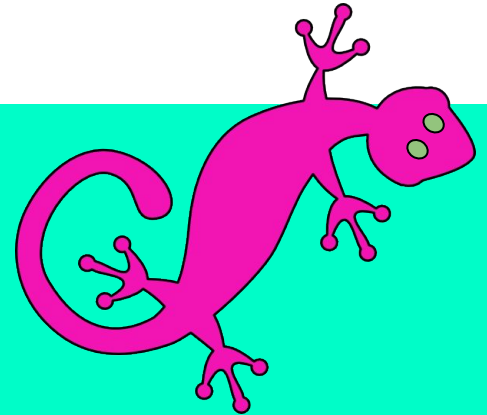


COOKIE CHEMISTRY

BAKING WITH BENNY

PLUS: A BONUS LESSON ON NON-COUNT NOUNS WITH GRETA THE GECKO

By **Elizabeth Doran**



THIS IS BENNY. HE HAPPENS TO BE THE
BEST BAKER IN BEAVERTON.



TODAY, HE HAS DECIDED TO TEACH HIS NEPHEW, BENITO, HOW TO BAKE CHOCOLATE CHIP COOKIES.



Grammar with Greta

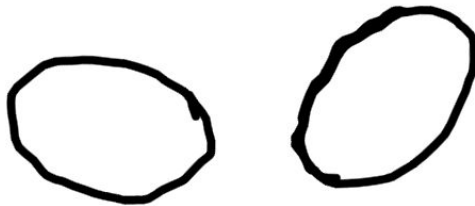
Hey y'all today we are going to be talking about **non-count nouns**. In general, nouns are a person, place or thing. But, some nouns can be counted and others cannot. All non-count nouns in the story will be underlined.

FIRST, WE NEED TO PREHEAT THE OVEN TO 375 DEGREES FAHRENHEIT.



THE FLOUR, BAKING SODA, SALT, SUGAR AND BROWN SUGAR CAN BE FOUND IN THE PANTRY.

NOW WE NEED TO COLLECT THE INGREDIENTS. THE BUTTER IN THE FRIDGE, AND THE TWO EGGS WE NEED CAN BE FOUND IN THERE AS WELL.



Grammar with Greta

Non-count nouns are nouns that cannot be easily separated into individual objects, people, or concepts. You cannot easily separate sugar into countable parts. But an egg is a countable noun because eggs can be separate objects that you can count!

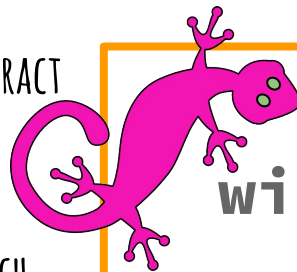
BENITO, THERE SHOULD ALSO BE A BOTTLE OF VANILLA EXTRACT IN THE PANTRY.



“I FOUND IT, BUT THERE ISN’T MUCH VANILLA LEFT IN IT.”



FORTUNATELY, I GOT MORE VANILLA WHEN I BOUGHT THE BAG OF CHOCOLATE CHIPS YESTERDAY.

