70				
71-75				
76-80				
81-85				
86-90				
91-95				
96-100				

Name _____Period _____ Date_____

4:16 Graveyard Smash: Human Survivorship

- Plot the total survivors at each Pre-1900 age cohort on the graph provided. Plot male and female survivors using a different color or legend.
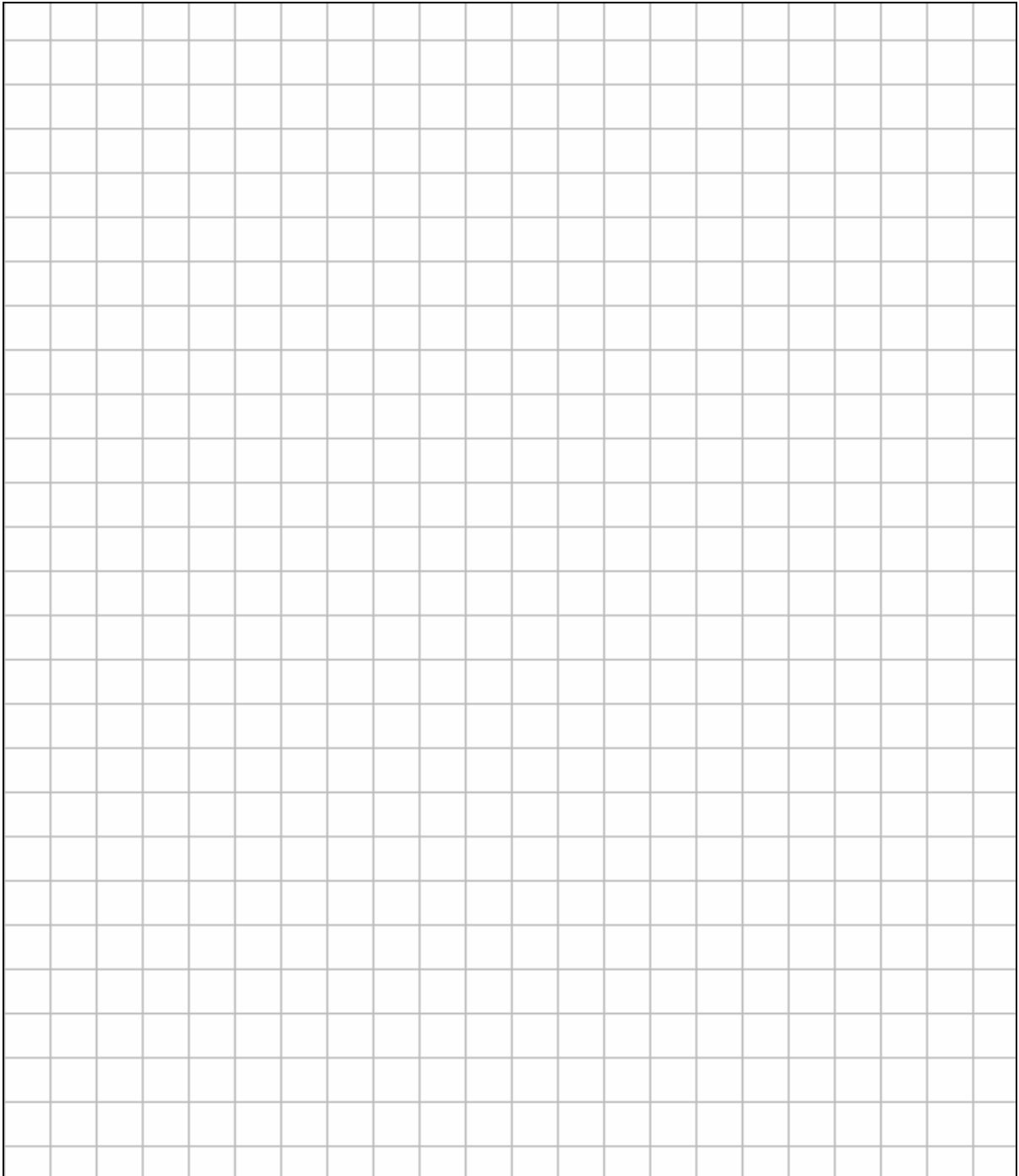
4:16 Graveyard Smash: Human Survivorship

POST-1900 SURVIVORSHIP DATA TABLE

Age Cohort in Years	Number Who Died	Number Who Survived	# Males Who Survived	#Females Who Survived
0-5				
6-10				
11-15				
16-20				
21-25				
26-30				
31-35				
36-40				
41-45				
46-50				
51-55				
56-60				
61-65				
66-70				
71-75				
76-80				
81-85				
86-90				
91-95				
96-100				

Name _____Period _____ Date_____

4:16 Graveyard Smash: Human Survivorship

- Plot the total survivors at each age Post-1900 cohort on the graph provided. Plot male and female survivors using a different color or legend.

4:16 Graveyard Smash: Human Survivorship

QUESTIONS AND ANALYSIS

1. What is the mortality rate for males between 16 to 25 years and what is the mortality rate for females of the same ages? Show your calculations.

_____

_____

_____

_____

2. What general observations can you make about the people who died and those who survived in this area of the United States before the turn of the 20th century?

_____

_____

_____

_____

_____

_____

4. How would you expect the survivorship curve to look if you recorded 100 individuals during the 14th century in Europe? Explain your answer.

_____

_____

_____

_____

_____

5. What important historical events could have affected your Pre-1900 population? What evidence is there from your data that show there was an impact of these factors?

_____

_____

_____

_____

_____

4:16 Graveyard Smash: Human Survivorship

6. What important historical events could have affected your Post-1900 population? What evidence is there from your data that show there was an impact of these factors?

_____

_____

_____

_____

_____

_____

7. Does your data support the trend that women tend to live longer than men? Why or why not? What factors may contribute to the differences you observed?

_____

_____

_____

_____

_____

8. Does there appear to be a difference between male and female survivorship prior to and after 1900? How can you explain this? What factors may contribute to the differences you observed?

_____

_____

_____

_____

_____

_____

_____

9. What type of survivorship curve does your data represent (Type I, II or III) for each of your data sets?

_____

_____

_____

4:16 Graveyard Smash: Human Survivorship

10. How would you expect your data to change if you studied a group of individuals born after 1950? Explain your answer.

_____

_____

_____

_____

_____

_____

11. How would you expect your data to change if you studied a group of individuals born after 2000? What factors might influence this change?

_____

_____

_____

_____

_____

_____

_____

12. What would you expect the survivorship curve to look like if you were to examine data from a developing country compared with what you observed? Explain.

_____

_____

_____

_____

_____

_____