chapter nine

Pastry doughs and batters

Pastry doughs are the foundation for a wide range of preparations. Pie dough, short dough, and puff pastry are only a few examples. All are made of the same basic ingredients, but different preparation techniques give them vastly different characteristics, making each suitable for different applications. Pastry batters such as crêpe batter or pâte à choux also serve as elemental preparations and are used in countless classical and contemporary desserts.

Rubbed doughs

The characteristic texture of rubbed doughs is developed by rubbing together the fat and the flour, leaving flakes of fat visible.

There are two basic types of rubbed doughs: *flaky* and *mealy*. The larger the flakes of fat are before the liquid is added, the flakier and crisper the baked crust will be. If the flakes of butter or shortening are rubbed into the dough just until they are about the size of peas, the dough will be what is often referred to as "flaky" pie dough. When the liquid is added, the dough is worked just enough to allow the moisture to be absorbed by the flour and just until the ingredients to come together, at which point the dough should be allowed to rest and cool under refrigeration.

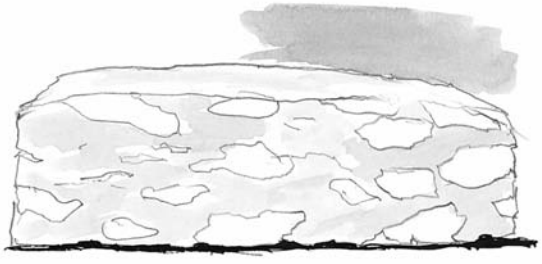
Flaky pie dough is best for pies, tarts, and other preparations where the filling is baked in the crust. It is not well suited for preparations where the crust is completely prebaked and allowed to cool and then a liquid filling is added that must set under refrigeration. After baking, the pockets that lend the flaky texture in this type of dough easily allow juices or liquids to leak from the crust.

If the butter or shortening is more thoroughly worked into the dough, until the mixture resembles coarse meal, the result will be what is sometimes referred to as a "mealy" dough. Mealy pie doughs have a finer, more tender texture than do flaky pie doughs. With the fat more evenly interspersed in the flour, its ability to shorten gluten strands present in the dough becomes more apparent, as the resulting dough is very tender. As with flaky pastry dough, mealy dough should be wrapped in plastic wrap and allowed to rest under refrigeration so the butter or other fat will firm and the gluten will relax before the dough is worked and rolled.

Mealy doughs are well suited for all types of pies and tarts, but most particularly for formulas that require a fully baked shell (see "Blind Baking Pie and Tart Shells," page 515) filled with a precooked filling, such as a cream, that will have to set under refrigeration before it can be sliced and served. They are also best for custard pies and for creating decorative tops such as lattice.

The basic steps for making rubbed doughs are:

1. Combine the dry ingredients. Pastry and all-purpose flours are, in general, ideal for the rubbed dough method. Cake flour is too high in starch, so it will not absorb enough water and will produce a dough with a pasty consistency. Bread flour, because of its high protein content, will absorb water quickly and in comparatively great quantities, developing gluten readily and in great amounts. This will make a dough that is tough



A cross section of flaky dough shows layers of fat interspersed throughout the dough.

and elastic. On the other hand, pastry flour and all-purpose flour have the proper balance of starch and protein, with the desired amount of water absorption and gluten development to produce a dough that is both flaky and tender.

2. Flake the firm fat into the flour. Fat contributes to the development of a flaky texture in pastry doughs. The amount of fat and the way it is added to the other ingredients in a formula have a significant impact on the finished baked good. Leaving the fat in pieces or chunks, rather than combining it thoroughly, gives doughs a flaky texture. When a rubbed dough is baked, the pieces of fat melt to create pockets in the interior of the dough. As the fat melts, steam is released from the moisture held in the fat. This steam expands the pockets, which then become set as the dough continues to bake, thus creating a flaky, textured baked good. The larger the flakes of fat left in the dough, the flakier the baked dough will be.

   Butter, lard, hydrogenated shortening, and other fats may be used in the production of rubbed doughs. All of these fats are solid at room temperature, and when cold have a firm consistency that makes it possible to use them for this method. Of all the fats, butter alone will yield the most flavor, but it is difficult to handle because it has a lower melting point than shortening and lard.

3. Add all the liquid at once to the flour-fat mixture and blend the dough quickly but thoroughly. Water is the most common liquid in rubbed dough formulas, but milk or cream may also be used. When substituting milk or cream for water in a rubbed dough formula, decrease the amount of fat to adjust for the fat present in the milk or cream.

   Always keep rubbed doughs cool during mixing for best results to achieve a flaky final texture. When butter or shortening is more thoroughly incorporated into the dough, resulting in a coarse meal rather than large flakes, the resulting baked dough becomes less flaky but more tender, as the even distribution of fat serves to shorten structure-providing gluten strands in the flour as it bakes.

4. Turn out the dough onto a lightly floured work surface.

5. Gather and press it together into a disk or a flat rectangle.

6. Wrap the dough tightly in plastic wrap and chill it under refrigeration until firm enough to work. The period of rest and cooling before working and rolling is vital to ensure that the fat does not become too soft nor the flour overworked.

   Soft fat prevents the separation of the baked dough into layers, and overworked flour can result in a tough, rather than tender, final baked good.

7. Always keep rubbed doughs cool during mixing and when working with them. The ideal working temperature is 60°F/16°C. If the dough becomes too warm, the fat may become too soft and absorb into the dough, destroying the layers in the dough.

TOP LEFT: Combine the fat into the flour by rubbing the chunks between your fingers to make smaller bits.

TOP RIGHT: The combined fat and flour will have a coarse to fine mealy texture, depending on how flaky you want the crust and what type of filling you plan to use.

