

KATARINA CERMELJ

BAKED TO



PERFECTION

DELICIOUS GLUTEN-FREE RECIPES WITH A PINCH OF SCIENCE

B L O O M S B U R Y

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DELICIOUS GLUTEN-FREE RECIPES WITH A PINCH OF SCIENCE

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FOR MY PARENTS.

Thank you for your love and support and endless patience
in dealing with all the food (and the dirty dishes),
the let-me-test-this-just-one-more-time experiments
and the overthinking that went into creating this book.
Love you so much.

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INTRODUCTION

We're here to talk about the quantum mechanical analysis of the behaviour of sugar molecules when surrounded by particles of gluten-free flour. Wait, wait, wait, I'm kidding. Don't put the book down yet. Truly, the scariest things in this book are the heart-stopping, jaw-dropping, ultra-fudgy, caramel-stuffed brownies on [page 136](#), simply because they're so delicious they're borderline dangerous.

Let's start this again.

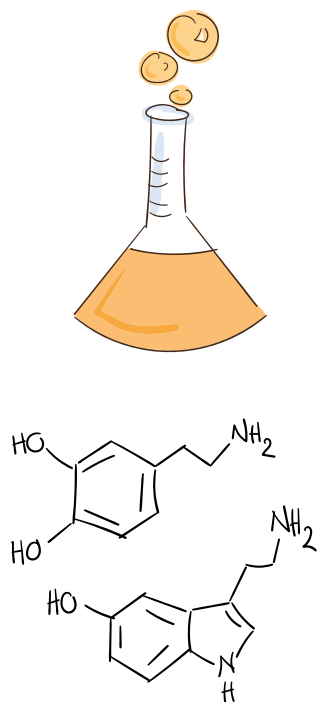
This is a gluten-free cook book. Whether you've picked it up because you or someone close to you has a gluten intolerance, because you really, really loved the cover, or simply by accident, it matters not. Because this cook book and these recipes are for everyone.

My own gluten-free journey started – well, as most gluten-free journeys do. With feeling ill and miserable and then, partly by chance and partly by hours of research that involved reading through one-too-many online forums, coming to the conclusion that eliminating gluten might help. It did. And it also brought along the question of, what on Earth do I eat now?

I like smoothies and quinoa as much as the next person, but I also love chocolate cake. And brownies. And apple pie. And all the other delicious things that I've baked a hundred times before – with plain wheat flour.

So, unless I wanted to give up cookies and cake and brownies – oh my, what a dreadful thought that was – I needed to master the intricacies of gluten-free baking. Thankfully, I had an ace up my sleeve. That is, my knowledge of chemistry and an almost obsessive love of research.





You see, my gluten-free baking adventure started just as I was finishing my undergraduate Chemistry degree at the University of Oxford, and then continued through my PhD studies of Inorganic Chemistry. Therefore, it felt natural to approach the development of gluten-free recipes as I would a new research project in the laboratory.

What's more, my scientific background gave me a particular insight into the ingredients, their properties and their interactions with each other. I wasn't just mixing together gluten-free flour with butter, sugar and eggs, and hoping for the best. Instead, I was thinking about the wet:dry ingredients' ratio, the different moisture responses of the various gluten-free flours, and the speed of heat penetration as it varies with the shape and depth of the baking tin.

Pair my scientific knowledge with a heaping tablespoon of stubbornness and a generous pinch of nerdiness – and you've got yourself a mess of overcomplicated Excel sheets, endless notes and illegible scribbles at the sides of numerous recipes covered in suspicious blotches of what might have been (once upon a time) cupcake batter and chocolate buttercream.

More importantly, you've got yourself (over time and after prolonged systematic experimentation) gluten-free recipes that work and work well. Gluten-free recipes that are simple and give mouthwatering, drool-inducing results – in a reproducible manner. Because if there's one thing we scientists are all about, it's reproducibility.

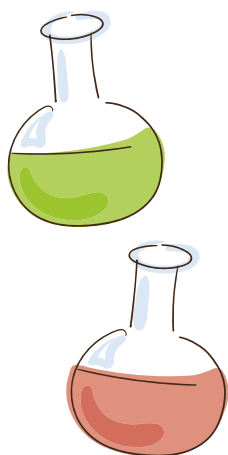
Don't worry. You won't have to go through the whole process of experimentation. There are no three-page Excel sheets in this book. I've done all the experiments for you and condensed them into simple, reliable recipes that will make your own gluten-free life so much richer and infinitely more delicious.

But there's more! The recipes in this book don't just give you the list of ingredients and instructions. They also give you the evidence – the scientific explanations, if you will – for why the recipes work.

This isn't just to satisfy my own nerdiness. It's primarily to help you become a more skilful (and successful) gluten-free baker. Once you understand the why, you can easily afford to deviate from the recipe and adapt it to your own taste. Because here's the thing I love: baking isn't as rigid as many would have you believe. Yes, it is a science of sorts, but rather than making it restrictive, science actually makes baking very flexible, as long as you know which things to leave alone.

It could be a specific step (such as whisking the eggs and sugar into pale, fluffy submission) or a set of ingredients (such as the ratio of wet:dry ingredients), but as long as you don't change that, you can do pretty much anything else you want. Adding flavours, tweaking textures, substituting ingredients... it all becomes incredibly simple once you understand the why.

That's my goal with this book. Yes, I'm giving you tried-and-tested (and then tested again, and again) gluten-free recipes that work and work well; and I'm giving you an insight into the world of gluten-free baking that shows that 'gluten-free' doesn't equate to 'delicious-free',



but I'm also giving you the knowledge to make those recipes your own and develop them further, beyond my ingredients and instructions.

LET'S TALK MORE ABOUT GLUTEN-FREE

Years after I started my gluten-free journey, gluten-free still has a bad reputation. At best, you'll find people claiming gluten-free can be 'just as good' as the 'real thing'. At worst, you'll find the words 'bland', 'dry' and 'cardboard' thrown around like sad, depressing confetti.

I disagree. On both counts. Because here's the thing: gluten-free isn't just as good as the real thing – gluten-free is the real thing. The luxurious, moist, indulgent gluten-free chocolate cake isn't delicious despite being gluten-free. It's delicious while being gluten-free. And that's all there is to it.

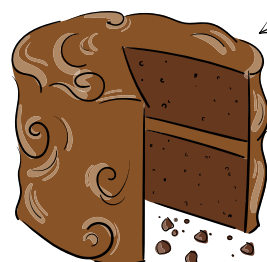
Of course, in order to master gluten-free baking, you first need to shake off the rules and notions of wheat-based baking. It's a different set of ingredients with a different set of properties – naturally, then, the rules are different too. And yet, we persist in trying to use recipes developed for wheat-based baking, and then, when the results are dry and claggy and not at all pleasant, we blame gluten-free.

Let me ask you this: if you attempted to make brownies by following a cookie recipe, and they turned out crispy instead of gooey, hard instead of fudgy... would you blame the recipe? Would you give up baking and brownies and chocolate for ever? Would you proclaim brownies a waste of time?

Of course not. (At least, I hope not.) You would wise up and use a brownie recipe next time. You would accept the fact that you're playing a different game and you would change the rules. The same is true with gluten-free baking.



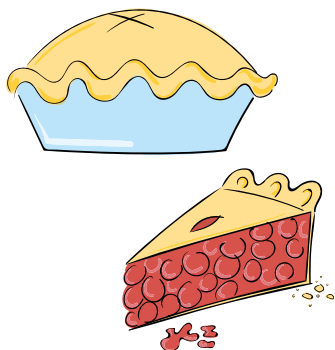
SUPER-DELICIOUS
CHOCOLATE CAKES...
THAT ALSO HAPPEN
TO BE GLUTEN-FREE



WHERE THE SCIENCE COMES IN

You've heard it said numerous times before, and you'll probably hear it a hundred times more: baking is a science. And gluten-free baking even more so. Rather than being restrictive, there is a particular freedom to be found in the scientific understanding.

I know that science isn't everyone's idea of a good time, and you might be having nightmare-ish flashbacks to school Chemistry lessons right now. But, before you despair, this isn't a dry encyclopedia of the exact science of gluten-free baking, complete with pages-long formulae and complex terminology. The science we're talking about here tells us how to achieve that elusive, shiny, paper-thin crust on brownies – every time and without having to rely on sheer dumb luck. Or why gluten-free baking usually requires a higher wet:dry ingredients' ratio. Or what is the 'reverse creaming method' and why it gives a more delicate sponge with a velvety crumb texture. It's the delicious kind of science. The kind



that results in fudgy brownies, melt-in-the-mouth cookies and gluten-free bread that actually has the taste, texture and appearance of bread.

For best results, treat this cook book as the slightly nerdy friend you turn to when you get stuck and your gluten-free pie crust is too crumbly or too soggy. It has all the answers, right where you need them, presented in short, easily accessible blurbs.

You can find the science in three places in the book: in the next chapter, in the opening sections of each recipe chapter and as footnotes in individual recipes (I might have on occasion snuck it into the recipe descriptions as well). The science in this introduction serves as a gentle foray into the world of gluten-free baking and the general things you should keep in mind as you start making the recipes.

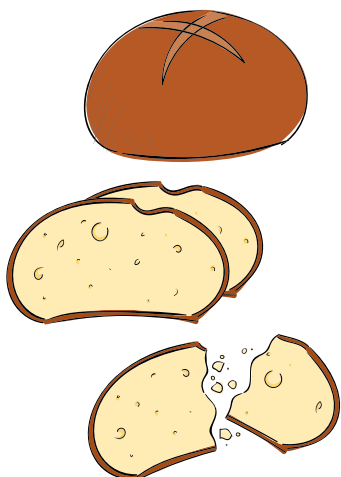
The science in the opening sections of each chapter focuses on ingredients, methods and other things specifically relevant to that kind of baking. Finally, the notes in the recipes explain and give details on the most important ingredients and techniques.

‘THERE’S NO WAY THIS IS GLUTEN-FREE!’

