

Why Cream Butter and Sugar

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Have you ever made strawberry shortcake and thought to yourself, “Why do I whip the cream, and what happens if I don't?”

Probably not. The difference between a dollop and a drizzle of cream is so obvious, no one thinks to question the necessity of it. Yet the value of creaming, a closely related process, is harder to grasp.

See, unlike stirring, mixing, or beating, creaming isn't about combining ingredients—it's about aerating them. By bashing butter against the sides of a bowl, whether you're going at it with a spatula or with a stand mixer, you're folding it over and over, creating little pockets of air with every turn. Add sugar, and suddenly that process is way more effective, building up an expansive network of sugar crystals, fat, and air.

In pastry-speak, this process is described as “mechanical leavening”: physically cramming air into a dough so that it'll puff up in the oven like a hot-air balloon. Google around, and that's what you'll be told, time and again. Creaming adds air. Air is fluffy. Fluffy is good. Good is great. Yay, cookies!

While some recipes may only ask you to cream the butter and sugar until well combined, most invoke the phrase “light and fluffy.” Both techniques have merit (the former intentionally cultivating a denser dough), but here I'm gonna stick to addressing the mysteries of “light and fluffy” alone.

The common explanation of that process suggests the benefits of creaming only kick after you pop those cookies into the oven and they puff up. Until then, all that air's just waiting around for some heat to get it going, right?

Wrong.

Before you even start scooping the dough, something's already happened. Something miraculous. Something no one ever tells you: Creaming just added five extra cookies to the batch.

Okay, maybe not five exactly. It might be 10! The actual number of bonus cookies will vary with each recipe, but the phenomenon is very real. Take my sugar cookies, for example.

I start by creaming the butter and sugar together for five minutes, until everything is light and fluffy, then add an egg and beat it for a minute longer.

Peek into the mixing bowl, and it'll be hard to tell just how drastically I've altered my dough. Air is almost impossible to visualize, even when you're looking at it. Watching butter and sugar as they're creamed together is about as dramatic as sorting through shades of beige at Sherwin-Williams. “Snow White” sugar and “Daffodil” butter lighten to “Antique Ivory,” then “Elegant Ecru,” shifting colors so subtly that some part of you screams, “It's all the same!”

But it's really, really not, and with the help of some blue food coloring, the minute-by-minute transformation becomes clear.

When you first mix butter and sugar together, they have the heavy and dense texture of wet sand. After a minute of creaming at medium speed, the paste begins to feel more like clay—damp and compact, but still not very sticky. Another minute, and it begins to soften, clinging to whatever it touches. From there, the network of sugar and air continues to stretch and grow.

When properly creamed, my sugar cookie dough can be divided into 26 two-tablespoon portions, weighing one ounce each. When the ingredients are simply mixed together without that creaming step, the number drops to 21, at a heavier 1.25 ounces each.

And before you shrug, remember this: They're not bigger cookies, they're denser cookies.

Those dense lumps behave very differently on a hot baking sheet in the oven. For starters, they conduct heat better, which means that the butter and sugar melt faster, spreading the cookies flatter and thinner. On top of that, the tightly packed dough traps the carbon dioxide produced by leavenings like baking soda and baking powder. With nowhere to go, those pockets of air don't just gently lift the cookies; they smash their way through them.

Cream the butter and sugar properly, though, and the cookie dough will be loaded with micro pockets of air. That air is a poor conductor of heat, which means that it helps insulate the dough from the hot baking sheet in the oven, slowing the rate at which the butter and sugar melt. Meanwhile, those air pockets begin to swell with steam, a gentle upward draft that helps hold the dough aloft. When the cookie finally sets, the air's footprint forms its crumb.

The extent to which you experience the effect of those air pockets depends on a comical number of variables. Did you use a hand mixer or a stand mixer? What was the horsepower? Did the butter come to room temperature? What is room temperature? Where do you live? Is the A/C on? How many lights are there?

Ultimately, it's a game of averages. That's why so many recipes keep things vague with instructions like “room-temperature” butter or mixing until “light and fluffy” without any indication of time or temperature. By providing flexible parameters, recipes can guide you to your destination with a reasonable amount of success, while leaving you to sort out the details of your journey.

That's all well and good in most cases, but what if you want a more expert grasp on how, exactly, light and fluffy should all work? Here are the rules of creaming you really need to know. The Real Rules of Creaming 1. Use an Electric Mixer

If you're looking for advice on how to go low-tech with elbow grease alone, you're asking the wrong Cylon. Unless you're built like The Rock, the amount of stamina and horsepower needed to truly cream like a pro will most likely be beyond you. (It's also beyond the threshold of boredom most of us can tolerate.) 2. Forget About “Room Temperature”

Butter doesn't begin to melt until it reaches about 90°F, but its ability to stretch and expand during the creaming process tops out at a mere 68°F. Anything above that, and you're flirting with disaster. If your butter is creeping above 70°F, you might as well not cream at all—the warm butter won't retain any air, leading to a dense dough and collapsed cookies. 3. Cut the Butter and Check Its Temp

Take a stick of butter straight from the fridge, slice it into quarter-inch pieces, and by the time you prep everything else, it'll be pliantly cool (about 60°F after 10 minutes in a 70°F kitchen). With a digital thermometer, there's no need to guess; you can even set an alert for 60°F. 4. Yup, I Said 60°F

I realize this is the third rule in a row that's about the butter, but it's that important: In my experience, the number one mistake people make with creaming is using overly warm butter. Experts generally cite 65°F as the ideal temperature for butter, but that fails to take into account a couple of critical factors. First, the temperature will go up as soon as you add the sugar, which is as warm as your kitchen. And second, once you start mixing, the friction generated by an electric mixer can be enough to warm eight ounces of butter by one degree every minute. That doesn't leave much time before the butter hits the point of no return. Therefore, err on the side of keeping things cool. 5. Take Five

With a 450-watt stand mixer set to medium speed in a 70°F kitchen, it takes about five minutes for eight ounces of 60°F butter (plus sugar) to hit the proper "light and fluffy" stage. Overworking the butter will eventually beat the air out, making your dough both dense and warm. It's a recipe for disaster, so keep an eye on the clock. 6. One Cold Egg

After five minutes of creaming, the mixture will warm to about 67°F. A cold egg added at this point isn't simply convenient; it's strategic, ensuring that the butter never tops 68°F. Given the typical ratio of ingredients and the sheer power of an electric mixer, it's virtually impossible for a single large egg to break a cookie dough, so fear not. (If, on the other hand, a recipe calls for additional whites or yolks, there's a good chance you're working with an atypical cookie dough. In that case, ignore me and follow the recipe's directions.) 7. Scrape!

It may seem like a compulsive bit of housekeeping, but without scraping, a dense film of butter and sugar will collect against the bowl. After you add the flour, this buttery ribbon will streak through the dough, creating a handful of malformed cookies (and the very last one can be especially hideous). With cookie dough, I scrape the bowl and beater halfway through the creaming process and once more after the egg is incorporated. Not only does scraping ensure a uniform dough, it also lets me evaluate the butter's consistency, because sometimes "light and fluffy" happens more slowly (or more quickly) than usual.

Whatever your recipe, remember that creaming is a process, so it can produce a spectrum of results. You may never experience anything so dramatic as a cookie that goes splat and wrinkly or weird, but the more consistent your approach, the more consistent your finished product.

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