BOTTOM LEFT: Add the water all at once to the mixture to form a "shaggy mass."

BOTTOM RIGHT: The prepared dough will have a smooth texture and appearance. Wrap it in plastic wrap and refrigerate to firm up and relax the dough before rolling it out.

Short dough

Short dough contains a high percentage of fat, which produces a very tender and crumbly crust. If worked excessively, however, a short dough will become tough. Cake flour is the preferred choice for short doughs because of its ability to absorb moisture. Short doughs include eggs, either whole eggs or yolks, and sometimes sugar, which contribute to the flavor and color of the dough, as well as to its tender texture.

The basic steps for making short doughs are:

1. Combine the sugar and butter and mix only until it forms a smooth paste to ensure even blending. Do not mix vigorously so that air is incorporated.
2. Add the eggs gradually, a few at a time, and blend them in carefully. To prevent the mixture from breaking or curdling, have the eggs and any other liquid ingredients at room temperature, and blend them in carefully.
3. Add the dry ingredients and mix at low speed until just combined. Overmixing will make the dough tough.
4. Turn out the dough onto a lightly floured work surface, shape it into a disk or flat triangle, and wrap tightly in plastic wrap. Refrigerate for at least 1 hour before using. If the dough appears to be somewhat rough or coarse when it is removed from the mixer, work it gently by hand just until it comes together. Refrigerate before using to allow the dough to firm up and the gluten to relax. The butter becomes soft during the mixing process, making short dough difficult to work with immediately after mixing. Allowing the gluten to relax will create a more tender, less tough baked dough.

Crumb crusts

Crumb crusts are simple, flavorful, quick-to-make crusts. They are typically used in two types of preparations: pudding or cream pies and cheesecakes. Graham crackers are most commonly used as the base for crumb crusts, but other types of cookies may be used for different flavors.

The crumbs are sweetened as necessary and blended with butter; sometimes a small amount of egg white is added to help make the crust hold together after baking. The crumb mixture is then pressed into an even layer into the pie or other baking pan and prebaked to evaporate some moisture and make the crust more flavorful and crisp.

Scale the crust into prepared pans and press into an even layer about ¼ in/6 mm thick. Crumb crusts should be baked at 350°F/177°C until set and light golden brown, about 7 minutes. Cool the crust completely before filling.

For pudding and cream pies, the filling is cooked, then poured into the cooled baked crust, and refrigerated until set. For cheesecakes, the batter is poured into the cooled baked crust and then baked until set.

Pâte à choux

Pâte à choux is a cooked batter created through the combination of liquid, butter, flour, and eggs. When finished it is piped into various shapes that, once baked, expand and dry into crisp hollow pastry. The basic steps for making pâte à choux are:

1. Combine the liquid and fat and bring to a rolling boil. Usually either water or milk is used as the liquid in the batter, and the two yield very different results. Milk will cause the pastry to darken more quickly in the oven before it has dried out enough to become crisp; that, along with the solids present in the milk, will produce more tender, flavorful pastry. When water is used, the temperature of the oven can be manipulated, starting with a very high temperature to encourage full expansion, and then a lower temperature to dry out the pastries, creating a fully dried pastry that will be very crisp and light.

2. Add the flour all at once, stirring constantly to prevent lumps from forming, and continue to cook until the mixture pulls away from the sides of the pan. The type of flour is also important. Flours with a higher percentage of protein are able to absorb more liquid and will allow for the addition of a greater amount of eggs, yielding a lighter finished product. Additionally, a flour with a higher protein content will develop more gluten strands, making a more elastic dough, which will also help create a lighter finished product. For these reasons, bread flour, which has a protein content of 12 to 13 percent, is best. All of the flour must be added to the boiling liquid at once and blended in very quickly to ensure the full hydration of the starch granules in the flour and the formation

LEFT: As pâte à choux is stirred and cooked, a film starts to develop on the bottom of the pot.
RIGHT: Properly mixed pâte à choux, after the eggs are fully incorporated

of a smooth paste. The mixture should be stirred quickly and vigorously. The precooking and agitation of the batter allows for greater moisture absorption as well as the development of the gluten in the flour, which creates light, crisp pastry.

3. Transfer the mixture to the bowl of a mixer and, using the paddle attachment, mix for a few moments to cool the batter slightly.

4. Add the eggs gradually, in three or four additions, mixing the dough until it is smooth again each time. Scrape the sides and the bottom of the bowl as necessary. The dough should have a pearl-like sheen and be firm enough to just hold its shape when piped.

Strudel dough

Strudel dough is a slightly enriched soft dough. Bread flour is used for strudel dough because of its higher protein content, which accounts for the development of the elasticity of the dough that allows it to be stretched to make thin layers of pastry. The dough is mixed well to develop the gluten and then allowed to rest in a warm place (cold dough has less elasticity and is therefore more difficult to work with). The dough is then stretched until extremely thin and transparent. Commercially made phyllo dough, another thin flaky dough, is often used in place of strudel dough.

Laminated doughs

Laminated doughs include croissant, puff pastry, and Danish. Proper layering (lamination) is vital, as it is the combination of fat and dough in even layers that causes expansion and creates the ultimate flaky texture characteristic of laminated doughs. When the dough is baked, the fat melts, creating pockets where released steam from the moisture in the dought acts to leaven the dough. As the steam leavens the pockets in between the dough layers, causing the product to expand and rise, the remaining fat "fries" the dough so that the air spaces are retained.

Creating the proper number of fat and dough layers is critical to the success of laminated doughs. With too few layers, the steam will escape and the pastry will not rise. Folding the dough too many times can be a problem because the layers of fat and dough merge together as the fat begins to become incorporated into the dough, rather than remaining as separate layers, thus preventing the dough from rising.