Once you begin to understand the whys and hows (that is, the science) of gluten-free baking, prepare yourself to gain a new and constant companion – the exclamations of wonder from people who cannot possibly comprehend that your mouthwatering bakes truly are gluten-free. (Usually accompanied by shocked faces and followed by requests for *more, please and thank you.*)

What’s even more exciting is that as you use the book, you’ll become more confident and comfortable wielding the whisk, mixing the batter and adjusting the baking time. Straying from the well-defined path of a written recipe, you’ll start making tweaks and scribbling notes about potential new flavour combinations and substitutions to try.

Once the science is clear, it’s as though a whole new world of gluten-free baking stretches out before you. Luxurious cakes, dainty cookies, the gooiest of brownies, proper crusty bread, even gluten-free éclairs so beautiful like they’ve popped straight out of a French pâtisserie – nothing is impossible or beyond your skill. And if a bake fails (spectacularly and dismally, as it does and it will, no doubt about it), rather than seeing it as the end of your fledgling gluten-free baking adventure, it’s just a new chance to learn and figure out what’s going on in your bake both in and out of the oven. As it happens, the answer to your question probably already lies between these pages.



THE KIND OF RECIPES YOU’LL FIND IN THIS BOOK

1) Fundamental, basic recipes

The point of this gluten-free baking book is to function less as a collection of innovative, never-seen-before recipe ideas, and more as a go-to manual with all the fundamental, core gluten-free recipes from

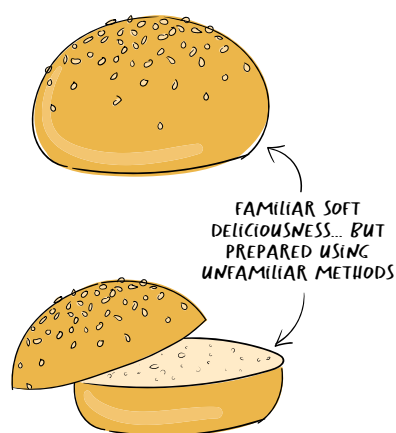
which all other gluten-free bakes follow. The majority of recipes within these pages belong to this category.

That's not to say that these recipes aren't ground-breaking. They are. But in a subtler way than you might expect. They're ground-breaking because of the way in which they combine the ingredients, the techniques they use and the ingredient ratios, to result in gluten-free bakes the likes of which you might never have encountered before.

While the flavour combinations and the recipes themselves are more than likely old, familiar friends (like a chocolate cake or burger buns), the reasons behind using a specific ingredient, or a particular step or technique, might be less familiar.

At first, the world of gluten-free baking can seem overwhelming. And even if you're a far more experienced gluten-free baker looking only to refine your skills, you may find that going back to basics is the best way to do that. Now, don't get me wrong – yes, I do want to inspire you. But I want this inspiration to come more from an awareness of what's possible and achievable and less from a flavour combination you've never seen before.

And finally – while an elaborately decorated, three-tiered cake or a 15-component entremet are amazing and breathtaking, nothing (and I do mean nothing) beats a slice of perfectly baked chocolate cake or a piece of warm apple pie topped with a scoop of vanilla ice cream when it comes to comfort and that all-encompassing sense of happiness.



2) Recipe variations

I know I just spent half a page talking about how it's all about core recipes in here, but I do want you to go forth and experiment further in your own kitchen, creating your own unique masterpieces. Once you've mastered the basics, obviously.

To kick-start your sense of gluten-free-baking adventure, I've included my own suggestions – just gentle nudges – for twists and variations at the end of some recipes. For example, you could add tahini paste to the chocolate chip cookies on [page 152](#) for an additional layer of flavour that pairs beautifully with the chocolate chips. Or, you might add raspberries to the white chocolate brownies on [page 134](#) if you were looking for a perfect match that gives a fruity tang.

You see? Once you start thinking about it, the possibilities are endless. As you go through the recipes in the book, I want you to always think beyond the ingredients I've listed. And that's why understanding the science is so crucial to becoming an independent, innovative baker – once you know the why behind each and every ingredient and step, you know whether changing or replacing it will affect the bake. What's more, you'll know how it will affect the bake. And with that – nothing is impossible.

3) Recipes you can't live without

Okay, I realise that calling them recipes 'you can't live without' might be misleading – because, in fact, all the recipes in this book

are so spectacular, you'll want to make them again and again. But this last category includes recipes that introduce only few (or no) new nuggets of knowledge, and yet I simply couldn't not include them in the book because of their sheer, heart-stopping deliciousness.

It's the marshmallow brownies, with the tantalising combination of a fudgy, chewy brownie and a fluffy cloud of toasted sweetness that is Swiss 'marshmallow' meringue (see [page 142](#)). It's the babka that has a very similar dough to the cinnamon rolls – but I simply couldn't bear not to share the beauty of the chocolate fudge filling swirling with brioche dough in the most delicious, drool-inducing dance ever to happen in my kitchen ([page 308](#)).

Depriving you of these recipes would be rather cruel – so I didn't. You're welcome.

THE RECIPES YOU WON'T FIND IN THIS BOOK

While it's incredibly important you know what kind of recipes I've included, it's probably even more important that you're aware what sort of recipes I've omitted and why.

Clearly, my reasoning for what's in and what's out is subjective and entirely my own. But I made those decisions in order to create enough room for the recipes and information that will most help you truly to master gluten-free baking.

1) Healthy recipes (or rather, recipes whose main claim is being healthy)

Listen, I'm all for healthy recipes and a balanced diet. But this book is not about that. If you're looking for a collection of recipes that are not only gluten, but also grain, sugar, dairy, egg and whatever else free, this isn't a book for you. Too many times I've browsed the web and the bookstore for gluten-free-cake or -cookie recipe inspiration, only to encounter one 'healthy' recipe after another.

There's nothing wrong with that. But here, in this book, I want each and every bake you make to be decadent and indulgent, to warm your food-loving soul and to bring you that unique joy that only comfort food can.

That said, I am aware that certain starch-heavy, gluten-free flour blends are a cause of concern for some. With that in mind, one of my DIY gluten-free flour blend recipes (see [page 19](#)) isn't based on white rice and it contains significantly less starch than many store-bought brands (only 40% to a more usual 70% starchy flours). While you might think that I should eliminate starches altogether, in fact that would negatively impact the texture of most bakes. Moreover, many recipes in here are occasional treats and indulgences, and meant to be enjoyed as part of a balanced, soul-nourishing lifestyle. (And, in my humble opinion, such a lifestyle pretty much requires a cake or brownie every now and then.)

2) Naturally gluten-free recipes

I admit, finding naturally gluten-free recipes in gluten-free recipe collections is something of a pet peeve of mine, especially when it comes to collections that claim to teach you all the intricacies and how-tos involved in gluten-free cooking and baking. That's not to say I can't appreciate the chocolatey decadence of a flourless chocolate cake, or the comfort that comes along with a scoop of homemade ice cream.

To me, such recipes would take away valuable space from the very recipes that actually require our attention; recipes that might seem impossible to accomplish in the absence of gluten – fluffy cakes, chewy cookies, fudgy brownies, the perfect boiled and baked bagels. Why (in a book that's all about mastering gluten-free baking) would I waste space telling you about making crème brûlée, when I can use it to explain why the recipe for the gluten-free choux pastry on [page 336](#) actually works?

Therefore, if a recipe is naturally gluten-free in that it doesn't contain any flour to begin with – no, you won't find it here.

3) Unnecessarily complicated recipes with inaccessible ingredients

We all know those recipes that seem almost to require you to grow your own apple tree, harvest the apples, cut them into precisely 1.3mm thin slices, douse them in a rare kind of sugar with an exact type of sugar crystal, drizzle them in 2½ tablespoons of lemon juice from lemons that can come from only one particular village in southern Italy, and then marinate this in the fridge for 3 days... to make a simple apple pie.

As a scientist at heart, I'm all about precision – but only insofar as it actually affects the final result in an important, can't-live-without-it way. So, when you attempt my recipes, do so knowing that when I tell you to do something or to use a particular ingredient, there's a reason behind it. And you should do it.

But because I don't want you merely to follow blindly my instructions, I've included notes that explain any unusual and/or important step or ingredient. All the ingredients should be easily available either in your local supermarket or online.

4) Hacks and shortcuts that compromise on flavour or texture

Just like I don't unnecessarily complicate recipes, I don't believe in simplifying them to the point where simplification negatively affects the bakes' flavour or texture. The same goes for the time it takes to make a recipe from start to finish. If, say, a bread dough will be easier to handle and have a better flavour after an hour chilling in the fridge, I won't go recommending you skip that step just to save time.

I know many of us are short on time and, believe me, I'm a very impatient baker. But for 99% of the recipes in this book, the active time (that is, the time you actually spend doing active work on the bake) is much, much shorter than the total time required to make a recipe. I've included the most relevant timings at the top of each recipe. First, there's the 'prep' time, which is the time you'll spend actively engaging

with the bake (stirring, beating, whisking, assembling and so on). Then, there are the other timings (such as baking, chilling and rising) that are there to help you judge how long you can (and should) allow the bake to do its own thing. If you're feeling particularly organised, you can, of course, get on with other parts of the recipe during that time. For example, you can make the buttercream while your chocolate sponges are cooling; or prepare the tart filling while the pastry crust is blind baking. Some recipes also require a cooking step (like preparing a caramel or reducing the fruit juices when making a pie), which is summed up in the 'cook time'. Note that the 'cook time' doesn't include simple heating steps, such as heating the double cream for a ganache or the egg whites and sugar for Swiss meringue.

GLUTEN-FREE PERFECTION AWAITS YOU

It's a lofty claim – that all the bakes in this book have the potential to be perfect. Some might say I'm setting myself up for failure. But here's the thing: I **want** you to approach the bakes with high expectations. I don't want you to start your gluten-free journey thinking you'll be merely content or 'okay' with them. I want you to take your first gluten-free baking steps convinced you'll taste sheer and utter... perfection.

There's another reason I like to almost overuse the words 'perfect' and 'ideal' (they come up a lot). Any and all who know me 'in real life' know that I'm a perfectionist, and (when I'm not driving myself crazy trying to improve on an already improved recipe) rather proud of it, in a roundabout way. Almost every recipe in this book has gone through a minimum of ten variations, some through as many as thirty or forty. Some of these refinements were minuscule, so small many would think me insane. Does ¼ teaspoon of baking powder or 1g of xanthan gum really make that much difference? Does whisking the eggs with the sugar rather than simply stirring them together really give a drastically different brownie? Sometimes, it does. Other times, it doesn't. But it took making all those variations to determine the truly best incarnation of a bake – and the knowledge I've taken away from both the successes and the failures is even more valuable than all the recipes I've developed along the way. Talking about perfection in the context of this book, therefore, doesn't refer only to the quality of the recipes themselves, but also to the process of getting them to that point.

