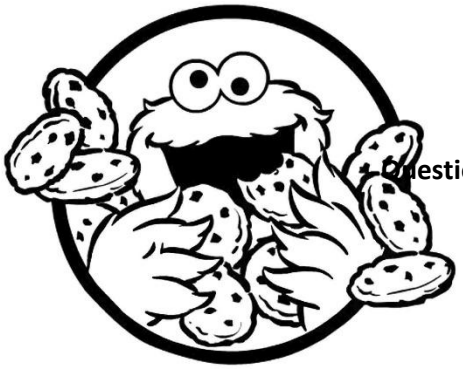
Cookies: Qualitative vs. Quantitative /20

Name: _____

Partner(s): _____



In this activity you will come up with different hypothesis. You will then take qualitative and quantitative measurements of a cookie to determine if your hypothesis were correct or incorrect.

Questions:

Which brand of cookie is the least expensive?
Which brand of cookie is the best tasting?
Which brand of cookie has the best physical qualities?

Safety:

- Never taste or eat anything in the science room.
- Wash your hands thoroughly before and after completing this activity

Materials:

- 3 cookies
- Scale
- Paper towel
- Ruler

Self Evaluation:

Core Competencies: **Being a scientist goes far beyond getting results. So much of being a scientist is about working well with others, relationships and communication. Please evaluate your social, teamwork and communication skills at the end of the lab.** (3 marks)

Category	Excellent 3 2.5 2	Good 2 1.5 1	Satisfactory 1 0.5	See Schaub 0
Team work and communication	My team did well on the lab. We tried to make sure everyone felt involved and understood the concepts.	For the most part my team and I worked together on the lab and we all understood most of the concepts.	For the most part my group members and I worked together on the lab and I understood all of the concepts.	I did well on the lab and I understand the concepts.
Personal and social	My team and I worked well together and created a positive learning environment for all members of the team. We were social and got to know each other better.	My team and I worked well together and created a learning environment that was mostly positive. We were somewhat social.	My team and I focused on getting the activity finished quickly. The learning environment was neutral. We did not argue and got the lab done, which was the point.	I was not with my friends for this activity so I spent most of my time talking to the group that had my friends in it. My group and I got the lab done which was the point of the activity.

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Hypothesis: Write a hypothesis for each question (If… then… Your hypothesis should be specific) (3 marks)

1. _____
   _____
   _____

2. _____
   _____
   _____

3. _____
   _____
   _____

Procedure:

1. Wash your hands and your workspace. Lay down some paper towel.
2. Get all one of each type of cookie.
3. Record the three types of cookies, the cost of each bag of cookies, the number of cookies in each bag, and the mass of each bag. (1 mark)

Type of Cookie	A: _____	B: _____	C: _____
Cost of bag			
Number of cookies in bag			
Mass of each bag			

4. In the table below record the mass of each cookie, its size, and the estimated number of chocolate chips in each cookie. The mass should be measured 3 times using different scales by different group members.
5. Once you have finished all the quantitative measurements move on to the qualitative measurements. Beware!!! There is no going back so make sure your quantitative measurements are all completed!
6. Next make qualitative measurements with regards to the texture value, crispiness value, aroma value, and finally, taste value by using a scale of 1 to 3; the number 3 being the best.

Quantitative: (5 marks)

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Partner(s): _____

Brand of Cookie	Mass of Cookie 1	2	3	Average Mass	Size of cookie	Number of chocolate chips
A						
B						
C						

Qualitative:

Brand	Texture	Color	Aroma	Crispiness	Taste
A					
B					
C					

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Partner(s): _____

Conclusion:

1. Determine which brand is the least expensive using the mass and price of each bag? Hint: $/cookie (2 mark)

Show your math

2. Which brand of cookies was the best qualitatively data? Why? (1 marks)

_____

_____

_____

2. Are qualitative or quantitative observations better to make for science? Why? (2 marks)

_____

_____

_____

_____

_____

3. List three (3) possible sources of error during this lab. (3 marks)

1. _____
2. _____
3. _____