Folding may be the most important factor in making a laminated dough, as the distinct layers of fat and dough must be maintained throughout the process. The dough must be rolled out evenly and the corners kept squared throughout the lock-in (the stage at which the roll-in butter is introduced to the dough) and all subsequent folds to ensure proper layering.

The basic steps for laminated doughs are:

1. A previously prepared dough (the initial dough) is folded and rolled together with a block of fat called a roll-in. To prepare the dough, sift together the flours. Blend in the butter on low speed with a dough hook attachment until pea-size nuggets form.

2. Combine the water and salt; add all at once to the dough, and mix on low speed until smooth. Dough that is to be laminated must be mixed carefully. Overmixing can result in too much gluten formation, making the dough elastic and difficult to roll out.

3. Shape the dough into a rough square or rectangle. Transfer to a sheet pan lined with parchment paper, wrap the dough in plastic wrap, and allow it to relax under refrigeration for 30 to 60 minutes. The dough should be gently rolled into the desired shape for the lock-in before it is refrigerated to reduce the amount of manipulation necessary during lock-in and lamination. While the dough is resting, prepare the roll-in fat.

4. To prepare the roll-in, the butter should be worked, either by hand or carefully using a stand mixer, until it is smooth and malleable but not overly soft. A number of different types of fats may be used in lamination. However, butter lends the best flavor and mouthfeel.

5. Mix the butter and flour (if using) until smooth. A small amount of flour may be added to the butter to make it easier to work with and to absorb excess moisture in the butter. It is important that the fat be completely smooth, as any lumps will tear the dough as it is rolled in, preventing proper layering.

6. Transfer the roll-in to a sheet of parchment paper. Cover with a second sheet and roll into a rectangle. Square off the edges, cover with plastic wrap, and refrigerate until firm but still pliable. Do not allow the roll-in to become cold. The temperature of the roll-in is also very important. It should be the same consistency as the dough when the two are rolled together. The butter must not be allowed to become so soft that it begins to ooze from the dough as it is rolled, nor should it be so firm that it could tear the dough or break into bits during rolling. Before use, the roll-in may be allowed to stand at room temperature for a few minutes if it is too hard, or re-refrigerated if it becomes too soft.

7. To lock the roll-in into the dough, turn out the dough onto a lightly floured work surface and roll it into a square or rectangle, keeping the edges straight and the corners squared. The roll-in fat can be added to the dough using one of several methods: envelope, single-fold, or three-fold. For the *envelope method,* the dough is rolled into a square or a rectangle. The roll-in is rolled into a smaller square or rectangle, and placed diagonally in the center of the dough so that each corner points to the center of a side of the dough. The corners of the dough are then folded over the fat envelope-style so that they meet in the center.

   In the *single-fold method,* the roll-in is rolled into a rectangle that is half the size of the dough square or rectangle, and placed on one half of the dough, then the other half of the dough is folded over it and the edges are sealed to completely encase the roll-in fat.

   In the *three-fold method,* the fat is rolled into a rectangle that covers two-thirds of the dough. The third of the dough not covered with the roll-in fat is folded over to cover half of the roll-in, or the center of the rectangle, and then the remaining side (or third) is folded over that. The edges are then sealed to completely encase the roll-in fat.

8. Administer a four-fold. Cover the dough in plastic wrap and allow it to rest for 30 minutes under refrigeration. For a four-fold or book-fold, divide the sheet of pastry visually into quarters, and fold the outer quarters into the middle so that their edges meet. Then fold the dough over as if closing a book. This type of fold quadruples the number of layers in the dough each time.

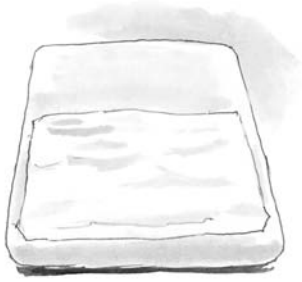
9. Turn the dough 90 degrees from its position before it was refrigerated and roll it out into a rectangle, making sure the edges are straight and the corners are squared. Administer a second fold (envelope, single-fold, or three-fold). Cover the dough in plastic wrap

and allow it to rest for 30 minutes under refrigeration. Repeat this process two more times for a total of four folds, turning the dough 90 degrees each time before rolling and allowing the dough to rest, covered in plastic wrap under refrigeration, for 30 minutes between each fold.

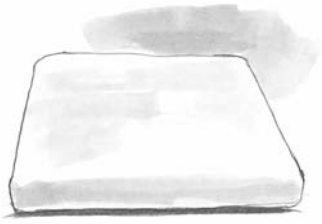
After the roll-in is added to the dough, each subsequent fold is usually either a three-fold or a four-fold. Each time, before folding and rolling the dough, brush any excess flour from its surface. When you fold the dough, the corners should squarely meet and the edges should be straight and perfectly aligned. After each fold, refrigerate the dough to allow it to relax and the butter to chill; the length of time the dough will need to rest will depend in large part on the temperature of the kitchen. For each fold, the dough is turned 90 degrees from the previous one to ensure that the gluten is stretched equally in all directions. Too much stress in one direction will make the dough difficult to roll and rise unevenly and misshapen during baking as the gluten contracts.

10. After completing the final fold, wrap the dough in plastic wrap and allow it to rest under refrigeration for 30 minutes before using.

Lock-in



The first step of a lock-in: Place the roll-in on one half of the dough.



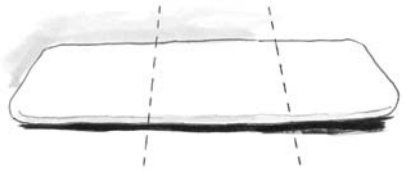
The second step of a lock-in: Fold the dough over the roll-in (envelope method).

