

Gumball and Food Science

These activities are great for 100th Day – or any other day of the year! 100 chews and 100% composition for the 100th day of school! Math is the language of science. Use science to teach math concepts and have some fun on day 100.

Gumball Science



Have students explore this sticky situation to find the percentage sugar in their favourite bubble gum.

You will need:

- An assortment of gum
- A scale
- Dixie Cups

What to do:

1. Divide students into small working groups and have each group weigh an empty Dixie cup.
2. Add one gumball per student to the Dixie cup and find the combined weight of gumballs and cup. Use the two weights to calculate the weight of the gumballs.
3. Each student in the group will then take one of the gumballs from their cup and chew it 100 times. They can make observations along the way regarding texture and flavor.
4. After 100 chews, have students assess whether there is any sugar left in the gum. If there is, have them chew their gum for another 100 chews and re-assess. Continue this process until students decide that no sugar remains in the gum.
5. After the sugar has been removed, have each student put their chewed gum back into the original Dixie cup and set it aside to dry overnight.
6. After the gum has dried reweigh the Dixie cup and gum. Calculate the weight of the dried gum.
7. The difference in weight between the dried gum and the original un-chewed gum is approximately equal to the amount of sugar that was originally present in the gum. Divide the weight of sugar by the number of pieces of gum to come up with the amount of sugar per gumball. Compare the number of grams of sugar in each piece of gum to the information on the original gum wrapper.
8. Have students calculate the percentage of sugar in the original gum. How much of the original 100% was sugar?

Modifications for Younger Scientists:

1. Give your young scientists three different types of gum. Let them chew their gum 100 times and rank which is softest, chewiest or most flavourful. Be sure to have them rinse their mouth between samples.
2. Have students test a variety of different types of gum as described above.
 - a. After each session of 100 chews, have students assess if any sugar or flavour remains. As long as there is still sugar or flavour present have them chew for another set of 100 chews and re-assess. Continue this process for each type of gum until the sugar and/or flavor are depleted.
 - b. Have students tabulate their data and then display their results using a bar graph by listing each brand of gum and how many “sets” of 100 chews were required to deplete the sugar and/or flavour.

Party Mix = Math + Food Science



Have students become food scientists to prepare their own party mix. Transform them into mathematicians to assess their treat while exploring measurement, graphing, fractions and/or probability. Then whisk them back to the food lab to sample and analyze their treat.

You will need:

Two or more types of cereal (Cheerios; Corn Pops; Corn Bran; Mini Wheats)

One or more salty treats (Pretzels; Popcorn)

One or more sweet treats (chocolate chips; mini marshmallows; Smarties; dried cranberries; raisins)

2 Bowls

A variety of measuring cups

Paper plates

What to do:

1. Divide students into groups of four to prepare their treat. Their treat will contain 2 types of cereal, one salty treat and one sweet treat. If you have a selection of starting materials, they can begin by choosing their ingredients.
2. Have each student count out 100 pieces of one of the four ingredients onto a paper plate. Give them a variety of plastic measuring cups and have them estimate the volume of their ingredient (1/2 cup? 1 cup? 2 cups?)
3. Have students measure each ingredient into a large bowl to combine them. How close was their measurement to their estimate?
4. Have students estimate the total volume of party mix by calculating the sum of the volumes of each ingredient. They can then measure the total volume by transferring the party mix from one bowl to the other using the measuring cups. How does the actual volume compare to their estimate?
5. By the time they are done, they will have a yummy mechanical mixture of four ingredients.
6. Have students calculate how much each student will get if they were to divide the mix equally among their group members. Then have them measure the mixture onto 4 paper plates, dividing it equally.
7. There are still lots of fun math activities you can do. Here are some examples:
 - a. Have students count the number of pieces in their own portion. What fraction of their mixture is cereal, salty or sweet treat?
 - b. Have students calculate the % composition of their trail mix. For example: what percentage of pretzels do they have in their mix?
 - c. Have them prepare a bar graph to illustrate the number of each ingredient they have in their portion.
 - d. Have them calculate the probability of picking out a pretzel or piece of cereal.
8. Math and science are always fun when you get to eat the results! As Food Scientists, have them sample their trail mix and analyze the texture and taste. If they made it again, would they adjust any of their ingredients?