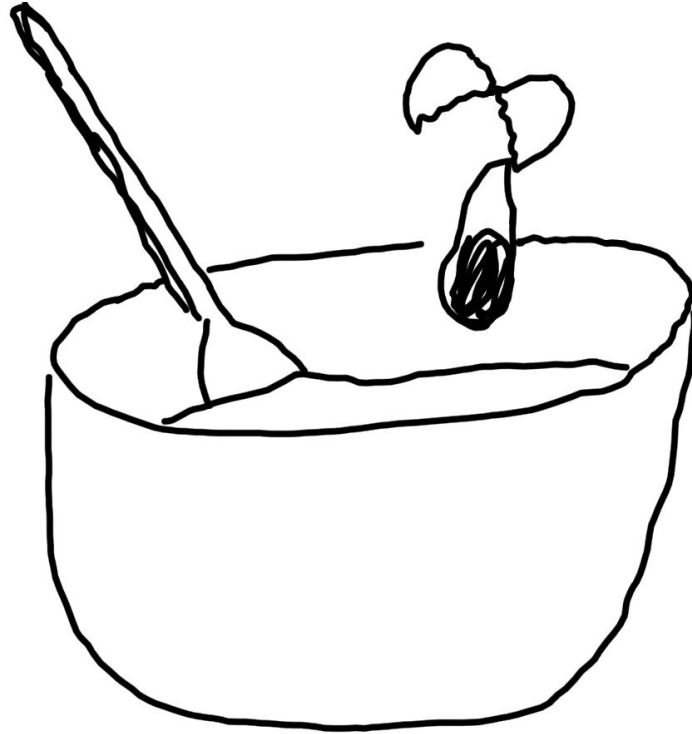


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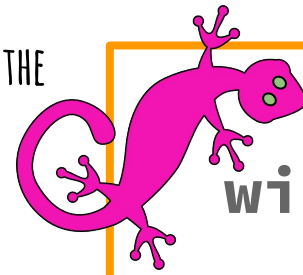
Since you cannot identify non-count nouns with numbers (1, 2, 3, and so on), you must apply the concepts of ‘more or less’ in place of numbers. Also, you only use the singular form of the word... so you never add ‘-s’ to the end of a non-count noun.

NOW COMBINE THIS FLOUR, BAKING SODA AND SALT IN THE SMALL BOWL, WHILE I BEAT THE BUTTER, SUGAR, BROWN SUGAR AND VANILLA EXTRACT IN THIS BIG BOWL.

OK, NOW THAT THE SUGAR-BUTTER MIXTURE IS CREAMY WE CAN ADD THE EGGS, ONE AT A TIME. BENITO, PLEASE BEAT THE MIXTURE AFTER I ADD THIS FIRST EGG.



GREAT JOB! I WILL ADD THE SECOND ONE AND YOU KEEP ON MIXING.



Grammar with Greta

Now that we've seen many examples of non-count nouns, here is a list of some general categories that non-count nouns fall into: Materials, liquids, concepts, collections, and mass objects without boundaries



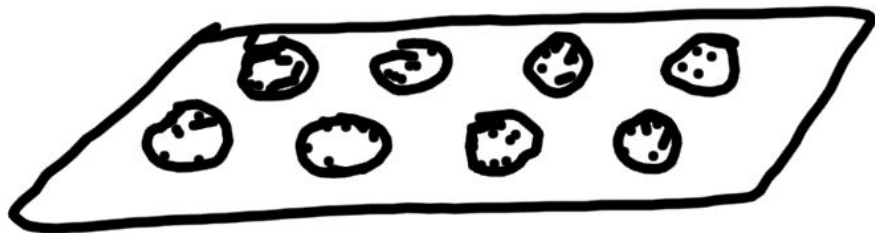
Grammar with Greta

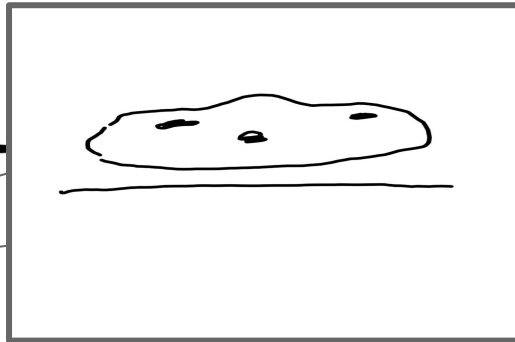
You cannot use 'a/an' before a non-count noun since that is used when you have the singular form of a countable noun. For example, you can say 'a cookie sheet' but it isn't grammatically correct to say 'a flour' in reference to how much flour you have.

THIS NEXT PART IS TRICKY. WE HAVE TO MIX TOGETHER THE MIXTURE YOU PUT TOGETHER IN THE SMALL BOWL INTO THIS BIG BOWL WITH THE OTHER INGREDIENTS. CAREFUL! IF YOU MIX TOO FAST THE FLOUR WILL FLY EVERYWHERE.

FINALLY, WE ADD THE CHOCOLATE CHIPS.

AFTER WE HAVE PLACED SOME BALLS OF DOUGH ON A COOKIE SHEET, THEY ARE READY FOR THE OVEN.