Single-fold

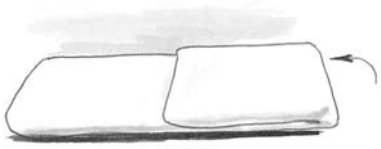
To administer a single-fold, divide the sheet of dough visually in half, and fold the dough over itself to form two layers. This type of fold doubles the number of layers in the pastry.

Three-fold

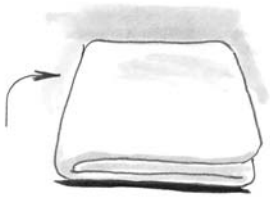
For a three-fold, divide the sheet of pastry visually into thirds, and fold one of the outer thirds of the dough over the middle third of the pastry. Fold the remaining outer third of the dough over the folded dough. This fold triples the number of layers in the dough each time.



Roll the dough to the proper dimensions and visualize it in thirds.



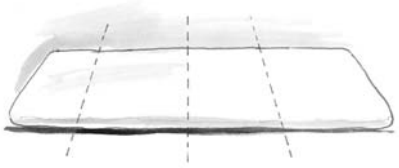
Fold one third of the dough over the center third.



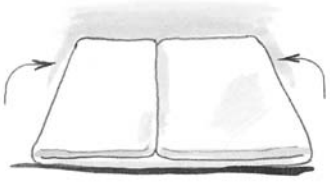
Fold the final third over the center. Refrigerate before rolling and folding again.

Four-fold

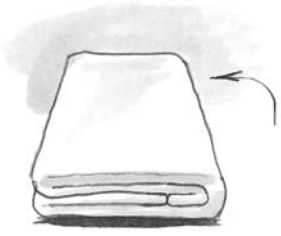
For a four-fold or book-fold, divide the sheet of pastry visually into quarters, and fold the outer quarters into the middle so that their edges meet. Then fold the dough over as if closing a book. This type of fold quadruples the number of layers in the dough each time.



Roll the dough to the proper dimensions and visualize it in uneven quarters.



Fold the two ends so they meet off center.



Fold the ends over to meet precisely. Refrigerate before rolling and folding again.

Inverted puff pastry

The same rules apply for inverted puff pastry as for all other laminated doughs. For inverted puff pastry, however, the butter layer, rather than the dough, is the outer layer. The dough is worked less when preparing inverse dough, for a more tender result.

Blitz puff pastry

When rolling out blitz dough, it is more important to maintain the ½-in/1-cm thickness of the dough than to maintain the precise dimensions of the rectangle. It is very important that the dough be rolled thin enough to flatten the butter sufficiently to achieve the “puff” effect when the dough is baked.

LEFT: With the first three-fold, the large butter chunks are very visible.
RIGHT: As the dough is rolled out after the final fold, you can see the smoothness of its final texture.

Because there is no roll-in, blitz puff pastry is easier and faster to make than traditional puff dough. However, the flavor and quality of blitz puff dough should be just as good as that of traditionally made dough, and a well-made blitz dough will have no significant textural differences from the traditional dough. The only time blitz puff pastry should not be substituted for traditionally made puff pastry is in an application such as vol-au-vents, where a very high, even rise is required.

Storage of laminated dough

To prepare puff pastry and other laminated doughs for freezing, and to ease their use when frozen, follow this simple procedure: Roll the dough approximately ¼ in/6 mm thick. If necessary, cut the dough into smaller sheets the size of a sheet pan (17¾ by 25¾ in/45 by 66 cm) or half sheet pan (12⅞ by 17¾ in/33 by 45 cm). Layer the sheets on a sheet pan, placing a sheet of appropriately sized parchment paper between each one. Wrap the pan tightly in plastic wrap and place in the freezer. (Use the same method for refrigerated storage.)

As you cut puff pastry, you may create scraps, or trim. They can be reserved to be rerolled and used in pastries where a dramatic high straight rise is not critical. Recommendations for the use of these scraps are the same as for blitz puff pastry; they should not be used for items that require a high and even rise. Layer the scraps on top of each other, keeping them flat to preserve the layers of fat and dough. Then the dough may be rolled and stored under refrigeration or frozen.

It is easy to see the layers in this chocolate puff pastry.

Basic pie dough

MAKES 6 LB 6 OZ/2.89 KG

All-purpose flour	3 lb	1.36 kg
Salt	1 oz	28 g
Butter, cut into pieces, chilled	2 lb	907 g
Cold water	16 fl oz	480 mL

1 Combine the flour and salt in the mixer. Add the butter and blend on medium speed with the dough hook attachment until pea-size nuggets form, about 3 minutes. Add the water all at once and continue to mix until the dough just comes together.

2 Turn out the dough onto a lightly floured work surface. Scale the dough as desired. Wrap tightly and refrigerate for at least 1 hour before rolling. (The dough can be held under refrigeration or frozen.)

VARIATION Replace 1 lb/454 g of the butter with an equal amount of shortening.

Pâte brisée

MAKES 4 LB/1.81 KG

Cake flour	2 lb 4 oz	1.02 kg
Salt	¾ oz	21 g
Butter, cubed	1 lb 2 oz	510 g
Water	8 fl oz	240 mL
Eggs	4 oz	113 g

1 Combine the flour and salt in the mixer. Add the butter and blend on medium speed with the dough hook attachment until a paste forms, about 4 minutes.

2 Combine the water and eggs. Add the egg and water mixture gradually to the flour while mixing on low speed, and mix until a shaggy mass forms. Tightly wrap the mixture with plastic wrap and allow it to rest under refrigeration for 1 hour.

3 Turn out the dough onto a lightly floured work surface. Gather and press it together. Scale the dough as desired. Wrap tightly and refrigerate for at least 1 hour before rolling. (The dough can be held under refrigeration or frozen.)