Of course, it would be incredibly easy to go down the rabbit hole of the question: what is perfection anyway? Especially when it comes to food, perfection is incredibly subjective. What I might find pleasing, you might find less so. That said, here's the wonderful thing about a cook book that gives not only the recipes but also the reasoning and the science behind them: yes, I've taken these recipes to my own point of perfection (one that I think you'll love too), but I'm also giving you the tools you'll need to achieve your own gluten-free perfection.



GLUTEN-FREE BAKING BASICS

WHAT IS GLUTEN?

Before we delve into the (not scary at all) science of gluten-free baking, it's important to understand what gluten actually is and the role it plays in wheat-based baking. Because at the end of the day, a large part of gluten-free baking is trying to recreate textures and structures that occur effortlessly and naturally in the presence of gluten.

The basic definition of gluten is 'a mixture of two proteins present in cereal grains, especially wheat, which is responsible for the elastic texture of dough'. The origin of the word dates back to the 16th century, to a Latin expression for 'glue'. These origins tell us much about the role that gluten plays in baked goods – it gives them the characteristic elasticity and essentially acts as a glue that keeps the bakes together.

Moreover, the gluten proteins determine other characteristic properties of wheat flour, such as its water-absorption capacity. That is, how much moisture or liquid it absorbs both before and during baking. When it comes to baked goods, the gluten proteins therefore determine how dry or moist, crumbly or 'springy' your bakes are.

Even in wheat-based baking, however, most bakers will have a love-hate relationship with gluten. While it's the most diligent helper when it comes to creating the characteristic crumb of a loaf of bread, it takes on the role of tricky opponent when making things like cookies and pie crust. For these, a baker needs to minimise the effects of gluten, lest he or she ends up with gummy cookies and a tough crust.

In gluten-free baking, the problems we face are exactly the opposite. Now, the cookies easily remain crisp (or chewy, as desired), the pie

crust buttery and flaky, and the cake sponges delicate and with the perfect crumb. Bread, however? There, it gets trickier. That's not to say that baking proper gluten-free bread is an impossibility, it means only that we need to go about it in a different way.

GLUTEN-FREE FLOURS

The world of gluten-free flours can be overwhelming – there are just so many of them! In this book, I'll focus on my go-to ones, those I use daily in everything from cakes and cookies to pastry and bread. What follows is by no means an exhaustive list. Rather, it is really meant as a gentle introduction to gluten-free flours and their properties. Don't get me wrong: you could comfortably go on for years using only the flours that you'll encounter within these pages (with mouthwatering, eye-popping results) – but do also keep in mind that there are many, many flours beyond the ones I mention.

That said, the way we think about gluten-free flours, their properties and applications is universal – and once you understand the hows and whys, you'll be able to use pretty much any new gluten-free flour with no problem whatsoever.

Starch + protein flours

Gluten-free flours fall roughly into two groups: starch flours and protein flours. This distinction is primarily based on the protein content and the elasticity each flour gives to the bakes, and it also closely correlates to the way the flours interact with any liquid ingredients in the recipe (what I call their 'water-absorption capacity').

Broadly speaking, **protein gluten-free flours** (brown rice, buckwheat, maize, millet, oat, quinoa, sorghum and white teff flour) are the flavour- and structure-carriers of a gluten-free bake. They provide (a very small amount of) elasticity, preventing the bakes from being too crumbly. They also have a higher water-absorption capacity, which means that bakes with a higher protein-flour content are slower to dry out, all other things being equal.

Starch gluten-free flours (arrowroot starch, cornflour, potato starch, tapioca starch and white rice flour), on the other hand, are there to make the bakes softer, fluffier and airier. Because they have a smaller protein content and a lower water-absorption capacity, they make sure the cakes have a pleasant, open, melt-in-your-mouth crumb and the pastry isn't too gummy.

However, the real magic of gluten-free baking comes from choosing the right mixture of protein and starch flours that give you the right balance of elasticity, fluffiness and moistness and an open, airy crumb. A cake made from only starch flours will crumble away to nothing, whereas using exclusively protein flours might transform it into a dense, sticky brick. That's where gluten-free flour blends come into play – but more on that below. For now, let me just tell you that I've

done the work for you, and figured out the perfect ratios of starch and protein flours that give the most delicious results across the board.

The distinction between the starch and protein flours is not the end of the story. Especially within the protein-flour group, there's a gradation of properties – particularly when it comes to the elasticity and the 'heaviness' they impart to the bakes.

'Additional' flours

To make things even more interesting (and, truth be told, confusing), there are additional flours that don't really fit in either of the two primary groups. I'm talking about almond flour (and other nut flours), coconut flour, chickpea flour and similar. While I'm not the biggest fan of chickpea flour because of its almost overwhelmingly strong flavour that isn't best suited to desserts and other sweet treats, I do use almond flour quite frequently, especially for cakes and cupcakes.

While they resemble starch flours in that they don't contribute to the elasticity of the bake, they also give the bakes a certain weight. This, in addition to their rather high water-absorption capacity, is quite reminiscent of a protein flour. These mixed properties mean that it's best to treat them as a separate group, which often acts as an add-in rather than a central component of a gluten-free bake.

Are you overwhelmed yet? To make your life a bit easier, I've summed up the main gluten-free flours in [Table 1](#) (opposite). But to really gain a proper understanding of gluten-free flours, you'll have to use them. Feel their texture, see how they behave in baking. A good test of their properties is to mix about 1 tablespoon of the flour into ½–1 tablespoon of water. The amount of water the flour absorbs will tell you much about its water-absorption capacity, and the texture of the mixture will show you whether you're dealing with a protein or a starch flour. The former, when mixed with water, will form a 'dough' with varying degrees of elasticity (of course, nowhere near that of wheat flours), whereas the latter will form a runny paste.

In [Table 1](#), you'll notice that I categorise brown rice flour as a protein flour, but white rice flour is in with the starches. White rice flour does contain slightly less protein than brown rice flour, but its protein content is still greater than that of, say, tapioca or potato starch. Nonetheless, when it comes to how it behaves in actual bakes, I've found that white rice flour is closer to starch flours than protein ones. So, while this is by no means a perfect classification, it works well in practice. It does mean, though, that you can't reliably substitute white rice flour for other starch flours (or vice versa) – more on that later.

The importance of finely ground flours

A final note on gluten-free flours: always make sure that you use finely ground gluten-free flours (or blends). They should have a fine, powdery texture – think regular wheat flour rather than polenta. Using a coarse flour inhibits its interaction with the rest of the ingredients and will lead to disappointing results.

Table 1: The most important gluten-free flours and their relative protein contents, water-absorption capacities, and assignments to the groups of starch, protein or ‘additional’ flours.

GLUTEN-FREE FLOUR	PROTEIN CONTENT ^[1]	WATER-ABSORPTION CAPACITY ^[2]	ASSIGNMENT
almond flour	very high (low elasticity)	medium	additional
arrowroot starch	low	low	starch
buckwheat flour	high	high	protein
coconut flour	high (low elasticity)	very high	additional
cornflour	low	low	starch
maize flour	medium	high	protein
millet flour	medium-high	medium	protein
oat flour	high	high	protein
potato starch	low	low	starch
quinoa flour	high	high	protein
rice flour, brown	medium	medium	protein
rice flour, white	medium-low	medium	starch
sorghum flour	medium-high	high	protein
tapioca starch	low	low	starch
teff flour, white	medium-high	high	protein

[1] Note that while a higher protein content does contribute some elasticity to the bake, this elasticity is defined within the realm of gluten-free flours and is nearly negligible when compared to that of wheat flour.

[2] The amount of water absorbed by dry powders at room temperature (tested by mixing together 10g flour with 10g room-temperature water).

THE BINDERS: XANTHAN GUM + PSYLLIUM HUSK

Of course, we can’t talk about gluten-free baking without mentioning xanthan gum and psyllium husk (‘the binders’). Their basic function is to act as a gluten substitute, giving gluten-free bakes their elasticity and flexibility. This is especially important when using a blend with a low protein content, which could result in dry and crumbly results. Just a pinch of xanthan gum can completely change the bake, giving it that ‘I-can’t-believe-this-is-gluten-free!’ quality.

Xanthan gum is a polysaccharide (all that means is that its chemical structure comprises several smaller sugar units) produced by the fermentation of glucose and sucrose with the help of special bacteria. I know this might sound a bit odd – but xanthan gum has been shown to be perfectly safe as a food additive and it's pretty much a miracle ingredient in gluten-free recipes.

In baking, we're primarily interested in the ability of xanthan gum to drastically increase the viscosity (that is, the thickness and apparent stickiness) of a liquid, even when present in low concentrations. If you add xanthan gum to water, you'll notice it forms a gel within seconds – depending on the relative amount of xanthan and water, this gel can be either loose or quite firm, but it always has a degree of elasticity to it. So, only a pinch of xanthan gum is sufficient to give a gluten-free dough or batter a stickiness and flexibility reminiscent of that achieved by gluten.

Finally, let me bust a myth about xanthan gum: because it is sometimes used to thicken sauces or soups in a way similar to cornflour, a rumour has been going around the Internet that you can replace xanthan gum with cornflour in gluten-free baking. That's. Not. True. Let me repeat: that's not true. You can't replace xanthan gum with cornflour (well, not if you want good results). While you can use either as a thickening agent, only xanthan gum acts as a gluten substitute.

Psyllium husk is a less processed additive than xanthan gum but performs a similar function in gluten-free baking. Unlike xanthan gum, however, psyllium husk is not a pure substance but rather comprises several compounds. The compounds we're interested in for our gluten-free bakes are a group of gel-forming long chains of sugar units, which behave in a manner similar to xanthan gum (as you'd expect given their similar chemical structures). And, as with xanthan gum, mixing psyllium husk with water makes a wobbly, somewhat elastic gel.

