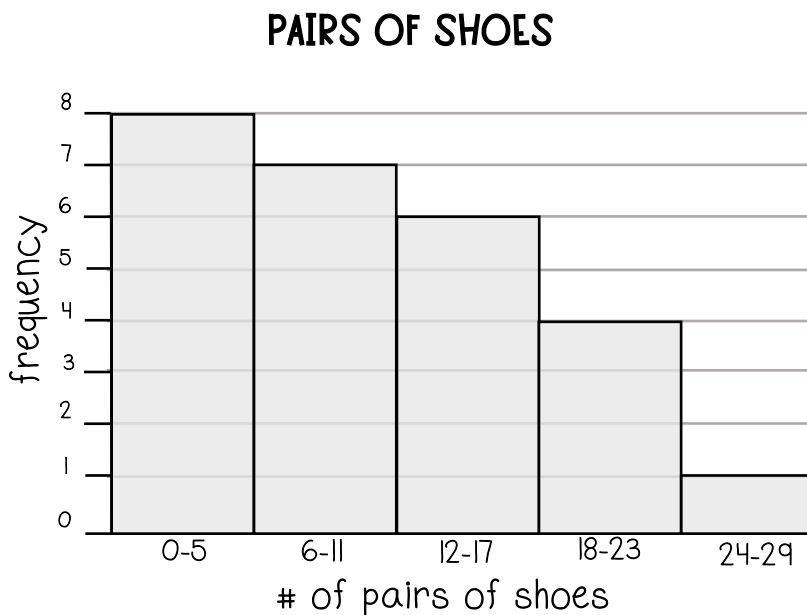# STATION 1: HISTOGRAMS & DOT PLOTS *front*
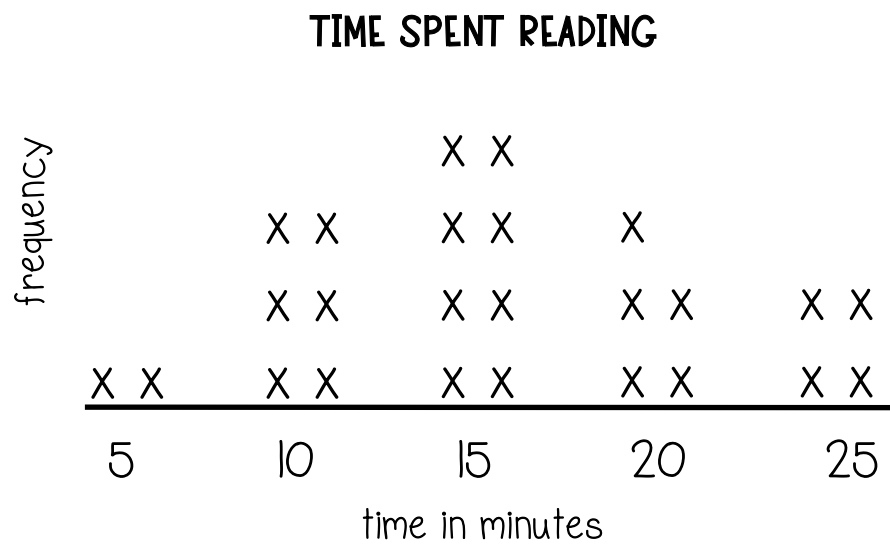
A group of people were asked how many pairs of shoes they owned. The results are displayed in the histogram. Use the graph to answer questions #1-8.

PAIRS OF SHOES

1. How many people had 12-17 pairs of shoes?

2. What percentage of people had 24+ pairs of shoes?

3. How many peaks does the data set have?

4. How many students have 18 or more pairs of shoes?

5. What percentage of students have 5 or less pairs of shoes?

6. How many people were surveyed?

7. Is the shape of this data set symmetrical?

8. What percentage of students have between 12 and 23 pairs of shoes?

STATION 1: HISTOGRAMS & DOT PLOTS *back*

A group of students were asked how many minutes they read each night. The results are displayed on the dot plot. Use the graph to answer questions #9-16.