VARIATION **WHOLE WHEAT PÂTE BRISÉE** Substitute 4 oz/113 g whole wheat flour for 8 oz/227 g of the cake flour.

1-2-3 cookie dough

MAKES 6 LB/2.72 KG

Sugar	1 lb	454 g
Butter, soft	2 lb	907 g
Vanilla extract	1 tbsp	15 mL
Eggs, room temperature	8 oz	227 g
Cake flour, sifted	3 lb	1.36 kg

1 Cream together the sugar and butter with the paddle attachment, starting on low speed and increasing to medium speed, scraping down the bowl periodically, until smooth and light in color, about 5 minutes.

2 Combine the vanilla and eggs and add them gradually, scraping down the bowl and blending until smooth after each addition. Turn off the mixer and add the flour all at once. Mix on low speed until just blended. Do not overmix.

3 Turn out the dough onto a lightly floured work surface. Scale the dough as desired. Wrap tightly and refrigerate for at least 1 hour before rolling. (The dough can be held under refrigeration or frozen.)

VARIATIONS **LEMON COOKIE DOUGH** Add 1 tbsp/9 g finely grated lemon zest in step 1.

1-2-3 COOKIE DOUGH WITH GRAHAM CRACKER CRUMBS Replace 8 oz/227 g of the cake flour with an equal amount of graham cracker crumbs and add in step 2 with the flour.

Savory short dough

MAKES 4 LB/1.81 KG

Cake flour, sifted	2 lb	907 kg
Butter, soft	1 lb 4 oz	567 g
Salt	¾ oz	21 g
Eggs	10 oz	284 g

1 Combine the cake flour, butter, and salt and mix on medium speed with the paddle attachment until combined, about 5 minutes.

2 Add the eggs gradually, a few at a time, and mix until the dough is fully blended.

3 Turn out the dough onto a lightly floured work surface. Scale the dough as desired. Wrap tightly and refrigerate for at least 1 hour before rolling. (The dough can be held under refrigeration or frozen.)

Rich short dough

MAKES 6 LB 6 OZ/2.89 KG

Confectioners' sugar, sifted	1 lb	454 g
Butter, soft	2 lb	907 g
Vanilla extract	1 tsp	5 mL
Lemon zest, grated	1 tsp	3 g
Egg yolks, room temperature	1 lb	454 g
Cake flour, sifted	3 lb	1.36 kg

1 Cream together the sugar and butter with the paddle attachment, starting on low speed and increasing to medium speed, scraping down the bowl periodically, until smooth and light in color, about 5 minutes.

2 Combine the vanilla extract and lemon zest with the egg yolks and add them gradually, scraping down the bowl and blending until smooth after each addition. Turn off the mixer and add the flour all at once. Mix on low speed until just blended. Do not overmix.

3 Turn out the dough onto a lightly floured work surface. Scale the dough as desired. Wrap tightly and refrigerate for at least 1 hour before rolling. (The dough can be held under refrigeration or frozen.)

Chocolate short dough

MAKES 5 LB/2.27 KG

All-purpose flour	2 lb 3 oz	992 g
Dutch-process cocoa powder	3 oz	85 g
Butter, soft	1 lb 8 oz	680 g
Sugar	12 oz	340 g
Vanilla extract	1 tsp	5 mL
Eggs, room temperature	6 oz	170 g

1 Sift together the flour and cocoa powder.

2 Cream the butter and sugar with the paddle attachment, starting on low speed and increasing to medium speed, scraping down the bowl periodically, until smooth and light in color, about 5 minutes.

3 Combine the vanilla and eggs and add them gradually, scraping down the bowl and blending until smooth after each addition. Turn off the mixer and add the dry ingredients all at once, mixing on low speed until just blended. Do not overmix.

4 Turn out the dough onto a lightly floured work surface. Scale the dough as desired. Wrap tightly and refrigerate for at least 1 hour before rolling. (The dough can be held under refrigeration or frozen.)

Cornmeal short dough

MAKES 8 LB 6 OZ/3.80 KG

All-purpose flour, sifted	2 lb 4 oz	1.02 kg
Cornmeal	1 lb 4 oz	567 g
Salt	1½ tsp	7.5 g
Butter, soft	2 lb	907 g
Sugar	1 lb 4 oz	567 g
Egg yolks, room temperature	12 oz	340 g
Water, room temperature	4 fl oz	120 mL

1 Combine the flour, cornmeal, and salt.

2 Cream together the butter and sugar with the paddle attachment, starting on low speed and increasing to medium speed, scraping down the bowl periodically, until smooth and light in color, about 5 minutes. Add the egg yolks gradually, a few at a time, scraping down the bowl and blending until smooth after each addition. Turn off the mixer and add the dry ingredients all at once and mix on low speed until just blended. Add the water and blend just until incorporated.

3 Turn out the dough onto a lightly floured work surface. Scale the dough as desired. Wrap tightly and refrigerate for at least 1 hour before rolling. (The dough can be held under refrigeration or frozen.)

Almond paste short dough

MAKES 4 LB/1.81 KG

Almond paste, broken into pieces	1 lb 4 oz	567 g
Butter, soft	1 lb	454 g
Eggs, room temperature	6 oz	170 g
Cake flour, sifted	1 lb 4 oz	567 g

1 Cream together the almond paste and butter with the paddle attachment, starting on low speed and increasing to medium speed, scraping down the bowl periodically, until smooth and light in color, about 5 minutes. Add the eggs gradually, a few at a time, scraping down the bowl and blending until smooth after each addition. Turn off the mixer and add the flour all at once. Mix on low speed until just blended.