While the two binders do carry out similar functions, I've found that they are best suited to different applications. Xanthan gum works wonders for cakes, cookies, cupcakes and muffins, brownies and pastry – that is, pretty much all bakes apart from bread. When it comes to bread, psyllium husk is the star of the show, making the dough easier to handle and more closely resemble wheat-based bread dough. As you browse through the recipes, you'll notice that psyllium husk is really restricted to only the bread chapter – but there, it makes all the difference.

GLUTEN-FREE FLOUR BLENDS

So, we know that the gluten-free flour or flour blend determines the rest of the ingredients (and their quantities) in a recipe and has a crucial impact on the success of a gluten-free bake. Throughout the book, I distinguish between a gluten-free flour and a gluten-free flour blend.

The former is only one ingredient – the gluten-free flour in question. That can be rice flour, almond flour, potato starch, arrowroot starch and

many others (see Table 1, on page 17). The latter, on the other hand, consists of a mixture of gluten-free flours and sometimes also various additives, usually gums that lend gluten-free bakes their elasticity, as well as raising agents in the case of self-raising blends.

Nowadays, there are numerous gluten-free flour blends available in stores and online. To make this cook book truly comprehensive and complete, I have tested each recipe with a variety of gluten-free flour blends – both those you can buy ready mixed and those you can mix yourself (see Table 2, below).

There are several reasons why I’ve looked at both commercially available and DIY blends. The convenience of ready-mixed blends is a welcome help in hectic day-to-day life, and once you get accustomed to a specific blend, it becomes one of your best friends in the kitchen. Unfortunately, gluten-free flour blends too often get discontinued. And when that happens, it’s like the loss of a dear friend, complete with soulful tears and abject dread of how you will live without them.

With a DIY blend, you need never rely on a brand or a store. Instead, you can always mix up a new batch whenever the need strikes. Plus, if you have intolerances to specific foods, you can modify the DIY blend to include or exclude certain ingredients, such as rice or maize flours or potato starch, which are common allergens.

Table 2 lists commercially available gluten-free flour blends that I’ve successfully tested for the recipes in this book, as well as two blends to mix yourself. To be as inclusive as possible, DIY blend 1 contains rice, potato and maize flour, the other avoids them. What’s more, DIY blend 2 has a much lower starch content (only 40% compared to 80% in DIY blend 1) – this is to account for a common complaint with gluten-free baking: the starchiness of the flours and blends.

Table 2: Gluten-free flour blends and their ingredients.

BLEND	INGREDIENTS
Doves Farm Freee plain gluten-free flour	rice flour, potato starch, maize flour, buckwheat flour, tapioca starch
store-brand gluten-free flour blends (plain) ^[1]	rice flour, potato starch, maize flour
DIY blend 1	50% white rice flour, 30% potato starch, 20% maize flour ^[2]
DIY blend 2	40% tapioca starch, 30% buckwheat flour, 30% millet flour ^[2]

[1] At the time of writing, the following UK grocery stores sold their own branded gluten-free flour blends that I used in testing the recipes: Aldi, Lidl, Asda, Sainsbury’s.

[2] For example, 100g of DIY blend 1 contains 50g white rice flour, 30g potato starch and 20g maize flour – the percentages always refer to grammes and never to volume measurements such as cups, as different flours have different densities.

There are further differences between the two DIY blends: while blend 1 is fairly neutral in flavour, blend 2 has an underlying nuttiness, which I love. In terms of colour, DIY blend 1 is pale yellowish (because of the maize) and DIY blend 2 is greyish-brown (because of the buckwheat and millet). The colours translate to the final bakes. While that's not really apparent in a chocolate cake, it is worth keeping in mind when making, say, a vanilla cake or white chocolate cupcakes.

Most recipes in the book refer simply to 'gluten-free flour blend' in their ingredients' lists (feel free to use any from [Table 2](#)), but you will also encounter recipes that reference specific gluten-free flours. In these cases, if you want to stray from these flours, make sure you follow the substitution advice below. Some recipes, particularly bread recipes, require a very specific flour profile with only little room for deviation if you want to end up with a delicious bake.

You will notice that [Table 2](#) mentions only plain gluten-free flour blends – those that don't contain any raising agents mixed in. The reason is simple: using a plain blend and adding the raising agents yourself allows you more control over your bake, and enables you to fine-tune its rise and texture. Similarly, I recommend a gluten-free flour blend that doesn't contain xanthan gum. This way, you can tailor the specific amount of xanthan gum yourself for a perfect bake.

GLUTEN-FREE FLOUR SUBSTITUTIONS

You might wonder whether you can substitute one gluten-free flour within a blend for another. Yes – and no. The blends in the book should give the best bakes possible, so a substitution might alter the results. But, in general, all starch gluten-free flours can be swapped out for each other (with the exception of white rice flour, which is a bit of an outlier in the starch family). Things are trickier for protein flours.

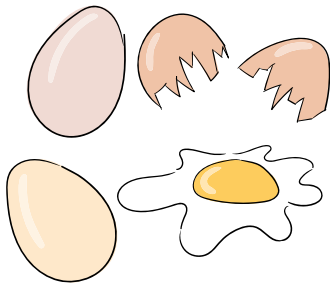
I go into more detail about why that is on [page 254](#), but for now, suffice to say that different protein flours impart different amounts of heaviness and flavour to bakes (especially bread) and are therefore divided into two groups, within which you can make swaps:

- + **brown rice and millet flours** (on the 'lighter' end of the heaviness spectrum and milder in flavour)
- + **buckwheat, maize, oat, quinoa, sorghum and white teff flours** (on the 'heavier' end and more intense in flavour)

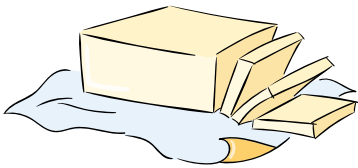
Note that I have optimised the DIY gluten-free flour blends for the best results across a range of different bakes – so while I definitely encourage you to experiment with different flours (especially if you are intolerant to some of them or because they are unavailable to buy), do keep in mind that substituting flours can affect the texture, appearance and taste of the bakes. This is especially true for substituting protein flours because many of them are quite intense in flavour and colour.

OTHER PANTRY STAPLES

Knowing your gluten-free flours, flour blends, and binders is, of course, crucial for any successful gluten-free baking adventure. However, understanding and knowing which other ingredients to use is just as important – that's why I've included a list of my most important can't-live-without pantry staples below.



Eggs. In all my recipes, I use UK medium-sized eggs, which correspond to US large eggs. The average weight of whole, medium eggs is about 60g, or about 52g without the shell. The egg yolk weighs on average 16g and the egg white 36g. If you want (for whatever reason) to weigh out half an egg, do so by weighing out half the yolk (about 8g) and half the white (about 18g) separately – not by whisking the eggs and weighing out 26g. The latter is unlikely to give you the correct proportions of yolk and white. In most cases, your eggs should be at room temperature before you add them to batters and doughs. If you forget to take them out of the fridge beforehand (it happens to me all the time), just place them in a bowl of warm water for a few minutes.



Butter. Although I love salted butter spread generously on a slice of toasted bread (especially if the bread in question is the artisan dark crusty loaf on [page 272](#)), I always use unsalted butter in my baking. This is simply because it gives me better control over the bake. In most recipes, I'll use one of four forms of butter: softened; melted and cooled; chilled; or frozen and grated.

Softened butter refers to butter that's been standing out of the fridge for a while and when you press down on it with your finger, it should leave an indentation. It definitely shouldn't be hard to the touch, but it also shouldn't be verging on melted. If you forget to take the butter out of the fridge early enough, you can microwave it in 5–10 second bursts until you reach the correct consistency.

Melted and cooled butter is basically just butter that's been melted and cooled down until warm, so that it doesn't mess with any other ingredients it comes into contact with (especially eggs).

Chilled butter refers to butter straight out of the fridge. That means that even if you have to cube the butter for a particular recipe, you shouldn't leave it out at room temperature afterwards. Instead, keep it in the fridge until just before you need to use it.

Grated frozen butter is butter that's been frozen for a minimum of 2–3 hours, or preferably overnight, and is then coarsely grated. This leaves the butter in a paradoxical state of being both extremely cold and very malleable, which is perfect for quickly laminating doughs, such as rough puff pastry (see [page 203](#)).

Oil. Although butter is definitely my fat of choice in baking, sometimes using oil is best. If I specify a neutral-tasting oil, I usually mean sunflower or rapeseed oil, but vegetable oil works just as well. If you want to introduce a flavour along with the oil, olive oil is usually the way to go, but feel free to use other flavoured oils that you like.

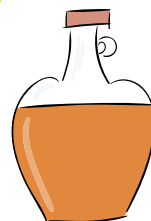


Sugar. You'll notice I prefer fine over coarse sugar in my recipes – for example, I'll use caster sugar over granulated sugar in most cases. Caster sugar comprises smaller crystals that are easier and so quicker to dissolve than the larger particles of granulated sugar. In bakes, such as chocolate sponges or French crêpes, that have a lot of liquid, this isn't hugely important, but in bakes like cookies or pastry, caster sugar gives a more even, homogeneous crumb. That said, when it comes to sprinkling sugar on top of muffins or egg-washed pastry, granulated sugar is the way to go – for pretty much the exact opposite reasons. Here, we don't want the sugar to dissolve but to form a sparkling, slightly crunchy crust. In addition to white sugar, I use (soft) light and dark brown sugars, which add both flavour and moisture. The extra moisture is especially important in bakes where you want a fudgy or gooey texture, such as in brownies or chocolate chip cookies.

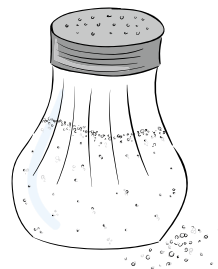


Honey + maple syrup. Although white and brown sugar are my go-to sweeteners in the majority of cases, honey, maple syrup and other liquid sweeteners can be fun to play around with. In fact, you can often use them in place of regular sugar, with a few important exceptions:

- + where creaming butter and sugar, or whisking together eggs and sugar is the central reason why a recipe works (like the shiny top brownies on [page 126](#)),
- + where sugar controls the way a bake behaves in the oven (for example, sugar is crucial for chocolate chip cookies spreading out during baking; see [page 152](#)),
- + where you don't want to introduce extra moisture into the recipe (notably in bread and the other dough recipes on [pages 266–317](#)).



