

# **14.1 Scatter Plots and Association**

## 8.SP.1

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 nonlinear association

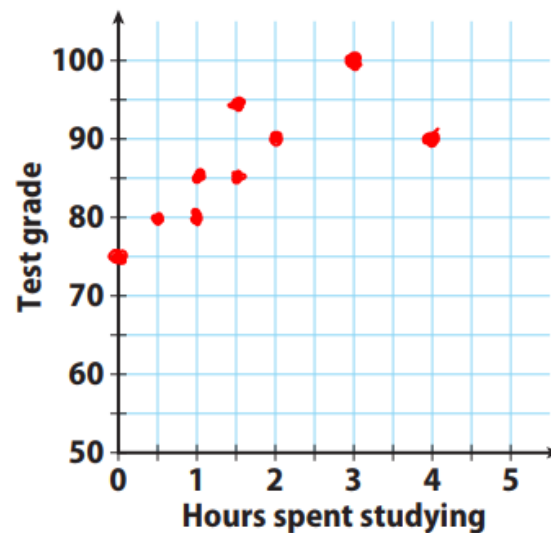
## Vocabulary

- Scatter plots - graphs with points plotted to show the relationship between two sets of data
- Cluster - set of closely grouped data
- Outlier - a data point that is very different from the rest of the data in the set
- Association - describes how sets of data are related
  - ↳ positive association  
negative association  
no association
  - ↳ linear association  
nonlinear association

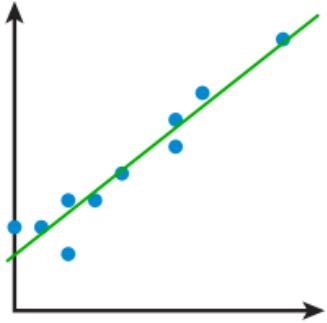
## EXPLORE ACTIVITY 1

Hours Spent Studying	Test Grade
0	75
0.5	80
1	80
1	85
1.5	85
1.5	95
2	90
3	100
4	90

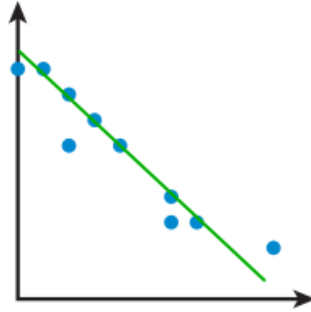
- A** Make a prediction about the relationship between the number of hours spent studying and test grades.
- B** Make a scatter plot. Graph hours spent studying as the independent variable and test grades as the dependent variable.



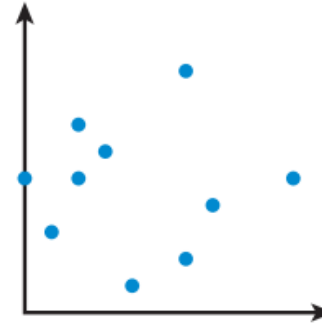
## Determining Association



- Positive Association
- Both sets of data increase



- Negative Association
- One set of data increases and the other decreases



- No Association
- No relationship between data

Linear Association - lie on basically a straight line (positive & negative)

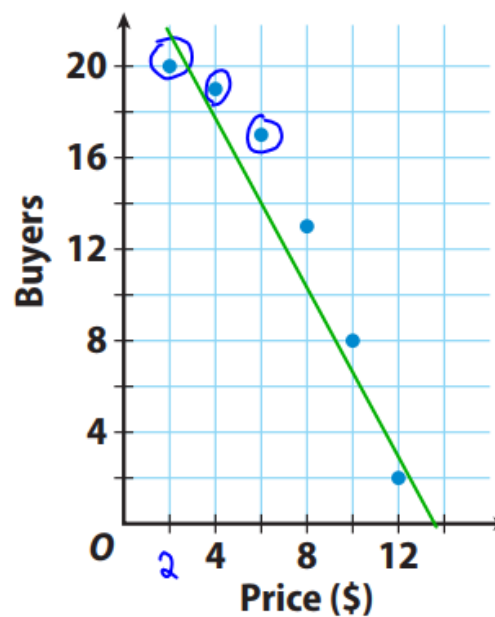
Nonlinear Association - does not lie basically on a line (positive & negative)

**EXAMPLE 1**

Susan asked 20 people if they would buy a new product she developed at each of several prices. The scatter plot shows how many of the 20 said “yes” at a given price. Describe the association between price and the number of buyers.

