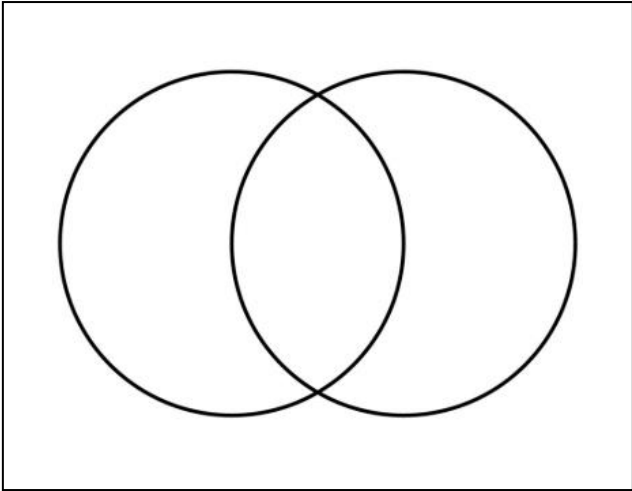
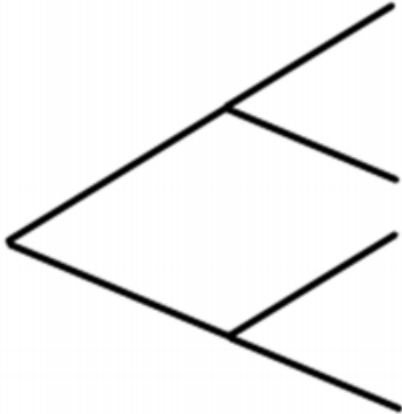
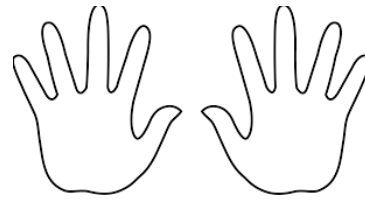


Name: _____ Date: _____

Representations of Categorical Data

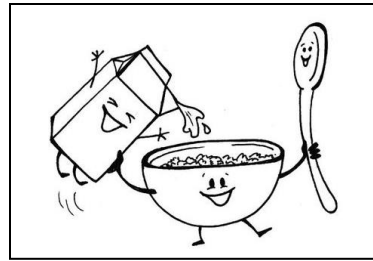
1. What is your favorite color? When asked this question, the most popular color was blue.

Symbols	2-Way Table																
<p>Key: 9th Grade: N 10th Grade: T Blue: B Not Blue: U</p> <p>Sample Size: 200</p> <p>$P(B) = 84/200$</p> <p>$P(N) = 64/200$</p> <p>$P(T B) = 48/84$</p> <p>$P(B T) =$</p> <p>$P(N \cap B) =$</p> <p>$P(N \cup B) =$</p>	<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 25%;">Blue</th> <th style="width: 25%;">Not Blue</th> <th style="width: 35%;">Total</th> </tr> </thead> <tbody> <tr> <td>9th</td> <td></td> <td></td> <td></td> </tr> <tr> <td>10th</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Is the color preference independent of grade level? How do you know?</p>		Blue	Not Blue	Total	9 th				10 th				Total			
	Blue	Not Blue	Total														
9 th																	
10 th																	
Total																	
Venn Diagram	Tree Diagram																
																	



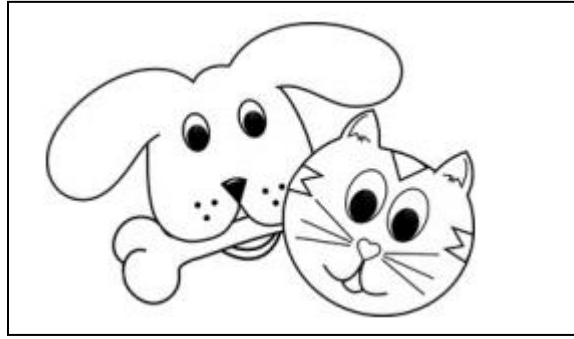
2. Are you a lefty or a righty?

Symbols	2-Way Table																
<p>Key: 9th Grade: N 10th Grade: T Left: L Right: R</p> <p>Sample Size:</p> <p>$P(L) =$</p> <p>$P(N) =$</p> <p>$P(T) =$</p> <p>$P(L T) =$</p> <p>$P(L N)$</p> <p>In this sample are there equal proportions of 9th and 10th graders who are left-handed? Explain.</p>	<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 25%;">Left</th> <th style="width: 25%;">Right</th> <th style="width: 35%;">Total</th> </tr> </thead> <tbody> <tr> <td>9th</td> <td></td> <td></td> <td></td> </tr> <tr> <td>10th</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Is "handedness independent from grade level? How do you know?</p>		Left	Right	Total	9 th				10 th				Total			
	Left	Right	Total														
9 th																	
10 th																	
Total																	
Venn Diagram	Tree Diagram																



3. Do you eat breakfast or not?

Symbols	2-Way Table																
<p>Key: 9th Grade: N 10th Grade: T Eats Breakfast: E Not Breakfast: D</p> <p>Sample Size:</p> <p>$P(E) =$</p> <p>$P(E N) =$</p> <p>$P(E T) =$</p> <p>$P(E \cap N) =$</p> <p>$P(E \cap T) =$</p>	<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 20px;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 25%;">Breakfast</th> <th style="width: 25%;">Not</th> <th style="width: 35%;">Total</th> </tr> </thead> <tbody> <tr> <td>9th</td> <td></td> <td></td> <td></td> </tr> <tr> <td>10th</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td style="text-align: center;">685</td> </tr> </tbody> </table> <p>Is the breakfast preference independent of grade level? How do you know?</p>		Breakfast	Not	Total	9 th				10 th				Total			685
	Breakfast	Not	Total														
9 th																	
10 th																	
Total			685														
Venn Diagram	Tree Diagram																



4. The Humane Society likes to keep track of the percent of people who are dog and cat owners. Some people own only dogs, some only cats, and some own both.

The Humane Society reports that 13% of households own both dogs and cats, 33% own cats, 39% own dogs, and 41% don't own either.

Is ownership of dogs vs. cats independent? Justify your response with appropriate representations of the data and numerical calculations.