TIME SPENT READING

```
frequency
                        X  X
          X  X       X  X       X
          X  X       X  X       X  X       X  X
   X  X   X  X       X  X       X  X       X  X
  _____
    5      10        15         20         25
                time in minutes
```

9. How many students spend 20 minutes reading?

10. What percentage of students spend 10 or less minutes reading?

11. Are there any outliers?

12. What is the mode for this data set?

13. What is the median time for reading?

14. How many students spend 15 or less minutes reading each night?

15. What percentage of students read for 20 or more minutes each night?

16. Is this shape of this data set symmetrical?

STATION 2: TWO-WAY FREQUENCY TABLES *front*

A group of freshmen and sophomores were surveyed about their eye color. The results are displayed on the table below. Use the table to answer questions #1-7.

	Green	Blue	Brown	Total
Freshmen	7	12	21	40
Sophomores	5	9	26	40
Total	12	21	47	80

1. How many sophomores have brown eyes?

2. What is the relative frequency of a sophomore with blue eyes?

3. What percentage of students surveyed were freshman?

4. What is the mode for eye color?

5. How many students were surveyed?

6. What percentage of students have green eyes?

7. What percentage of the freshmen students have brown eyes?

# STATION 2: TWO-WAY FREQUENCY TABLES *back*

A group of students were asked if they liked pizza, hamburgers, or tacos best. The results are displayed on the table below. Use the table to answer questions #8-14.

	Pizza	Hamburger	Taco	Total
8-year-olds	22	15	13	50
12-year-olds	25	9	16	50
16-year-olds	16	7	27	50
Total	53	31	56	150

8. What is the relative frequency of being an 8-year-old and liking pizza best?

9. How many 12-year-olds like tacos?

10. What percentage of those who like pizza best are 8-year-olds?

11. What is the relative frequency of liking tacos best?

12. Out of the 16-year-olds, what percentage like hamburgers best?

13. What percentage of those surveyed like hamburgers best?

14. Out of the 12-year-olds, what percentage like tacos best?

# STATION 3: CENTER & SHAPE OF DATA *front*

A group of 9th and 10th graders were asked how many hats they owned. The results are displayed in the histograms. Use the graphs to answer questions #1-6.
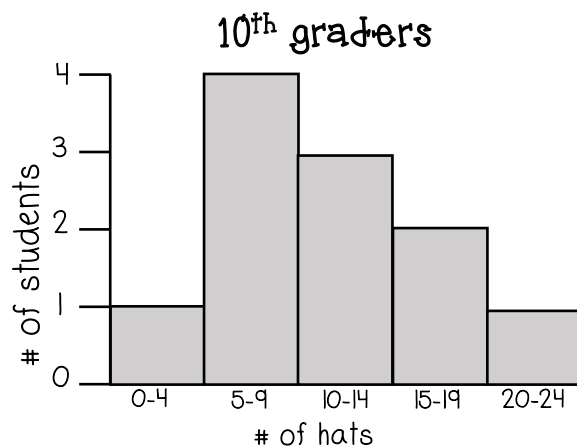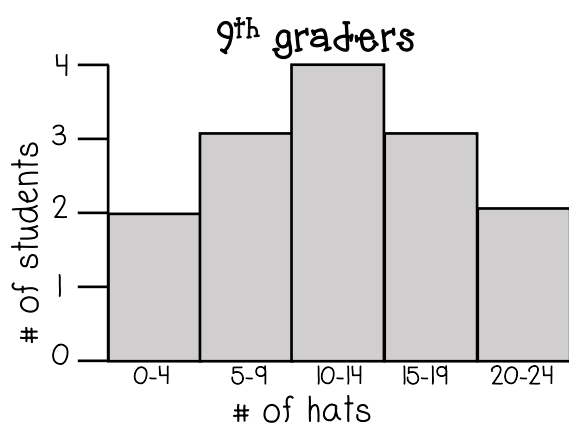
1. How do the centers of the two data sets compare?