Salt. I don't think there's a single recipe in this book that doesn't contain at least a pinch of salt (with 'salt' referring to sodium chloride, NaCl, and a few other molecules and compounds mixed in depending on the type of salt). That's because salt is a natural flavour enhancer, even in very tiny amounts – and it's especially important when dealing with chocolate or peanut butter, where that one pinch takes the bake to a whole new level. Similarly, adding too little salt to a loaf of bread will make it taste rather bland and cardboard-like (no matter how wonderful its texture is). I use sea salt in my kitchen, both in the fine, free-flowing form and in the flaky form, the latter especially for sprinkling on top of cookies and brownies – although most other types of salt will work just as well in the recipes.



Raising (chemical leavening) agents. When it comes to using baking powder and bicarbonate of soda, the most important thing to understand is their composition.

Bicarbonate of soda is a pure compound – sodium bicarbonate, NaHCO_3 – a base or alkaline substance that reacts with acids to release a gas (carbon dioxide; CO_2), with water and a salt forming as the side products (where ‘salt’ isn’t necessarily table salt or sodium chloride). Therefore, the presence of an acidic ingredient is crucial for bicarbonate of soda to be active and to make the bakes light and fluffy. This acidic ingredient can be any one of a variety of things, such as lemon juice, yoghurt, soured cream or even chocolate (whose pH falls on the acidic end of the spectrum). Because it’s a pure compound, bicarbonate of soda doesn’t really lose its activity and, unless otherwise contaminated, has a pretty much indefinite shelf life.



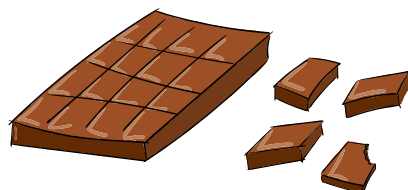
Baking powder, on the other hand, is not a chemically pure substance. Instead, it’s composed of bicarbonate of soda, an acidic component and anti-caking/filler agents such as rice flour or cornflour to prevent it from clumping together and to keep the bicarbonate of soda and the acidic component as dry as possible (by preferentially absorbing any moisture present) – we’ll get to why that’s important in a minute. The acidic component can be cream of tartar, a phosphate or a sulphate. For the base (bicarbonate of soda) and the acid to react and release carbon dioxide, they need to mix together in an aqueous medium and preferably in the presence of heat (as the heat speeds up the reaction and also vaporises the water produced, so increasing the number of ‘gas bubbles’ in the bake to result in a light and fluffy texture). That’s why keeping moisture away is so important and why we add filler agents. A humid and warm or hot environment can significantly shorten the shelf life of baking powder. To test whether baking powder is still active, just mix it with some water: if it gets frothy and bubbles up, it’s active and okay to use.

Yeast. While bakes such as cakes and cupcakes rely on chemical leavening agents for their rise and open crumb, bread looks to yeast as its leavening agent. Now, I know what you must be thinking: using only yeast in gluten-free bread? Surely, we need some baking powder to help it along. Spoiler alert: not at all – but more on that in the bread chapter. For now, let’s talk about the type of yeast my recipes use: active dried yeast. Although the way active dried yeast is processed means that it’s slightly less active than instant yeast (so you need slightly more per 100g of flour), I love that you need to activate it in some warm water or milk and so can actually see it getting all nice and frothy. In addition to confirming your faith in its ability to do its job (and that it’s not past its sell-by date or inactive for some other random reason), activating the yeast can become almost a part of the ritual that is baking the weekly loaf of gluten-free bread. That said, you can use

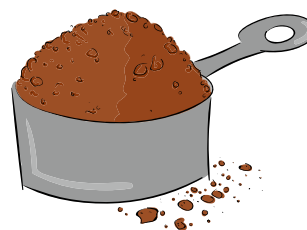
instant (rapid- or quick-rise) yeast in most of my recipes, just reduce the weight to 75% of that listed, so that you use 0.75g instant yeast for every 1g active dried yeast. Unlike active dried yeast, instant yeast doesn't need to be hydrated and you can add it directly to the dry ingredients. (If you want to use fresh yeast, you'll need double the weight of the active dried yeast listed in the recipe.)

Chocolate. It goes without saying: use a high-quality chocolate for baking, one you would genuinely enjoy eating. Most of my recipes use dark chocolate with cocoa-solid percentages in the 60–70% range, but there are quite a few that use white chocolate and some with milk chocolate (the hazelnut and milk chocolate cake on [page 54](#) comes to mind... and, oh gosh, it's a winner). In recent years, the quality of chocolate accessible to the average baker has increased drastically, so there's really no excuse for using anything that's subpar.

The reason I specify the cocoa percentages is two-fold. First, when it comes to things like chocolate ganache or glaze, the cocoa content drastically affects consistency. A chocolate glaze that is perfectly pourable with a 60% chocolate can be quite noticeably thicker with a 70%+ chocolate (depending, of course, on the other ingredients). Second, there's the flavour or, more specifically, the sweetness of the dessert. For things like the chocolate-mousse filling in the hot chocolate tart (see [page 244](#)), I like to use a chocolate with a lower percentage of cocoa solids, so that there's no need to add additional sugar (as might be necessary with a darker, more bitter chocolate).



Dutch processed cocoa powder. In all the recipes that require cocoa powder, I use Dutch processed cocoa powder, not to be confused with natural, unprocessed cocoa powder. Natural cocoa powder is acidic, with a pH of 5–6 (remember, neutral pH is 7), which gives it a sharper, fruitier taste. Its acidity also means that it will react with baking powder and bicarbonate of soda and work to additionally aerate the bake. Dutch processed (also known as 'alkalised') cocoa powder goes through an alkalising process that neutralises its acidity to pH 7. At the same time, the process gives it a deeper, darker colour and a far richer flavour we commonly associate with chocolate. In your general baking, I wouldn't advise trying to substitute one for the other if the recipe specifies which one to use – messing with the acidity levels of a bake will inevitably change how the chemical leavening agents react both in and out of the oven and, considering the recipe has been optimised for a certain composition, that change probably won't be a positive one.



Vanilla bean paste. When it comes to adding a gentle vanilla undertone (or, if needed, a powerful vanilla punch as for the simple vanilla cake on [page 50](#) and the vanilla cupcakes on [page 92](#)), I will always reach for vanilla bean paste over vanilla extract. In addition to giving desserts that wonderful speckled appearance from actual vanilla beans (which you don't get in an extract), I prefer the intensity and the quality of

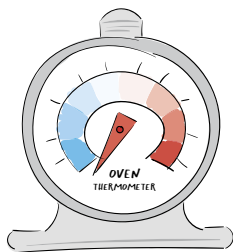
flavour it provides. I also find that you need to use far less of it than you would of the extract – so while it might be a bit of an investment compared to the extract, I think it's one that rewards you several times over.

KITCHEN TOOLS

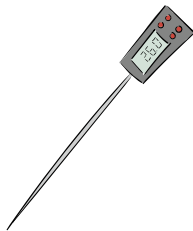
With things that go into the bakes out of the way, let's have a look at the indispensable tools that make gluten-free-baking perfection possible. These are items I use in my kitchen on a daily basis.



Digital scales. This holds the #1 spot in the kitchen tools' list for a very good reason. With the exception of adding things like baking powder, bicarbonate of soda, xanthan gum and salt by teaspoons (and even that disappears come the bread chapter, where grammes are king), I weigh pretty much everything else. Yes, that includes liquids like water, milk and oil. When it comes to precision, nothing – and I mean nothing – matches simple digital scales. Weighing out 137g water is a piece of cake, but trying to measure out 137ml in a jug is a whole other story. (Unless you have a lab-grade measuring cylinder, in which case good on you.) So, I really can't emphasise this enough: ditch unreliable volume measurements and get some digital food scales. Bonus points if the display shows decimal places.

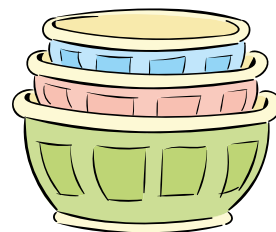


Oven thermometer. Let me tell you a story: during my university years, I lived in student accommodation and, one day, tried to bake a cake in the oven there. After over an hour, it came out raw. Why? The oven was set to 180°C, but the actual oven temperature was a measly 130°C. That's right, it was 50°C out of calibration. The moral of the story is that you really shouldn't blindly trust the settings on your oven – it's much better to check how well it's calibrated using an oven thermometer, and then either re-calibrate if possible, or simply remember which temperature settings correspond to which actual temperatures. My current oven is 10°C out of sync, so I know I need to set it to 190°C when I want to bake something at 180°C. A final note on oven temperatures: don't just measure the temperature the oven heats up to initially. Instead, pay attention to how the temperature varies with time and especially after you've put something in there (even an empty baking tray). This temperature is far more important than the temperature the oven reaches and maintains for the initial 5 minutes or so.

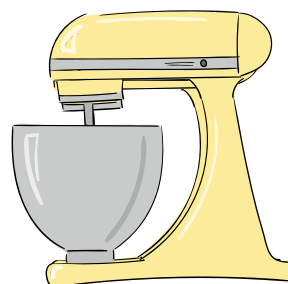


Digital food thermometer. In addition to being crucial when making caramel or tempering chocolate, a food thermometer will serve you well for everything from measuring the internal temperature of bread or pies, to monitoring the temperature of egg whites as you cook them with sugar for Swiss meringue buttercream. That's why I prefer a digital thermometer with a metal probe as opposed to an old-fashioned analogue jam thermometer, the shape of which limits its usefulness.

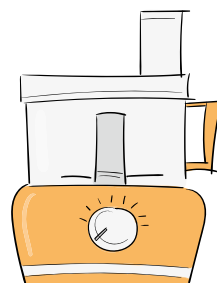
Mixing bowls. I possess a rather unreasonable number of bowls, and each time I think there's one too many, I still run out of clean ones when I go on a crazy baking spree. When it comes to bowls, consider two things: their size and the material they're made from. I have a variety of different sizes, from small ones for cracking individual eggs to huge ones for when I want to make 2 kilos of cookie dough (we all have those times, right?). The material of a bowl should be heatproof, sturdy and durable – I swear by Pyrex glass and stainless steel.