2 Turn out the dough onto a lightly floured work surface. Scale the dough as desired. Wrap tightly and refrigerate for at least 1 hour before rolling. (The dough can be held under refrigeration or frozen.)

Almond dough

MAKES 5 LB/2.27 KG

Pastry flour	1 lb 6 oz	624 g
Baking powder	½ oz	14 g
Butter, soft	1 lb 2 oz	510 g
Sugar	1 lb 2 oz	510 g
Vanilla extract	1½ tsp	7.50 mL
Eggs, room temperature	6 oz	170 g
Almonds, finely crushed	1 lb 2 oz	510 g

1 Sift together the flour and baking powder.

2 Cream the butter and sugar with the paddle attachment, starting on low speed and increasing to medium speed, scraping down the bowl periodically, until smooth and light in color, about 5 minutes. Combine the vanilla and eggs and add them gradually, scraping down the bowl and blending until smooth after each addition. Turn off the mixer and add the flour mixture and the almonds all at once. Mix on low speed until just blended. Do not overmix.

3 Turn out the dough onto a lightly floured work surface. Scale the dough as desired. Wrap tightly and refrigerate for at least 1 hour before rolling. (The dough can be held under refrigeration or frozen.)

Linzer dough

MAKES 4 TORTES (10 IN/25 CM EACH), OR 275 SMALL COOKIES

Butter	1 lb 8 oz	680 g
Sugar	1 lb 2 oz	510 g
Vanilla extract	½ tsp	2.50 mL
Eggs, room temperature	4½ oz	128 g
Cake flour	1 lb 14 oz	851 g
Ground cinnamon	½ oz	14 g
Fine cake crumbs	4 oz	113 g
Baking powder	½ oz	14 g
Hazelnuts, toasted and ground	12 oz	340 g

1 Cream the butter and sugar with the paddle attachment, starting on low speed and increasing to medium speed, until smooth, about 5 minutes.

2 Combine the vanilla and eggs and add them gradually, scraping down the bowl and blending until smooth after each addition.

3 Sift together the flour, cinnamon, cake crumbs, and baking powder. Turn off the mixer and add the dry ingredients all at once, mixing on low speed until just blended. Do not overmix.

4 Add the hazelnuts and mix until just blended.

5 Turn out the dough onto a lightly floured work surface. Scale the dough as desired. Wrap tightly and refrigerate for at least 1 hour before rolling. (The dough can be held under refrigeration or frozen.)

Graham cracker crust

MAKES 2 LB 2 OZ/964 G

Graham cracker crumbs	1 lb 8 oz	680 g
Light brown sugar	4 oz	113 g
Butter, melted	6 oz	170 g

1 Process the graham cracker crumbs, brown sugar, and butter in a food processor just until crumbly, about 5 minutes.

2 The crust is ready to be pressed into prepared pans and baked.

SCALING NOTE Use about 3 oz/85 g per 6-in/15-cm pan and 5 oz/142 g per 8-in/20-cm pan.

Pâte à choux

MAKES 3 LB/1.36 KG

Milk	8 fl oz	240 mL
Water	8 fl oz	240 mL
Salt	small pinch	small pinch
Butter, cubed	8 oz	227 g
Bread flour	12 oz	340 g
Eggs	1 lb	454 g

1 Bring the milk, water, salt, and butter to a boil over medium heat, stirring constantly. Once the butter has melted, add the flour all at once and stir vigorously to combine. Continue to stir until the mixture forms a mass and pulls away from the sides of the pan, about 3 minutes.

2 Transfer the mixture to the mixer and beat briefly on medium speed with the paddle attachment. Add the eggs 2 at a time, beating until smooth after each addition and checking the consistency of the dough. Stop adding eggs when the dough slowly slides down the paddle.

3 The pâte à choux is ready to be piped and baked (see "Piped Pastries" in Chapter 18, page 640).

NOTES For a drier and lighter blond pâte à choux, substitute an equal part of water for the milk.

For a shiny finish, egg wash the pâte à choux prior to baking.

VARIATION **CHOCOLATE PÂTE À CHOUX** Substitute cocoa powder for 2 oz/57 g of the flour and increase the amount of sugar by 1½ oz/43 g.

Crêpes

MAKES 45 TO 50 CRÊPES

Milk	24 fl oz	720 mL
Heavy cream	12 fl oz	360 mL
Eggs	1 lb 2 oz	510 g
Vegetable oil	1 fl oz	30 mL
Sugar	1½ oz	43 g
Salt	pinch	pinch
Flavorings (optional)	as needed	as needed
Bread flour	1 lb 2 oz	510 g
Butter, for cooking	as needed	as needed

1 Blend the milk, cream, eggs, oil, sugar, and salt in a bowl. Add the flavorings to the milk mixture, if using. Add the flour and whisk until evenly blended.

2 Strain the batter through a fine-mesh sieve. Let the batter rest under refrigeration for at least 30 minutes and up to 8 hours.

3 Melt a small amount of butter in a crêpe pan. Ladle just enough crêpe batter into the pan to cover the surface, rotating the pan to facilitate the spread of the batter over its surface as it is being ladled in.

4 Cook for about 2 minutes on each side, just until light golden brown. Transfer to a plate and layer between waxed paper. Cover the stack of finished crêpes with plastic wrap and refrigerate or freeze for later use.

NOTE Examples of flavorings are rum, Grand Marnier, vanilla, citrus zests, or mint.

Strudel dough

MAKES 1 LB 11¾ OZ/787 G

Bread flour	1 lb	454 g
Salt	1½ tsp	7.50 g
Water	13 fl oz	390 mL
Vegetable oil	2½ oz	71 g
Vegetable oil, for coating	as needed	as needed

1 Sift together the flour and salt. Transfer to the mixer. Add the water and oil and blend on low speed using a dough hook attachment until just blended. Mix on high speed until the dough is smooth, satiny, and very elastic, about 10 minutes.