2. Estimate the mean for the 9th grade data.

3. How many peaks does the 9th grade data have?

4. What is the shape of the 10th grade data?

5. Is the 10th grade data unimodal, bimodal, or uniform? Explain.

6. What is the shape of the 9th grade data?

STATION 3: CENTER & SHAPE OF DATA *back*

A group of students were asked how many minutes they study each night. The results are displayed on the dot plots. Use the graphs to answer questions #7-12.

Freshmen
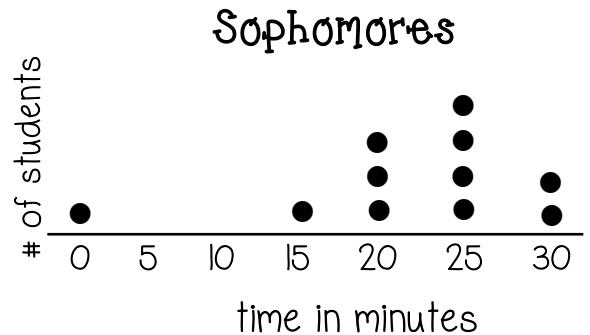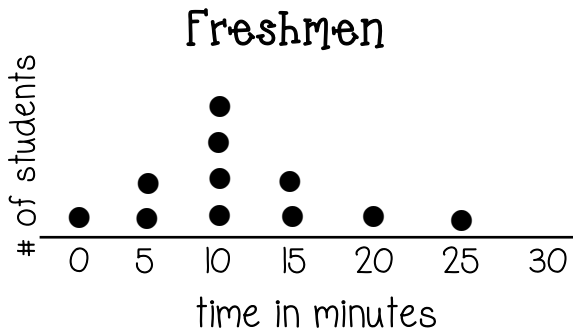
Sophomores

7. What is the mean of the freshmen data?

8. Does either grade level have an outlier? If so, what is it?

9. What type of shape is the freshmen data set?

10. Which group has a smaller center?

11. Would mean or median be more appropriate for the sophomore data? Why?

12. What is the mode for the sophomore data set?

STATION 4: SPREAD OF DATA *front*

Use the following scenario to answer questions #1-6. A basketball coach analyzed the final point total for his team over 7 games. The point totals were:

120, 117, 130, 119, 113, 125, 129

1. Find the range.

2. Find Q1, Q2, and Q3.

3. Create a box and whisker plot using the data set.

4. Find the interquartile range (IQR).

5. Find the mean.

6. Find the mean absolute deviation (MAD).

STATION 4: SPREAD OF DATA *back*

The estimated population of 10 small towns in Oklahoma and 10 small towns in Kansas were recorded. The results are displayed on the box and whisker plots below. Use them to answer questions #7-12.

Oklahoma

population in thousands

Kansas

population in thousands
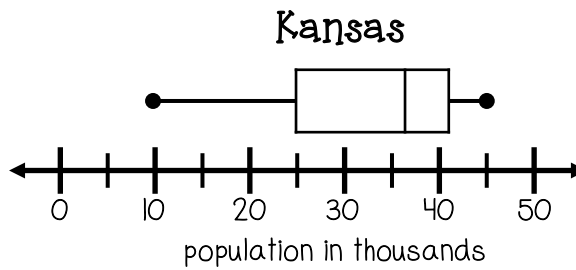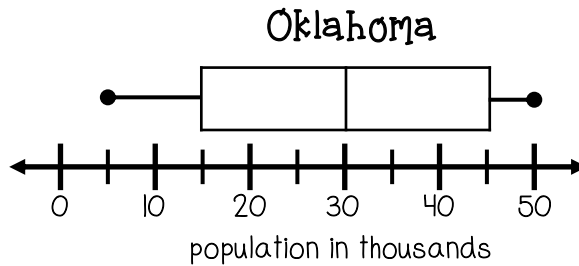
7. Which state has a symmetrical distribution?