Stand mixer. This one goes without saying. Although a hand mixer works in a pinch, a stand mixer is useful for a wider range of recipes (from making meringues and buttercreams to kneading dough and preparing shortcrust pastry). Plus, the many speed settings allow you to control the aeration of creams and batters – which is crucial in many recipes, from making cheesecake filling to whipping cream.



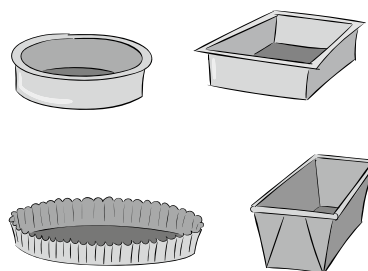
Food processor. I use this important bit of kit for everything from making the base for lemon and s'mores bars (see [pages 188 and 184](#)) to grinding hazelnuts and making frangipane.



Whisks, wooden spoons + spatulas. These are no-brainers. You need them for everything. At this very moment, I have more than 15 spatulas in my kitchen, and I still end up running out of clean ones (don't ask me how). The recipes guide on which implement to use when but, in general, use a whisk to aerate the mixture or to break up clumps in a batter quickly and efficiently. When you don't want to incorporate too much air, a wooden spoon is the way to go. And nothing beats a rubber spatula when it comes to folding dry ingredients into a fluffy mixture of eggs and sugar (and chocolate, in the case of brownies) without deflating it too much. Or, for that matter, when it comes to scraping every last bit of whatever deliciousness you're baking into the tin.

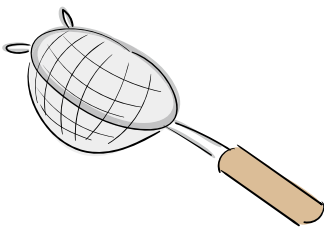
Baking sheets, trays + tins. Here's an overview of the main baking containers I use in this book:

- + 20cm anodised aluminium round cake tins (5cm deep)
- + 20cm anodised aluminium square baking tin (5cm deep)
- + 23cm pie dishes (preferably metal, 3cm and 4cm deep)
- + 23cm loose-bottomed tart tin with a fluted edge (about 3.5cm deep)
- + 20cm round springform tin (7cm deep)
- + 900g loaf tin (23 x 13 x 7.5cm)
- + 1 shallow baking tray (25 x 35cm, about 2.5cm deep)
- + 1 deep baking tray (23 x 33 x 5cm)
- + baking sheets (at least 2, with and without a lip)
- + 12-hole muffin tin



I've developed the recipes using the specified tins and dishes – using a different tin size, material and/or colour can produce slightly different results and will affect the baking times. That's why I recommend using physical indicators (see [page 30](#)) to judge whether a bake is done.

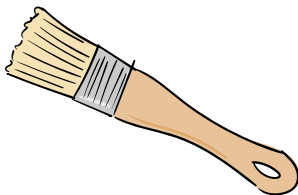
Baking paper. I know many prefer silicone baking mats, but I have always used baking paper, which you can cut to shape and size. If silicone mats are your best baking friend, though, go ahead and use those – just note that some recipes might give slightly different results (for example, cookies usually spread out more on a mat). Beyond just using it to line baking sheets and tins, baking paper comes in handy as a rolling surface for pie crust, other pastry, and gluten-free enriched dough, especially because it allows you to slide everything on to a baking sheet and pop it into the fridge if it needs a quick chill.



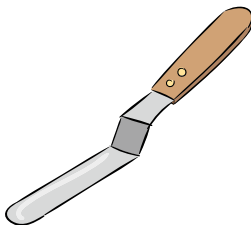
Fine-mesh sieve. From sifting dry ingredients to remove any stray clumps and introduce some extra air into the mixture, to passing cooked raspberries through to strain the juices on their way to becoming a delicious reduction, fine-mesh sieves play a big part in baking my recipes. I recommend having a few sizes on hand – in terms of both the sieve diameter and the holes in the sieve mesh.



Ice-cream scoop(s). Regardless of whether you call them ice-cream scoops or cookie scoops, these are incredibly useful for everything from scooping cookie dough to quickly portioning out cupcake batter into cupcake liners. The scoop sizes are usually described by the tablespoon volume measurement (that is, 2-tablespoon scoop, 3-tablespoon scoop and so on). I've specified where relevant.

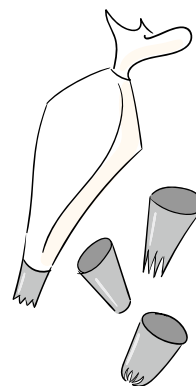


Pastry brush. While you may mainly use a pastry brush for glazing – and this could be egg washing a pastry or brushing an enriched dough with butter before baking, it's also useful for gently brushing off excess flour from your pastry or dough. I vastly prefer brushes made with natural bristles over silicone ones, but feel free to use whichever feels more comfortable to you – and whichever you have to hand.



Offset spatulas. Ah, the things you can do with an offset spatula. First, the obvious ones: swirling frosting, icing or ganache on top of cakes, and spreading filling on top of cinnamon rolls or chocolate babka. But a large offset spatula is also very handy for sliding beneath rolled-out cookie dough before you cut out the cookies, so you're 100% sure none of them will stick. Then, you can use it to transfer unbaked cookies from the rolling surface to the baking sheet, and (a few minutes later) baked cookies from the baking sheet to a wire (cooling) rack – and myriad other little things. Because offset spatulas are so versatile, I recommend having at least two sizes in your kitchen: a large one for general use and a small one for more detailed and finicky work.

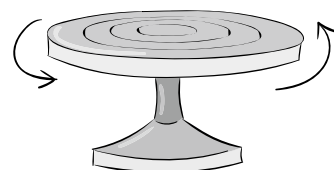
Piping bags + nozzles. You will mainly have to pipe three things in this book: buttercream (on to cakes, cupcakes, cookies and the occasional brownie), choux batter (to make choux puffs and éclairs) and filling (into choux bakes and doughnuts and on to millefeuille and cookies). When it comes to frostings and fillings, mine are just suggestions as to the piping nozzles you should use – you don't have to follow them slavishly. However, for piping choux batter, using the correct piping nozzle is very important, as it dictates the way the choux buns and éclairs expand in the oven, which in turns controls their shape and whether or not they crack. Here's an overview of the piping nozzles called for in the recipes:



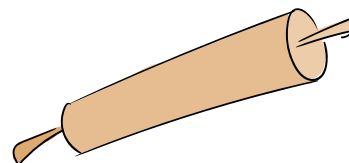
- + **medium open star nozzle** for piping frosting on to cupcakes
- + **large open star nozzle** for piping frostings and fillings, and éclairs
- + **French star nozzle** for piping éclairs
- + **rose petal nozzle** for filling éclairs
- + **large round nozzle** for piping frostings and fillings, and choux buns
- + **small round nozzle** for delicate decorating work and for filling baked doughnuts

Wire (cooling) racks. When cooling your bakes to room temperature, it is crucial to ensure proper air circulation around them, as this both speeds up the cooling process and prevents any condensation build-up, which could make bakes soggy or otherwise spoil their texture. Wire cooling racks are perfect for cooling – but they're equally great when it comes to glazing cakes, as they allow any excess glaze to drip through and away rather than accumulate around the cake in a puddle.

Rotating cake stand. My cake-decorating experience went from 'meh' to 'this is the best thing ever' after I got my hands on a rotating cake stand (also known as a cake-decorating turntable). If you like to make cakes, and especially if you make a lot of them, a rotating cake stand is a worthwhile investment.



Rolling pin. I could go on and on about what makes the perfect rolling pin, but, in the end, the big question is how it feels in your hands and how much control it gives you over how thinly and evenly you can roll out pastry and dough. There are tens of different types of rolling pin out there – with or without handles, straight, tapered, wooden, ceramic – and you're bound to find one that makes rolling a breeze for you. Just make sure it's long enough to handle larger amounts of pastry and dough (it should be at least 24cm long).

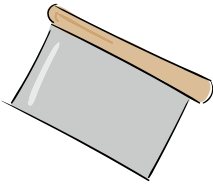


Foil. This has one main purpose in my kitchen: to control the rate at which bakes are browning. Placing a sheet of foil (shiny side up) over a bake blocks out much of the radiative heat to slow down the rate of

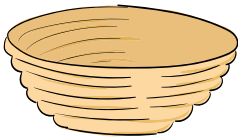
browning. This allows you to tune the colour of your bake irrespective of how much longer it needs in the oven to reach perfection.

Cling film. I use cling film for everything from wrapping up flaky pie crust and rough puff pastry to prevent them from drying out in the fridge to using it as the rolling surface for pastry (it's incredibly helpful for transferring pastry into tart tins and baking dishes with minimal chance of tearing). And if you can get your hands on heat-resistant cling film, you can even use it instead of baking paper in blind baking.

Toothpicks + skewers. Two words: toothpick test. Read all about it on [page 30](#).

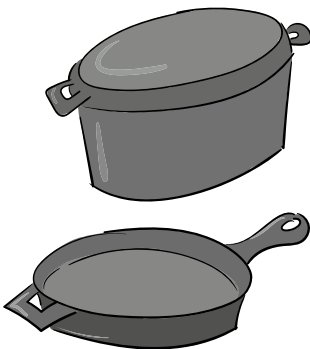


Bench scraper. Decorating cakes, shaping bread, dividing dough into even portions... there are endless uses for a bench scraper. But probably the most important one in my kitchen is when it comes to cleaning time: a bench scraper is the perfect thing to get any stubborn dough or batter remnants off your kitchen work surface. When it comes to materials, a metal scraper is sturdy and durable, while a flexible plastic one is amazing at getting slightly sticky dough out of bowls and other bulk-proving containers.



Proving baskets. You will need only one size of proving (bread) basket if you make the artisan crusty loaf recipes (on [pages 266](#) and [272](#)) from this book, without scaling the recipes up or down – an 18cm proving basket that's 9cm deep. I tend to use it without the cloth cover that usually comes with bread baskets, mostly because I love the circular pattern left by the basket itself. Before proving the bread, it's important to dust the basket generously with flour (I mostly use millet flour for this) to prevent the bread sticking to it.