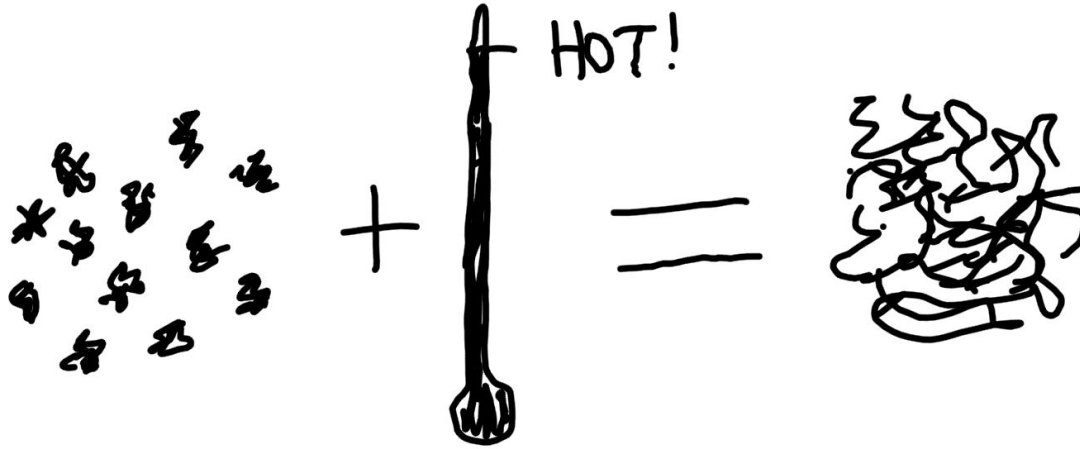




Grammar with Greta

However, if you are talking about a type of a non-count noun, like a type of flour or a type of butter, then it is perfectly fine to add 'a/an'. For example, it is correct to say, "wheat flour is a flour many people don't like to use for baking."

WHEN WE SLIDE THE DOUGH INTO THE OVEN, WE ARE SETTING OFF A SERIES OF CHEMICAL REACTIONS THAT WILL TRANSFORM IT INTO COOKIES. WHEN THE DOUGH IS HEATED UP TO 92 DEGREES FAHRENHEIT, THE BUTTER IN IT MELTS. IF YOU PEEK THROUGH THE WINDOW NOW YOU CAN SEE THAT HAPPENING... THE DOUGH IS STARTING TO SPREAD OUT. BUTTER IS A MIXTURE OF WATER AND FAT, WITH DAIRY SOLIDS THAT HELP HOLD THEM TOGETHER BECAUSE WATER AND FAT DON'T LIKE TO BE IN CONTACT WITH EACH OTHER. AS THE BUTTER MELTS, THE WATER TRAPPED IN THE MIXTURE IS RELEASED.



Grammar with Greta

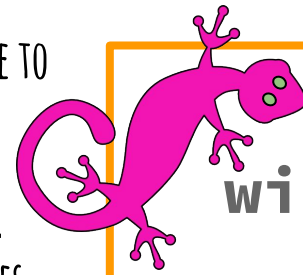
Many nouns can be both count and non-count nouns, depending on how the word is being used. On this page we see 'egg' being used as a non-count noun because it is being used in reference to the egg mixed into the dough, that can no longer be separated into parts.

BEGINNING AROUND 144 DEGREES, PROTEINS FROM THE EGGS IN THE DOUGH BEGIN TO CHANGE. THE RUNNY EGG IN THE DOUGH TURNS INTO A SQUISHY SUBSTANCE THAT IS MOSTLY SOLID. BEFORE EXPOSURE TO HIGH TEMPERATURES, EGG PROTEINS ARE LIKE NEATLY WRAPPED BALLS OF STRING. BUT, HEAT CAUSES PROTEINS TO UNRAVEL; SCIENTISTS USE THE TERM DENATURE TO DESCRIBE THIS PROCESS. THE DENATURED PROTEINS ARE LONG WIGGLY STRINGS AND THEY BECOME TANGLED UP WITH EACH OTHER FORMING A LINKED MASS OF STRING.