8. What is the range for Kansas?

9. What is the IQR for Oklahoma?

10. Which state has a smaller spread?

11. Which state has a higher center?

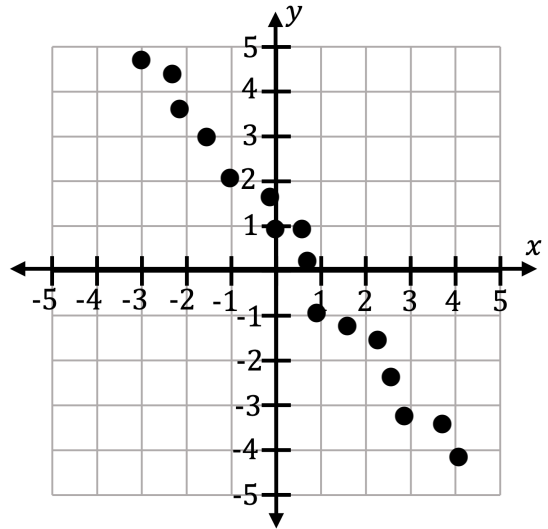12. Do you think range or IQR would be more appropriate for Kansas? Why?

STATION 5: SCATTER PLOTS *front*

Use the scatter plot to answer questions #1-2.
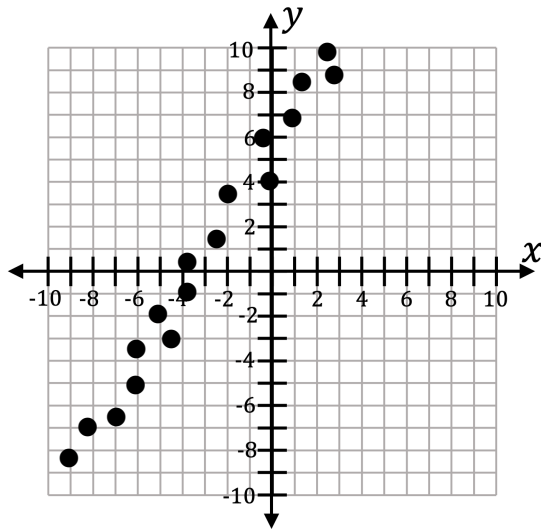
1. What type of correlation is shown?

2. Estimate the correlation coefficient.

3. Which equation represents the line of best fit for the data shown?

a. $y = -2x - 1$

b. $y = 0.5x + 1$

c. $y = -\frac{4}{3}x + 1$

d. $y = \frac{1}{4}x - 1$

The table shows the number of houses in a large neighborhood from 2008-2020. Use the table to answer questions #4-8.

Year	2008	2010	2012	2014	2016	2018	2020
Number of Houses	21	29	36	42	49	53	61

4. Using a graphing calculator, calculate the line of best fit:

5. What type of correlation does the data show?

6. What is the correlation coefficient?

7. Assuming there is land for building, estimate the amount of houses in the neighborhood in 2026.

8. Estimate how many houses were in this neighborhood in 2004.
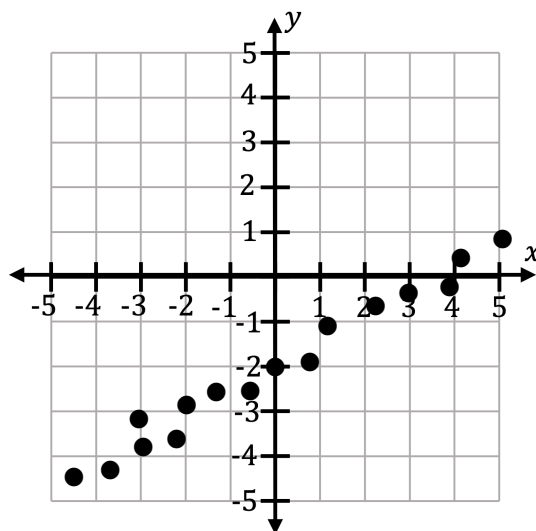
STATION 5: SCATTER PLOTS *back*