In terms of upkeep: do not, under any circumstances, ever, wash your proving basket. Just turn it upside down after you've finished using it and gently tap it on the counter to shake off any clumps of flour. Eventually, after repeated use, it will become almost 'seasoned' with a layer of flour – that's perfectly okay and nothing to worry about. Furthermore, do not keep it in an airtight container. The basket absorbs a certain amount of moisture from the bread, and keeping it in a closed environment is recipe for a mouldy disaster. Just keep it in a drawer or on a shelf, lightly covered with a tea towel to prevent it from getting dusty.



Cast-iron Dutch oven, combo cooker or skillet. These are indispensable when it comes to baking boules (round loaves of crusty bread) and I have included instructions for using all of them in my recipes. Cast iron is excellent at retaining and radiating heat, which gives bread the most beautiful crust and promotes oven spring (see [pages 260–261](#)). Beyond bread, I use a cast-iron skillet to make skillet cookies, and you can even use it to bake pizza.

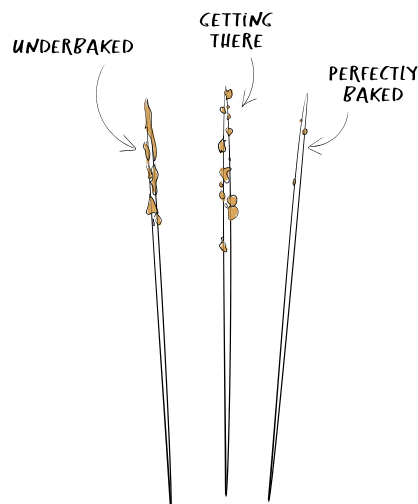
Lames + other scoring razors. Scoring (see [page 260](#)) is incredibly important for controlling the way your bread expands in the oven – plus, it looks pretty. You can use a variety of scoring tools, but for a beginner the combination of a simple lame (double-sided razor blade intended for scoring bread) and holder is an excellent starting point.

THE TOOTHPICK TEST + FAN OVENS

We've touched on the problem of incorrectly calibrated ovens, which can drastically affect the baking times in the recipes. What's more, different oven volumes (what we commonly think of as our oven size) change the proximity of a bake to the heating elements, which in turn affects the rate at which things bake and brown. Then, there's also the question of whether or not to use a fan oven, which again changes the rate at which things cook through and dry out (see opposite).

So, the baking times in the recipes are very good rough guides, but it's far more reliable to use physical indicators for whether or not your bakes are done. These indicators vary according to the type of bake, but here's a list of the most important ones:

- 1. Toothpick test.** Here, you insert a toothpick or skewer into the centre of your bake for about 2 seconds and then see how it comes out. Completely clean, with a few stray crumbs attached, or covered with half-baked batter? The state of that humble toothpick tells you more than you can imagine about the doneness of your bake. Whenever you're baking cakes, muffins or brownies, this is the one trick you need to have up your sleeve. Where relevant, the recipes will tell you what to look for.
- 2. Weight loss.** This is especially important when baking gluten-free bread, where other tests might mistakenly tell you your loaf is done. By weighing the loaf, you can calculate the percentage weight loss and accurately determine whether it needs a bit longer in the oven. Where relevant, the recipes will tell you what sort of weight loss to aim for.
- 3. Colour.** When it comes to the colour of your bakes, there are two sides to the story. When dealing with cakes, cupcakes, muffins and bread, colour isn't a very reliable indicator of whether or not a bake is done. Depending on the amount of sugar, baking time required, depth of baking tin and myriad other factors, the top of your bake might start browning well before it's actually done. (In which case: foil – shiny side up – to the rescue.) In the case of (non-chocolatey) cookies, however, colour is an excellent indicator. For bakes such as sugar cookies (see [page 158](#)), shortbread biscuits ([page 161](#)), peanut butter sandwich cookies ([page 169](#)) and rosemary crackers ([page 174](#)), colour is the easiest way to test for doneness (provided you bake them at the correct temperature). I've specified the colour you're looking for in the final bake in each recipe, as relevant.



Fan ovens in gluten-free baking

In general, unless it's the only option available, I don't recommend using a fan oven for gluten-free baking, which is why you'll find only one oven temperature in my recipes. Fan ovens tend to have the unfortunate effect of drying out baked goods. This may be a small, almost insignificant effect in wheat-based baking, but in gluten-free baking you are constantly battling the notion of a dry, crumbly bake.

A fan oven (also known as a fan-forced oven) uses a fan to circulate the hot air generated by the heating element. Compared to a conventional oven, a fan oven typically creates more heat as well as a 'breeze' in the oven. While more heat means faster baking, the combination of more heat and a breeze results in more moisture evaporation and therefore a drier bake. This is especially noticeable in bakes that require a longer baking time, such as deep loaf cakes or decadent chocolate cakes. And the thought of putting so much effort into making a chocolate cake moist and luscious, only for it to be dried out by the fan setting – well, it's just heartbreaking. Another disadvantage of the high heat that fan ovens generate is accelerated browning, which can mislead you into thinking your bake is done, when actually it may need a further 10–15 minutes.

Therefore, I like to stick with the conventional oven – the only time I use the fan setting in my kitchen is to crisp up roasted potato wedges. That's not to say gluten-free baking won't work in a fan oven. Much like a gluten-free flour blend you know and trust, your oven is (or at least should be) your close friend. You know its quirks and whimsies – and if the fan setting is its strong point and you know the ins and outs of it, go ahead and turn that fan on. In that case, as a good rule of thumb, reduce the conventional oven temperatures in the book by 20°C when using the fan oven. (Conversion tables are given on [pages 370–374](#).)

COOK'S NOTES

Before you delve into the recipes, there are a few details you need to know. These apply to all the recipes in the book:

- + Use any of the gluten-free flour blends listed in [Table 2](#) (see [page 19](#)), unless otherwise specified.
- + In cake, cupcake and muffin recipes, you can replace almond flour with an equal weight of gluten-free flour blend (but, see [page 16](#)).
- + Baking powder is typically gluten-free, but always check the label.
- + Use medium eggs, fresh herbs and medium-sized fresh fruit and vegetables, unless otherwise specified.
- + If the temperature of typically refrigerated ingredients isn't specified, use cold or at room temperature.
- + Spoon measures are level, not heaped or rounded.
- + The oven temperatures are for a conventional oven, not fan.



CAKES

Baking a good cake is much like having a real-life superpower. A beautiful cake will stop the world, for a short moment, in a state of happy, blissful surprise. It doesn't matter whether it's a simple traybake or a three-tiered, elaborately decorated affair: show up with a cake and people will stop. And look. And smile. Turning invisible, reading minds or being able to fly? That's for amateurs.

Gluten-free cakes have that same magical stop-stare-smile effect. Contrary to popular belief, being gluten-free doesn't prevent cakes from being moist, delicate, airy, soft, luscious and all the other things you might want a cake to be. In fact, achieving the perfect gluten-free crumb is often easier than in wheat-based baking, where the presence of gluten can result in a dense or gummy texture if you overmix the batter. To get the most delicious results, however, and to do it in a consistent and reproducible manner, there are a few details you need to keep in mind.

THE TYPES OF CAKE YOU’LL FIND IN THIS CHAPTER

I’ve focused this chapter on what I believe to be the fundamental cake recipes – those that, once you know them, allow you to take on any cake-making challenge, no matter how complicated. In addition to the basic chocolate and vanilla cake recipes (refined to the very pinnacle of deliciousness), there are recipes that look at the effects of adding an acidic element, introducing extra moisture into the batter, and using different tin sizes and shapes, and that take on the scary prospect of rolling the sponges into a (crack-free!) Swiss roll or roulade.

WHY MAKING GLUTEN-FREE CAKES IS RATHER EASY

Cakes are forgiving. What this means is that most store-bought gluten-free flour blends will give you a good rise, a moist crumb and an overall delicious cake – if you, of course, follow all the other nuggets of science and wisdom laid out in this section. The reason for this is fairly simple and it all comes down to maths. And rather easy maths at that. What I’m referring to is the percentage of flour among all the other ingredients that go into a bake – as laid out in [Table 3](#).

Table 3: Percentages of flour in typical cake, cupcake, muffin, brownie, cookie, pie crust, shortcrust pastry and bread recipes. (The values are estimates based on representative recipes from each category.)

TYPE OF BAKE	PERCENTAGE OF FLOUR
brownies	9%
cake	27%
cupcakes	27%
muffins	33%
bread	42%
cookies	43%
pie crust	47%
shortcrust pastry	54%

Apart from brownies, cakes and cupcakes contain the smallest percentage of flour of all the bakes you will find in this book. It’s therefore hardly surprising that the exact gluten-free flours or flour blends don’t play as large a role as they do in, for example, cookies or pie crust.

I have thoroughly tested all the cake recipes in this chapter with all the gluten-free flour blends outlined in [Table 2](#) on [page 19](#) – with a 100% success (and deliciousness) rate.

HOW TO MAKE (AND KEEP) YOUR CAKES MOIST

Gluten-free flours and flour blends tend to absorb more moisture both before and during baking than wheat flour, which can potentially result in a dry and crumbly bake. To avoid this, it's important to increase the wet:dry ingredients' ratio. Wet ingredients include eggs and any liquids (milk, water, yoghurt, brewed coffee, fruit purées and juices), whereas dry ingredients include the gluten-free flour or flour blend, and the cocoa powder, ground nuts or similar. If you're used to wheat-based baking, the amount of liquid, in particular, might on occasion feel almost counterintuitive. But, fear not – it's this additional liquid that helps create a wonderfully moist, melt-in-the-mouth cake crumb.

Increasing the wet:dry ratio deals primarily with the issue of how moist the cakes are immediately after baking and for a few hours afterwards. When it comes to the rate at which the sponges dry out (even when in a closed container, wrapped in cling film or protected in a layer of frosting), we need a different trick up our sleeve.