AS THE PROTEINS DENATURE, RECOMBINE, AND GIVE MORE OF A SQUISHY SOLID STRUCTURE TO THE COOKIES, THE TEMPERATURE OF THE COOKIES CONTINUES TO RISE. AS IT REACHES 212 DEGREES ALL THE WATER TURNS TO STEAM. THE STEAM PUSHES AGAINST THE DOUGH FROM THE INSIDE, TRYING TO ESCAPE THROUGH THE COOKIE WALLS. AS THE STEAM ESCAPES, CRACKS SPREAD ACROSS THE SURFACE OF THE COOKIE AND TINY AIR POCKETS ARE LEFT BEHIND MAKING THE COOKIE CRUMBLY AND LIGHT. THE SODIUM BICARBONATE FROM THE BAKING SODA HELPS THIS PROCESS BY REACTING WITH ACIDS IN THE DOUGH TO CREATE CARBON DIOXIDE GAS, CREATING EVEN MORE AIRY POCKETS IN YOUR COOKIE.



LOOK! YOU CAN SEE THIS HAPPENING NOW. THE COOKIES ARE BULGING OUTWARD, WITH WEIRD BOILS. THOSE ARE THE GASES TRYING TO ESCAPE. THE COOKIES HAVE ALMOST TRIPLED IN VOLUME!



Grammar with Greta

Here is a list of non-count nouns that do not appear in this story: advice, coffee, music, snow, weather, oxygen, toothpaste, wood, cheese, grass, electricity, gravity, software, furniture, information, moonlight, humidity, and sand.

AMINO ACIDS + SUGAR = YUM!



Grammar with Greta

We earlier underlined sugar as a non-count noun, but here we see sugar used as a countable noun. This is because “the sugars in the dough” is describing different types of sugars.

WHAT HAPPENS NEXT IS CALLED THE MAILLARD REACTION, ONE OF CHEMISTRY’S TASTIEST REACTIONS. AT 310 DEGREES THE AMINO ACIDS, THE TINY COMPONENTS OF THE DENATURED PROTEINS, AND GLUCOSE, FROM THE SUGARS IN THE DOUGH, REARRANGE THEMSELVES INTO DELICIOUS RINGS OF FLAVOR AND GIVE THE COOKIE A BROWN COLOR. YOU CAN SEE THEM BROWNING RIGHT NOW, LOOK! AS TEMPERATURE CONTINUES TO RISE, THESE NEW COMPOUNDS BEGIN TO REACT WITH EACH OTHER TO PRODUCE EVEN MORE COMPLEX TASTES AND SMELLS. AT 356 DEGREES CAMELIZATION OCCURS GIVING THE COOKIE SLIGHT CAMELY TASTE.

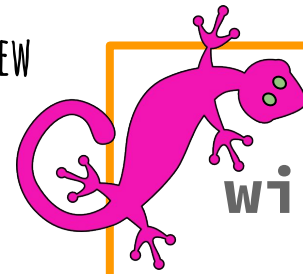
CAN YOU SMELL THAT? IT IS TIME FOR THEM TO COME OUT! LET'S LET THEM COOL FOR A FEW MINUTES, WHILE WE PUT THE NEXT BATCH IN. I'M EXCITED, THEY LOOK AND SMELL FANTASTIC!

I NEED A GLASS OF MILK WITH CHOCOLATE CHIP COOKIES, WOULD YOU LIKE SOME MILK?



YES! PLEASE POUR TWO GLASSES OF MILK. BAKING COOKIES AT HOME IS THE BEST WAY TO GO BECAUSE THERE IS LOTS OF TIME TO EAT THEM WHILE THEY ARE HOT!

WHO KNEW AN AFTERNOON FULL OF CHEMISTRY COULD BE SO SWEET?



Grammar with Greta

Fun fact: Liquids, like milk, are non-count nouns. However, if you add a countable noun and 'of' then you turn a non-countable noun into a countable item. On this page we see milk turns into a countable noun when you say "glass of milk".

THE END

Chocolate Chip Cookies

*2 1/4 cups all-purpose flour
1 teaspoon baking soda
1 teaspoon salt
1 cup (2 sticks) butter, softened
3/4 cup granulated sugar
3/4 cup packed brown sugar
1 teaspoon vanilla extract
2 large eggs
2 cups (12-oz. pkg.) chocolate chips*



Grammar with Greta

Thanks for reading my grammar column! Hope you enjoyed the story.

-Greta