

## 8-6 and 8-7 Teacher Notes

### Interpreting and Analyzing Graphs

**Objective:** TSW interpret, analyze, and answer questions based on box and whisker graphs, circle graphs and scatter plots. Formulate predictions, compare trends, evaluate effects of missing/incorrect data, and distinguish between causation and correlation. M08-S2C1-05 M08-S2C1-07 M08-S2C1-08 M08-S2C1-09 M08-S2C1-10 M08-S2C1-12

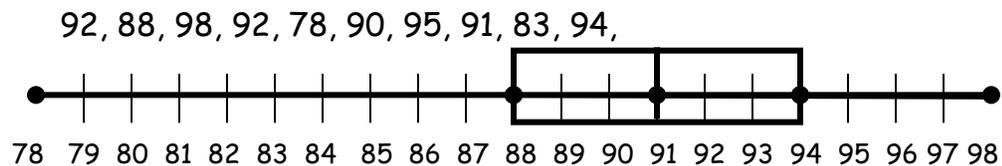
**Purpose:** Being able to interpret graphs is a skill that will be used not only during your school years, but beyond. Graphs are used to show and compare data in a format that is easy to read and interpret.

**Vocabulary:** See previous notes

**Process/Steps:**

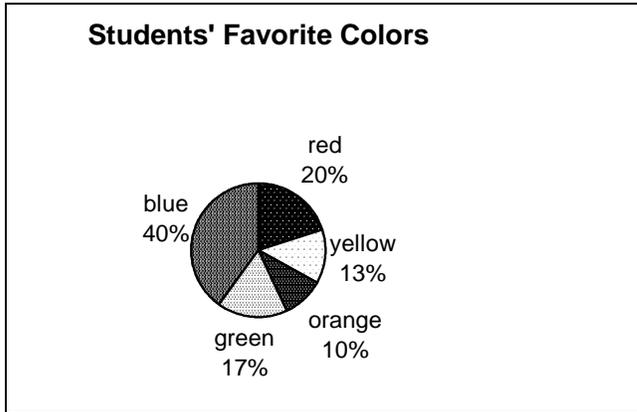
#### **Example 1: Using the box and whisker graph answer the questions**

The following were test scores in Ms Smith's math class:



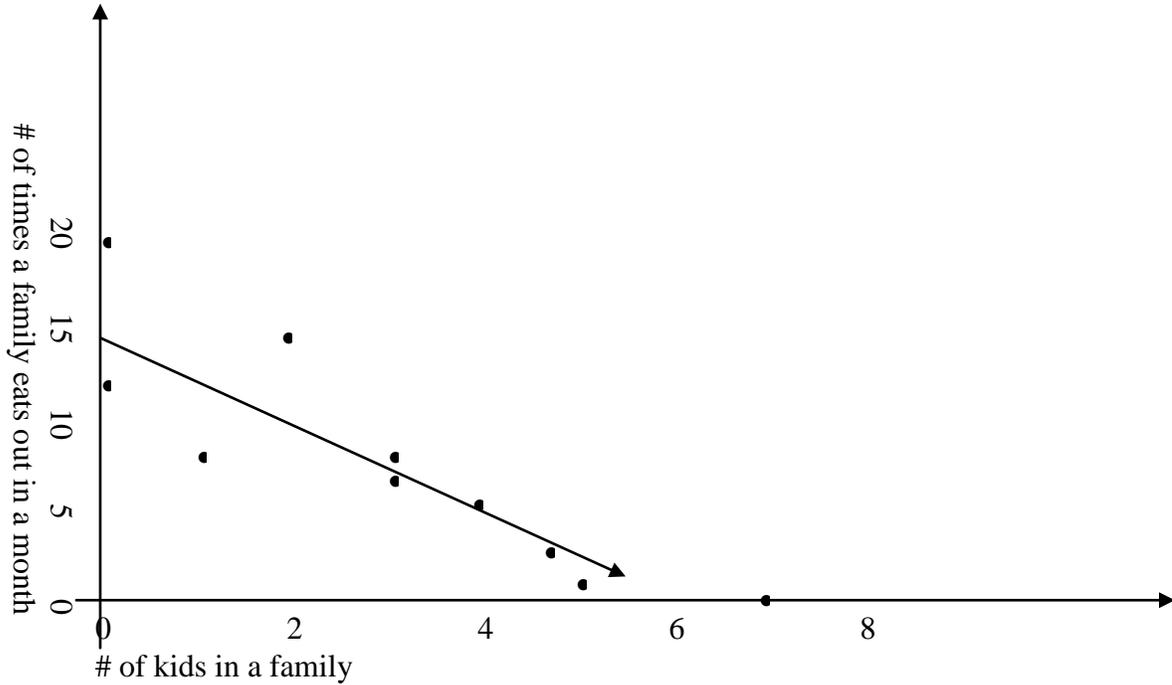
Steps	Example
1. Determine which quartile information is in.	Lower Quartile 25% 2 <sup>nd</sup> Quartile 25% 3 <sup>rd</sup> Quartile 25% Upper Quartile 25%
2. . Identify the lowest score you could have and still be in the top 25%. Locate top 25% of the graph (Upper Quartile)	Look at the scores in the top half of the graph. 94-98  Lowest Score is 94%
3. Identify the highest score you could have and still not be in the top 50%. Locate top half of the graph (3 <sup>rd</sup> and Upper Quartile)	Top half scores 91-98. Highest score to not be in top 50% is 90.

