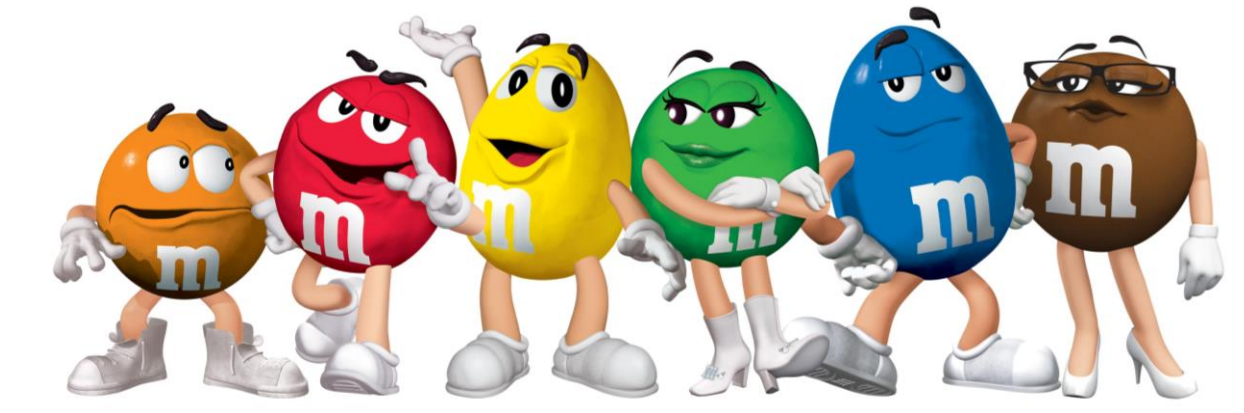


M&M's Statistics



Bozeman Science: Pre-Lab Chi-Square Video Sheet

www.bozemanscience.com/chi-squared-test

1. Label what each element represents in the Chi-square formula:

$$X^2 = \sum \frac{(o - e)^2}{e}$$

2. Why do you use the Chi-Square Test?

3. Define the Null Hypothesis.

4. What is the whole point or cool thing about Chi-Square?

5. What is the whole point of a Chi-Square test?

6. What is the definition of and how do you calculate the “**Degrees of Freedom**”?

7. What is the *probability* (**p value**) we will always use in this class (*AP Biology at NSU*)?

8. What does a *probability* (**p value**) of **.05** actually mean?

9. What happens if you get a Chi-Square **HIGHER** than your critical value?

10. What happens if you get a Chi-Square **LOWER** than your critical value?

11. Complete the Chi-square question Paul Andersen uses as an example involving coin flipping.

(a) State your **null hypothesis** (H_0) for this problem:

(b) Fill in the data table to the right with the sample data Mr. Andersen gives you and then solve.

Please **SHOW ALL WORK** in the space below.
(Equation – Substitute – Answer = *ESA*)

	Heads	Tails
<i>Expected</i>		
<i>Observed</i>		

(c) What is the **probability** (**p value**) we will use in this problem and **MOST** problems at NSU?

(d) What is your **critical value** for this problem? _____

(e) What is your **degrees of freedom** for this problem? _____

(f) What is the Chi-square value you calculated? _____

(g) Is your Chi-square **HIGHER** or **LOWER** than the critical value from the table? _____

(h) Do you **ACCEPT** or **REJECT** your null hypothesis? _____

What **EXACTLY** does this mean: _____

12. Complete the 2nd Chi-square question Paul Andersen uses as an example involving dice.

(a) State your **null hypothesis** (H_0) for this problem:

(b) Fill in the data table below with the sample data Mr. Andersen give you and then solve.

Please **SHOW ALL WORK** in the space below.

(Equation – Substitute – Answer = ESA)

	1	2	3	4	5	6
<i>Expected</i>						
<i>Observed</i>						

(c) What is your **critical value** for this problem? _____

(d) What is your **degrees of freedom** for this problem? _____

(e) What is the **Chi-square value** you calculated? _____

(f) Is your Chi-square **HIGHER** or **LOWER** than the critical value from the table? _____

(g) Do you **ACCEPT** or **REJECT** your null hypothesis? _____

What **EXACTLY** does this mean: _____

13. Complete the 3rd Chi-square question Paul Andersen uses as an example involving pill bugs.

(a) State your **null hypothesis** (H_0) for this problem:

(b) Fill in the data table to the right with the sample data Mr. Andersen give you and then solve.

Please **SHOW ALL WORK** in the space below.
(Equation – Substitute – Answer = *ESA*)

	Wet	Dry
<i>Expected</i>		
<i>Observed</i>		

(c) What is your **critical value** for this problem? _____

(d) What is your **degrees of freedom** for this problem? _____

(e) What is the **Chi-square** value you calculated? _____

(f) Is your Chi-square **HIGHER** or **LOWER** than the critical value from the table? _____

(g) Do you **ACCEPT** or **REJECT** your null hypothesis? _____

What **EXACTLY** does this mean: _____