Use the scatter plot to answer questions #9-10.
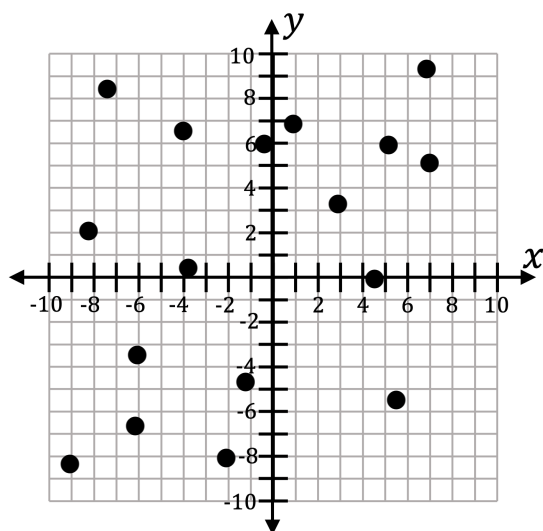
9. What type of correlation is shown?

10. Estimate the correlation coefficient.

11. Which equation represents the line of best fit for the data shown?

a. $y = 2x - 2$

b. $y = 0.5x + 3$

c. $y = -\frac{1}{2}x - 2$

d. $y = -2x - 1$

The table shows how long it took Alex to run a mile each year from ages 12-18. Use the table to answer questions #12-16.

Age	12	13	14	15	16	17	18
Time in Minutes	9.3	9.0	8.7	8.4	8.1	7.5	7.1

12. Using a graphing calculator, calculate the line of best fit:

13. What type of correlation does the data show?

14. What is the correlation coefficient?

15. If Alex continues to get faster at the same rate, how fast will she run a mile when she's 19?

16. Estimate how fast Alex's mile was when she was 11 years old.

Statistics Stations Answer Sheet

Station 1

1.   9.

2.   10.

3.   11.

4.   12.

5.   13.

6.   14.

7.   15.

8.   16.

Station 2

1.   8.

2.   9.

3.   10.

4.   11.

5.   12.

6.   13.

7.   14.

Station 3

1.   7.

2.   8.

3.   9.

4.   10.

5.   11.

6.   12.

Statistics Stations Answer Sheet Continued

Station 4

1.

2.

3.

<----------------------------------->

4.

5.

6.

7.

8.

9.

10.

11.

12.

Station 5

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

16.

Statistics Stations KEY

Station 1

1. 6	9. 5
2. 3.85%	10. 32%
3. 1	11. no
4. 5	12. 15
5. 30.77%	13. 15
6. 26	14. 16
7. no	15. 36%
8. 38.46%	16. yes

Station 2

1. 26	8. 11/75 or .15 o 14.67%
2. 9/80 or .11 or 11.25%	9. 16
3. 50%	10. 41.51%
4. brown	11. 28/75 or .37 or 37.33%
5. 80	12. 14%
6. 15%	13. 20.67%
7. 52.5%	14. 32%

Station 3

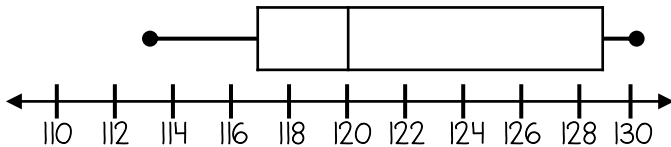|	
1. 9th > 10th	7. 11.36
2. ≈ 12	8. 10th -- 0 minutes
3. 1	9. symmetric
4. skew right	10. 9th
5. unimodal -- only one peak	11. median because there is an outlier
6. symmetric	12. 25

Statistics Stations Answer Sheet Continued

Station 4

1. 17

2. Q1=117 Q2=120 Q3=129

3. *Graphs may vary*

4. 12

5. 121.86

6. 5.27

7. Oklahoma

8. 35

9. 30

10. Kansas

11. Kansas

12. IQR because there is an outlier

Station 5

1. positive

2. ≈ 0.8

3. C

4. y = 3.2x + 22.2

5. positive

6. 0.99 ≈ 1

7. 79.8 (80 because they are houses)

8. 9

9. none

10. zero

11. A

12. y = -0.4x + 13.8

13. negative

14. -0.99

15. 6.2 minutes

16. 9.4 minutes