**Example 2: Use the circle graph to answer the questions if 500 students were surveyed**



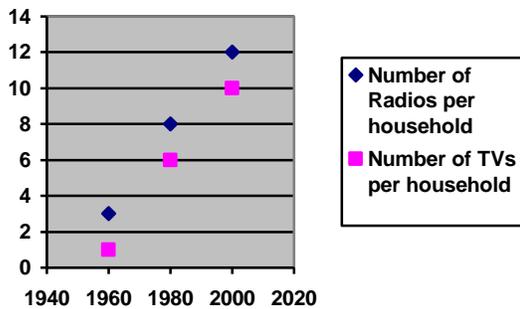
Steps	Example
<p>1. Determine the percent you need to used and convert it to a decimal or a percent. How many students favorite color is red? Convert % to decimal or fraction</p>	<p>20% of the student's favorite color is red. <math>20\% = .20</math> or <math>\frac{20}{100}</math></p>
<p>2. Multiply the percent/decimal by the total.  <math>.20 \times 500</math> or <math>\frac{20}{100} \times 500</math></p>	<p><math>.20 \times 500 = 100</math> or <math>\frac{20}{100} \times \frac{500}{1} = \frac{10000}{100} = 100</math></p>

**Example 3:** Use the scatter plot to answer the questions



Step	Example
1. Identify the type of correlation the graph has. Increasing - positive Decreasing - negative No pattern - none	Decreasing - Negative Correlation
2. If you have 3 kids how many times would you expect to eat out in a month. Locate the point on the graph where 3 kids would be on the trend line	3 kids lines up with approximately 8 times per month
3. How many kids can a family have when they can no longer be able to eat out? Locate on the graph where it reaches zero	The trend line hits zero at approximately 6 kids.

**Example 4:** Use the following graphs to compare the trends



Steps	Example
1. Look at the specified information for each graph and compare	How has the number of electronics changed over the years?  Increased
2. Determine the trend/correlation of the graph	What is the trend of this graph?  Increasing trend/Positive Correlation
3. Make predictions using the trends	What will be the number of radios and TVs in a household in the year 2020? Radios 16    TVs 14

**Example 5: Determine the effects of the missing or incorrect data**

If Miguel earned the following test scores 89, 92, 86, and 97, his average test score would be 91. The teacher entered his scores in as 89, 29, 86 and 97.

1. How is his average going to change? (It would decrease)
2. If he were to not turn in a take home test and got a 0, how would his average change? (It would decrease)
3. How does missing or incorrect data affect your overall information?  
It can change the results.. (Missing data often makes the overall results less than what they should be. Incorrect data distorts the results.)
4. Would studying be a correlation or causation for the high test scores?  
(Causation and correlation)