Scatter Plots and Trend Lines

Objectives:

…to construct scatter plots
...to determine correlations in scatter plots
...to draw a trend line
...to make conclusions based on trend lines

Assessment Anchor:

8.E.4.1 – Draw conclusions, make inferences and/or evaluate hypotheses based on statistical and data displays.

**Vocabulary alert!!**

SCATTER PLOT – a graph that shows a relationship between two sets of data

CORRELATION – a relationship between two sets of data

TREND LINE – a line that closely fits the data in a scatter plot

**NOTES and EXAMPLES**

**To make a scatter plot, graph the data as ordered pairs!**

<table>
<thead>
<tr>
<th>Words</th>
<th>Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>25</td>
<td>8</td>
</tr>
<tr>
<td>30</td>
<td>10</td>
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<td>12</td>
<td>5</td>
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<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>25</td>
<td>6</td>
</tr>
</tbody>
</table>

![Graph](image)
**Scatter Plots and Trend Lines**

**To determine a correlation, look for a relationship between the data sets!**

<table>
<thead>
<tr>
<th>Positive Correlation</th>
<th>Negative Correlation</th>
<th>No Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>As one set of values increases, the other set tends to increase.</td>
<td>As one set of values increases, the other set tends to decrease.</td>
<td>The values show no relationship.</td>
</tr>
</tbody>
</table>

**If there is a correlation, draw a trend line that is:**

1. … as close to each data point as possible.
2. … has about the same number of points on each side of it.
3. …goes directly through at least two points.

Now that we know how a scatter plot is made, and how to determine a correlation, and how to draw a trend line…what does all of this mean?
What kind of correlation do you see in this scatter plot? _________________

Let’s agree on where to draw a trend line…

What is the equation of the trend line? _________________

Use the trend line to determine how much an incoming coach with 10 years of coaching experience should make. (visually and algebraically)

Use the trend line to determine how much a coach should make when he’s accumulated 25 years of coaching experience.
What kind of correlation do you see in this scatter plot? ________________

Let’s agree on where to draw a trend line…

What is the equation of the trend line? ________________

Use the trend line to determine how many moose would remain if there were only 4 wolves. (visually and algebraically)

Use the trend line to determine how many wolves would essentially wipe out the moose population. (visually and algebraically)