Name: _____ Hour: _____ Date: _____

Lesson 11.2: Day 1: Does gummy bear brand matter?

Is the distribution of gummy bear color the same for Haribo gummy bears and Meijer gummy bears? We'll collect data as a class and determine if we have convincing evidence of a difference.

1. Add your data to the board and fill in the table below with the class totals.

Observed:

		Brand		
		Haribo	Meijer	Total
Color	Red			
	Green			
	Yellow			
	Orange			
	White			
	Total			

2. How many samples do we have? What population are they from? Explain.

3. How many variables are we examining? Explain.

4. As a class, write down hypotheses for a significance test.

H_0:

H_a:

5. Now we will use a chi-square test to test if there is a difference between the two populations. We first need to find the expected values. Complete the table below.

Expected:

		Brand		
		Haribo	Meijer	Total
Color	Red			
	Green			
	Yellow			
	Orange			
	White			
	Total			

Name: _____ Hour: _____ Date: _____

6. Use your work on the front page to complete a 4 step significance test.

STATE: Hypotheses: Significance level:

PLAN: Name of procedure: **Chi-square test for homogeneity**

Check conditions:

DO: Specific Formula:

Work: df = (rows – 1)(columns – 1)

Picture:

Test statistic:

P-value:

CONCLUDE:

7. Explain how this test is different from a chi-square test for goodness of fit?

Name: _____ Hour: _____ Date: _____

Lesson 11.2: Day 1: Chi-Square Test for Homogeneity

Important ideas:

Check Your Understanding

For a class project, Abby and Mia wanted to know if the gender of an interviewer could affect the responses to a survey question. The subjects in their experiment were 100 males from their school. Half of the males were randomly assigned to be asked, "Would you vote for a female president?" by a female interviewer. The other half of the males were asked the same question by a male interviewer. The table shows the results.

		Gender of interviewer		
		Male	Female	Total
Response to question	Yes	30	39	69
	No	8	3	11
	Maybe	12	8	20
	Total	50	50	100

(a) State the appropriate null and alternative hypotheses.

(b) Show the calculation for the expected count in the Male/Yes cell. Then provide a complete table of expected counts.

(c) Calculate the value of the chi-square test statistic.