2 Turn out the dough onto a work surface and gather it into a ball. Rub it with oil and wrap in plastic wrap. Let the dough rest at room temperature for 1 hour, or refrigerate it overnight before using. Allow the dough to come to room temperature before stretching. (See Apple Strudel, page 550.)

Butter puff pastry dough

MAKES 8 LB 12 OZ/3.97 KG

DOUGH		
Bread flour	2 lb	907 g
Pastry flour	8 oz	227 g
Salt	1 oz	28 g
Butter, soft	8 oz	227 g
Water, cold	18 fl oz	540 mL
ROLL-IN		
Butter, pliable (60°F/16°C)	2 lb 4 oz	1.02 kg
Bread flour	4 oz	113 g

1 To prepare the dough, place the flours, salt, butter, and water in the mixer and blend on low speed with the dough hook attachment until a smooth dough is formed. Shape the dough into a rough rectangle. Line a sheet pan with parchment paper and dust the paper lightly with flour. Transfer the dough to the sheet pan, wrap in plastic wrap, and refrigerate for 30 to 60 minutes.

2 To prepare the roll-in, blend the butter and flour on low speed with the paddle attachment until smooth, about 2 minutes. Transfer to a sheet of parchment paper. Form into a rectangle ½ in/1 cm thick. Cover with plastic wrap. Refrigerate until firm but still pliable. Do not allow the roll-in to become hard.

3 To lock the roll-in into the dough, turn out the dough onto a lightly floured work surface and roll it into a rectangle twice the size of the roll-in, keeping the edges straight and the corners squared. Administer a lock-in (see step 7, page 218).

4 Administer a four-fold (see page 220). Cover the dough with plastic wrap and allow it to rest for 30 to 45 minutes under refrigeration.

5 Turn the dough 90 degrees from its position before it was refrigerated and roll out into a rectangle 16 by 24 in/41 by 61 cm, making sure the edges are straight and the corners are squared. Administer a second four-fold. Cover the dough in plastic wrap and allow it to rest under refrigeration for 30 minutes. Repeat this process two more times for a total of four four-folds, turning the dough 90 degrees each time before rolling and allowing the dough to rest, covered in plastic wrap, under refrigeration for 30 minutes between each fold.

6 After completing the final fold, wrap the dough in plastic wrap and allow it to rest under refrigeration for 30 minutes before using.

VARIATIONS **CHOCOLATE PUFF PASTRY** Substitute Dutch-process cocoa powder for 2 oz/57 g of the flour for the roll-in.

GARLIC PUFF PASTRY Add to the roll-in when blending the butter with the flour: 1 oz/28 g chopped garlic, 1½ oz/43 g chopped shallot, ¾ oz/21 g chopped parsley, and ½ oz/14 g salt.

Inverse puff pastry

MAKES 11 LB 13 OZ/5.36 KG

WATER DOUGH		
Bread flour	3 lb	1.36 kg
Salt	1½ oz	43 g
Water	28 fl oz	840 mL
Butter, soft	8 oz	227 g
BUTTER DOUGH		
Butter, cold	4 lb 8 oz	2.04 kg
Cake flour	2 lb	907 g

1 To prepare the water dough, combine the flour, salt, water, and butter on medium speed with the dough hook attachment until completely blended, about 8 minutes.

2 Form the dough into a rough rectangle 8 by 24 in/20 by 61 cm and transfer it to a parchment-lined sheet pan. Press the dough into the sheet pan, wrap it tightly in plastic wrap, and let it relax under refrigeration for 30 to 60 minutes.

3 To prepare the butter dough, blend the butter and flour on high speed with the dough hook attachment until smooth, about 2 minutes. Transfer the dough to a sheet of parchment paper. Cover with a second sheet and roll into a rectangle 16 by 24 in/41 by 61 cm. Square off the edges using your hands or the rolling pin, cover with plastic wrap, and refrigerate until firm but still pliable.

4 To lock the water dough into the butter dough, turn the butter dough out onto a lightly floured work surface. Place the water dough on half of the butter dough rectangle and fold the butter dough over to encase the water dough. Press the edges together to seal. Turn the dough 90 degrees and roll out into a rectangle 16 by 24 in/41 by 61 cm, making sure the edges are straight and the corners are squared.

5 Administer a four-fold (see page 220) and roll out to the same dimensions as before.

6 Administer a second four-fold and roll out to the same dimensions as before. Cover the dough in plastic wrap and allow it to rest for 1 hour under refrigeration.

7 Make two more book folds, resting the dough between folds for a total of four four-folds, refrigerating and turning the dough 90 degrees each time before rolling. After completing the final fold, wrap the dough in plastic wrap and allow it to firm under refrigeration for at least 2 hours. (The dough can be held under refrigeration or frozen.)

Blitz puff pastry

MAKES 5 LB/2.27 KG

Cake flour	1 lb	454 g
Bread flour	1 lb	454 g
Butter, 1-in/3-cm cubes, chilled	2 lb	907 g
Salt	¾ oz	21 g
Water, cold	18 fl oz	540 mL

1 Combine the cake and bread flour in the mixer. Add the butter and toss with your fingertips until the butter is coated with flour. Combine the salt and water and add to the flour all at once. Mix on low speed with the dough hook attachment until the dough forms a shaggy mass.

2 Tightly cover the mixture with plastic wrap and let it to rest under refrigeration, until the butter is firm but not brittle, about 20 minutes.

3 Place the shaggy mass on a lightly floured work surface and roll out into a rectangle that is ½ in/1 cm thick and approximately 12 by 30 in/30 by 76 cm.