Despite their high moisture-absorption capacity, gluten-free flours are also surprisingly (and unfortunately) rather good at losing that moisture, resulting in cakes that become noticeably dry and crumbly after a day or two. To slow down this rate of drying out, I like to substitute a tablespoon or two of the gluten-free flour blend for almond flour, which works wonders at keeping the cakes moist and fluffy for days, mostly because of its higher fat content as compared to gluten-free flours. This gives the sponges a moister and richer mouthfeel without actually making them dense, heavy or oily (as, for example, increasing the amount of butter might do). If you have a nut allergy or similar, and therefore can't use almond flour, you can substitute it with an equal weight of the gluten-free flour blend.

Xanthan gum also deserves a mention here, as its purpose to mimic gluten isn't restricted to acting only as a glue that makes the sponges significantly less crumbly. It also absorbs and retains moisture to help them stay nice and moist – in tests, xanthan gum has been able to absorb more than 20 times its weight in water!

Let's finish with an almost stupid-simple, yet often overlooked solution to getting moist cakes: reducing the baking time. It's possible to overbake a sponge in a matter of minutes, so keep an eye on your cakes a few minutes before you hit the suggested baking time. Depending on how your oven is calibrated (see [page 25](#)), a cake may take a few minutes more or fewer to be properly baked.

And don't forget the toothpick test (see [page 30](#))! For cakes, always look for a mostly clean toothpick with maybe a stray crumb or two attached.

RAISING AGENTS GO INTO THE DRY INGREDIENTS

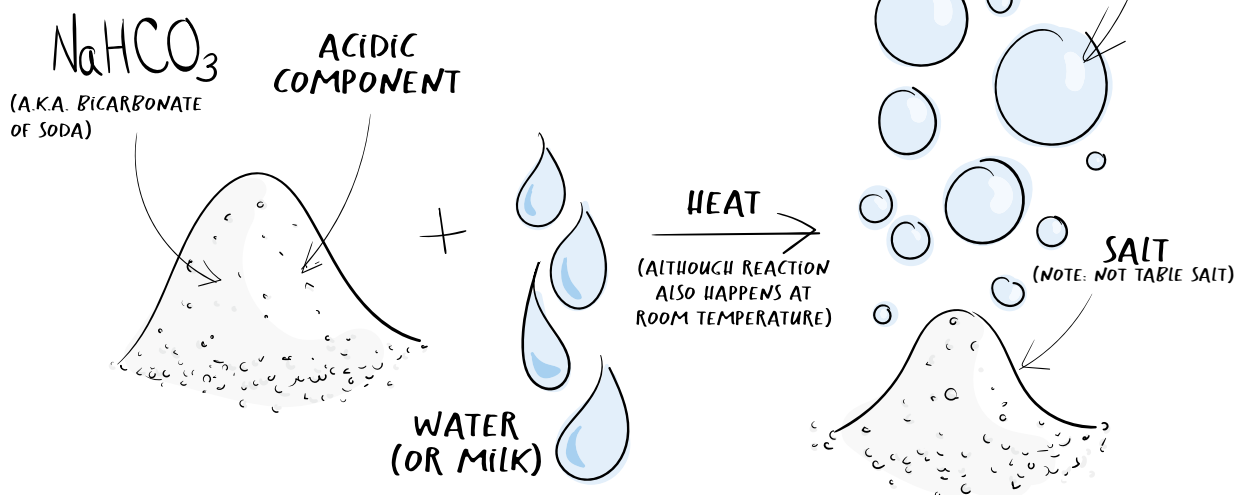
So, you've chosen the correct ingredients in the correct relative proportions – great. But you're nowhere near done yet. How you combine these ingredients is just as, if not more important. Before we get down to the nitty-gritty of mixing and whisking the batter, let's clear one thing up: raising agents (that is, baking powder and bicarbonate of soda) always go with the dry ingredients. For the love of delicious fluffy cake, don't go mixing them into the wet ingredients!

I've seen people mix baking powder into eggs and milk, thinking it will give them a 'more homogeneous dispersion' of raising agents in the final batter. (It doesn't.) This thinking is similar to the idea of 'activating baking powder and bicarbonate of soda in lemon juice or vinegar before adding it to the batter' – please don't do that. Putting either raising agent into an acidic medium results in immediate gas release and salt formation. This destroys the purpose of the raising agent, activating it long before you want it working. What you want is a delayed reaction – in the oven, to give a tender, fluffy crumb.

Mixing raising agents into the wet ingredients poses a similar problem, especially in the case of baking powder. If we look at its composition, baking powder is a mixture of bicarbonate of soda with an acidic component such as cream of tartar (baking powder therefore doesn't need a separate source of acid in the cake batter in the way bicarbonate of soda does). When dissolved in a liquid such as water and in the presence of heat, the two components react to release gas and make our cakes fluffy. However, the reaction can occur even in the absence of heat – try mixing a bit of baking powder with a few drops of water. The mixture will bubble up, releasing gases.

Adding baking powder to wet ingredients, therefore, does exactly the same thing, making the bicarbonate of soda in it react with the acidic component – and, bye-bye, there goes the leavening activity. If you're

Baking powder is a mixture of bicarbonate of soda and an acidic component. When it is mixed with water (or other liquids) and subjected to heat, the reaction results in immediate gas release and salt formation.



using only pure bicarbonate of soda, you might get away with it, assuming you're not adding any sources of acid to the wet ingredients. But considering that even milk is slightly acidic, it's better to stick to adding all chemical leavening agents to the dry ingredients.

Of course, when you mix the dry ingredients with wet, the raising agents will still come into contact with liquids and acids. But considering their relatively low concentration within the dry ingredients, the probability of that contact, and therefore of them losing their activity before it's needed, is significantly reduced (and the amounts of baking powder and/or bicarbonate of soda listed in the recipes account for small losses anyway). Nonetheless, this is why it's best to bake the cake batter straight away, rather than letting it sit around in a bowl or baking tin. (If you have only one baking tin and the recipe requires two, it's best to prepare only half the batter, bake it, and then make and bake the other half.)

THE THREE MIXING METHODS

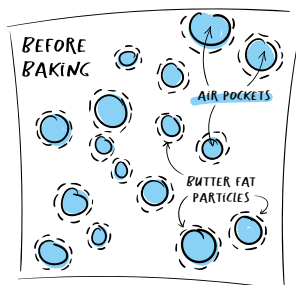
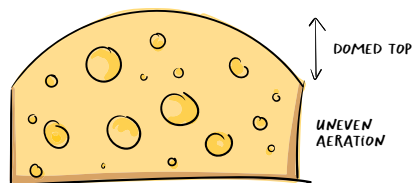
With cakes based on using softened butter (rather than melted butter, or oil) there are three mixing methods to choose from:

- + the standard creaming method,
- + the reverse creaming method,
- + the all-in-one-method.

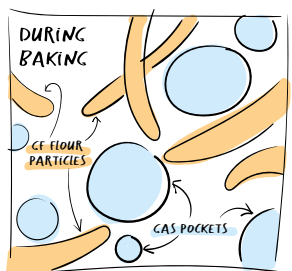
Let's deal with the last one first. As its name suggests, the **all-in-one method** involves placing all the sponge ingredients in a bowl and whisking until you get a smooth batter. An obvious advantage of this method is its speed and simplicity, as well as the fact that there's only one bowl to wash up (always a welcome surprise). However, it doesn't offer much in terms of controlling the way the ingredients come into contact with each other and interact, and it is the method most likely to give you stray patches of flour or butter. In general, I reserve it for quick, everyday bakes, such as the Victoria sponge cake on [page 328](#).

The **standard creaming method** is the one bakers are usually most familiar with. You cream the butter with sugar into pale, fluffy submission, then slowly incorporate the eggs to create a voluminous emulsion. Finally, you add the dry and any remaining wet ingredients (such as milk), usually in alternating batches. As well as being incredibly satisfying to observe (who doesn't love a soft, airy cake batter?), this method produces very light and fluffy cakes with a delicate crumb. It can, though, cause an uneven aeration (a cake interior filled with holes of different sizes), a tendency towards a domed top, a greater likelihood of the cake collapsing if you open the oven door during baking, and (specifically for gluten-free cakes) a slightly greater rate of drying out (mostly because of a more open crumb).

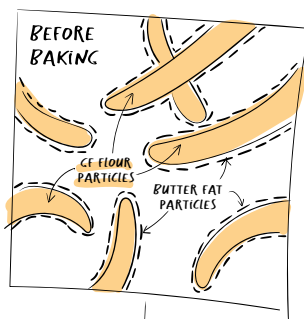
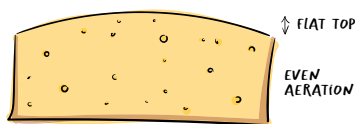
STANDARD CREAMING METHOD



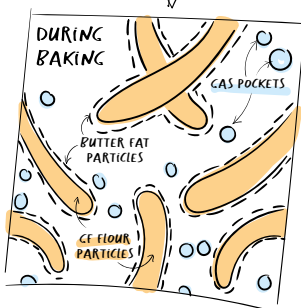
PLACE INTO PREHEATED OVEN



REVERSE CREAMING METHOD



PLACE INTO PREHEATED OVEN



A look at how the two creaming methods affect the texture and appearance of baked sponges, and what the cake batters look like at the microscopic level – both before and during baking. The reverse creaming method is far better for achieving the coveted flat top and even aeration of the perfect sponge.

The main reason for these potential problems lies in the large amount of air, in the form of tiny air pockets, incorporated into the batter during the creaming method. During baking, these air pockets expand, creating holes in the crumb and a domed top. Of course, we want gas bubbles to be present or to form in the cake as it bakes – they are the source of that beloved fluffiness and tenderness. But, we also want to control the amount, size and distribution of the bubbles, which is almost impossible with the standard creaming method. Mostly, I use the standard creaming method only for very moist, buttery cakes on the denser side of the fluffiness scale, such as bundt cakes (see [page 62](#)) or lamingtons (see [page 369](#)), where the larger amounts of butter counteract most issues of uneven aeration and likelihood of collapse.

Compared to the standard method, the **reverse creaming method** (pioneered by Rose Levy Beranbaum) gives a finer cake crumb with a velvety texture that melts in the mouth – and no doming or uneven aeration in sight. Here, you work the butter into the dry ingredients until it resembles breadcrumbs or coarse sand. Then, you add the wet