Price ↑  
buyers ↓

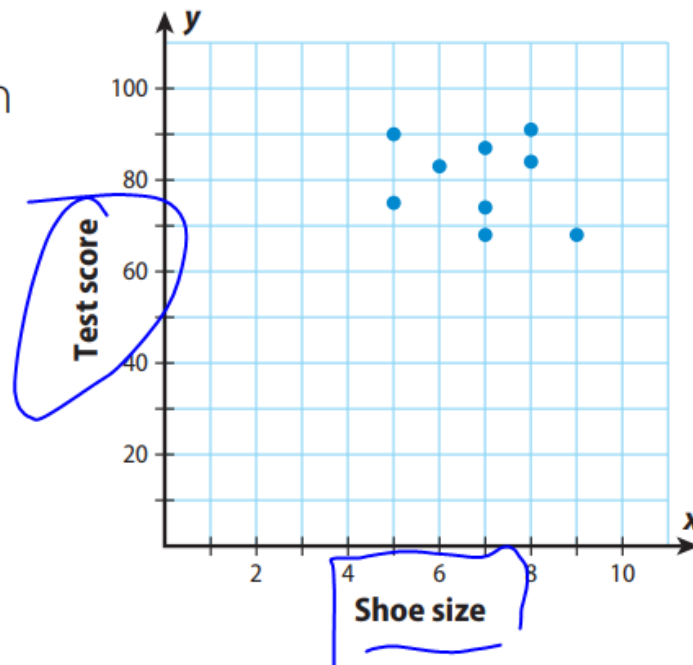
Negative  
Linear  
Association



## ADDITIONAL EXAMPLE 1

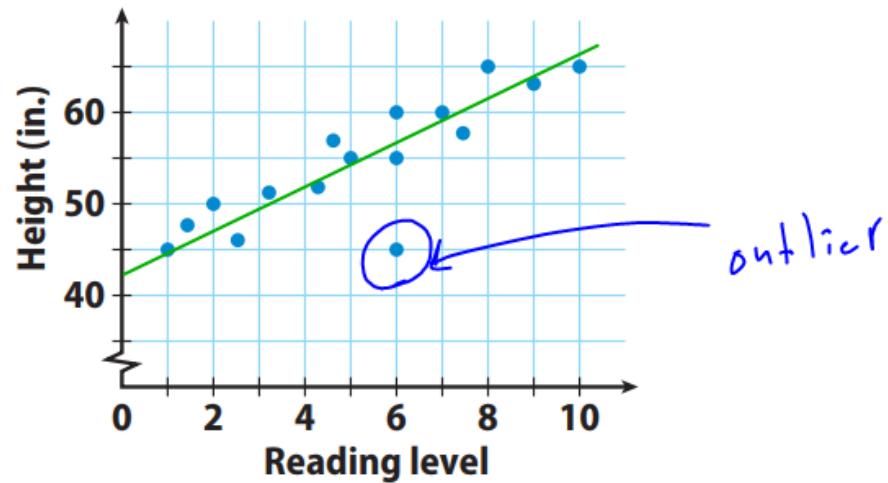
Juan recorded the shoe size and the math test scores of several students. The scatter plot shows what he recorded. Describe the association between test score and shoe size.

No.  
Association



**YOUR TURN**

6. The plot shows the reading level and height for 16 students in a district. Describe the association and give a possible reason for it.



Positive, Linear  
Association

$\rho$  436 1-4

437-438

5-11