



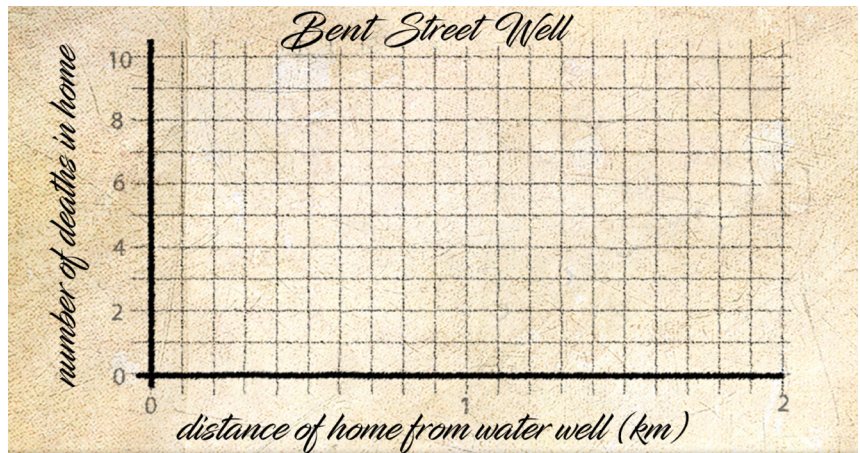
## CHOLERA OUTBREAK!

### What are the data showing?

After having identified the Broad Street water well as a very likely source of the cholera, Dr. John Snow continues to collect data of various water wells. He wants to pinpoint all of the affected areas and inform as many people as possible.

He has recently gathered data from the Bent Street Well. Complete the scatter plot using this new data.

|  |     |     |     |     |     |     |     |      |     |      |     |     |     |
|--|-----|-----|-----|-----|-----|-----|-----|------|-----|------|-----|-----|-----|
| <i>Distance of home from water well (km)</i> | 0.9 | 1.2 | 0.4 | 1.3 | 0.2 | 0.7 | 1.5 | 1.05 | 0.3 | 1.35 | 1.1 | 0.8 | 1.3 |
| <i>Number of deaths in the home</i>          | 7   | 9   | 0   | 6   | 0   | 4   | 7   | 5    | 1   | 8    | 7   | 5   | 10  |



### 8.SPA.1

#### About this standard

Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and non-linear association.

What are the data showing?

# APPLYING THE STANDARD

How might this standard appear on a test?



CHECK OUT MY  
WORKED EXAMPLE  
#1A3

1) Every year the NOAA releases hurricane season predictions for the Atlantic Basin, which includes the Atlantic Ocean, Caribbean Sea and the Gulf of Mexico. The table shows data for both the predicted and actual number of hurricanes from 2005 to 2016.

| Atlantic Hurricanes |                                |                             |
|---------------------|--------------------------------|-----------------------------|
| Year                | Predicted number of hurricanes | Actual number of hurricanes |
| 2005                | 8                              | 15                          |
| 2006                | 10                             | 5                           |
| 2007                | 10                             | 6                           |
| 2008                | 8                              | 8                           |
| 2009                | 6                              | 3                           |
| 2010                | 10                             | 12                          |
| 2011                | 9                              | 7                           |
| 2012                | 6                              | 10                          |
| 2013                | 9                              | 2                           |
| 2014                | 4                              | 6                           |
| 2015                | 6                              | 4                           |
| 2016                | 4                              | 7                           |

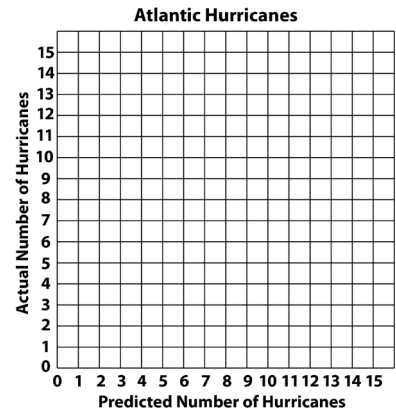
a) Create a scatter plot on the graph, using the hurricane data in the table.

b) Where does the data appear to cluster?

c) Does there appear to be an outlier?

YES NO

If YES, where? \_\_\_\_\_



d) Are hurricane season predictions accurate? Explain your reasoning.

2) A survey group conducted a study to determine if there is an association between the age of a person and the average number of emojis used per text. The survey results are below.

Age and Emojis Used Per Text

| Age                                    | 15 | 28 | 36 | 10 | 62 | 47 | 23 | 14 | 16 | 20 | 40 | 33 | 50 | 42 | 30 | 12 | 30 | 68 | 70 | 54 |
|--|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Average Number of Emojis Used Per Text | 10 | 8  | 5  | 9  | 1  | 1  | 7  | 9  | 8  | 6  | 3  | 4  | 2  | 2  | 6  | 10 | 3  | 6  | 0  | 1  |

a) Create a scatter plot using the data in the table.

b) What type of association do the two variables seem to have?

NO ASSOCIATION

POSITIVE LINEAR ASSOCIATION

NEGATIVE LINEAR ASSOCIATION

NON-LINEAR ASSOCIATION

c) Does there appear to be an outlier?

YES NO

If YES, where? \_\_\_\_\_

d) Based on the data, what can you say about age and the number of emojis used per text?