4 Administer a four-fold (see page 220), roll out the dough to the same dimensions, and administer a second four-fold. Tightly wrap the dough in plastic wrap and allow it to rest under refrigeration for 30 minutes.

5 Repeat this process two more times for a total of four four-folds, refrigerating and turning the dough 90 degrees each time before rolling. After completing the final fold, wrap the dough in plastic wrap and allow it to firm under refrigeration for at least 1 hour. (The dough can be held under refrigeration or frozen.)

Croissant dough

MAKES 5 LB 8 OZ/2.26 KG

DOUGH		
Milk	1.58 lb	171 g
Malt syrup	4 fl oz	120 mL
Bread flour	2 lb 8 oz	1.13 g
Yeast	1 oz	28 g
Sugar	4 oz	113 g
Butter, pliable	5 oz	142 g
ROLL-IN		
Butter, pliable	1 lb 8 oz	680 g

1 To prepare the dough, place the milk, malt syrup, flour, yeast, sugar, and butter in the mixer, making sure the butter is pliable. Mix 4 minutes at low speed with the paddle attachment, scraping the bowl periodically. Mix an additional 2 minutes at high speed.

2 Turn out the dough onto a lightly floured surface. Cover the dough and ferment at 75°F/24°C, about 2 hours.

3 Fold over the dough and spread it into a rectangle 12 by 16 in/30 by 41 cm on a parchment-lined sheet pan. Retard in the refrigerator.

4 Prepare the roll-in butter by pounding it with a rolling pin to make it pliable and working to half the size of the dough; wrap and refrigerate overnight.

5 Remove the roll-in butter and if necessary make it pliable by pounding with a rolling pin.

6 Lock in the butter (see page 218). Make sure the edges are straight and the corners are squared.

7 Immediately administer a four-fold (see page 220). Wrap the dough in plastic wrap and let it rest in the refrigerator for 30 minutes.

8 Administer a three-fold (see page 220). Wrap the dough in plastic wrap and let it rest in the refrigerator for 30 minutes.

9 Administer a final three-fold. Wrap the dough in plastic wrap and place it in the freezer for 2 hours. Refrigerate before shaping and baking.

Danish dough

MAKES 10 LB 8 OZ/4.76 KG

DOUGH		
Bread flour	4 lb	1.81 kg
Sugar	7¼ oz	206 g
Instant dry yeast	1 oz	28 g
Salt	1 oz	28 g
Butter, soft	6 oz	170 g
Eggs	13 oz	369 g
Milk	28 fl oz	840 mL
ROLL-IN		
Butter, cold	3 lb	1.36 kg

1 To prepare the dough, blend the flour, sugar, yeast, salt, butter, eggs, and milk on low speed with the dough hook attachment, about 2 minutes. Increase to medium speed and mix for an additional 4 minutes.

2 Turn out the dough onto a lightly floured surface. Cover the dough and ferment at 75°F/24°C until doubled in volume, about 2 hours.

3 Fold over the dough and spread it into a rectangle 12 by 16 in/30 by 41 cm on a parchment-lined sheet pan. Wrap the dough tightly with plastic wrap and let it rest overnight or for 8 hours under refrigeration to completely relax the gluten.

4 Using a rolling pin, pound out the roll-in butter to make it pliable and lump-free. Shape it into a rectangle 8 by 24 by ½ in/20 by 61 by 1 cm. Chill the butter slightly.

5 To lock the roll-in into the dough, turn out the dough onto a lightly floured work surface and roll it into a rectangle 16 by 24 by ½ in/41 by 61 by 1 cm, keeping the edges straight and the corners squared. Place the roll-in on half of the dough rectangle. Fold the remaining half of the dough over the roll-in. Seal the edges, turn the dough 90 degrees, and roll into a rectangle 16 by 24 by ½ in/41 by 61 by 1 cm, making sure the edges are straight and the corners are squared.

6 Administer a four-fold (see page 220). Cover the dough in plastic wrap and allow it to rest for 30 minutes under refrigeration.

7 Turn the dough 90 degrees from its position before it was refrigerated and roll into a rectangle 16 by 24 by ½ in/41 by 61 by 1 cm thick, making sure the edges are straight and the corners are squared. Administer a three-fold (see page 220). Cover the dough in plastic wrap and let it to rest for 30 minutes under refrigeration. Repeat this process one more time for a total of two three-folds.

8 After completing the final fold, wrap the dough in plastic wrap and allow it to rest under refrigeration for at least another 30 minutes before using. (The dough can be held under refrigeration or frozen.)

Fig Newton dough

MAKES 7 LB 14 OZ/3.57 KG

Dried figs	15 oz	425 g
Golden raisins	15 oz	425 g
Sliced almonds	15 oz	425 g
Cake flour	1 lb 4 oz	567 g
Baking soda	1 tbsp	9 g
Butter	1 lb 8 oz	680 g
Sugar	1 lb	454 g
Salt	1 tsp	5 g
Vanilla extract	1 tbsp	15 mL
Eggs	4 oz	113 g
Milk	2 fl oz	60 mL
Oats	15 oz	425 g

1 Finely chop the figs, raisins, and almonds.

2 Sift together the flour and baking soda.

3 Cream the butter, sugar, salt, and vanilla on medium speed with the paddle attachment, until smooth, about 5 minutes.

4 Add the eggs one at a time, making sure each addition is fully incorporated before adding more. Scrape down the sides of the bowl as needed. Blend in the milk.

5 Add the sifted dry ingredients slowly, mixing on low speed just until combined.

6 Add the fruit-nut mixture and the oats and mix on low speed to combine.

7 Turn out the dough onto a lightly floured work surface. Scale the dough as desired. The dough is ready to roll and fill or may be wrapped tightly and refrigerated for up to 1 week.