

Chapter 30



Assorted yeast breads.

Yeast Products

In its simplest form, bread is nothing more than a dough of flour and water, leavened by yeast and baked. In fact, some hard-cruste French breads contain *only* these ingredients, plus salt. Other kinds of bread contain additional ingredients, including sugar, shortening, milk, eggs, and flavorings. But flour, water, and yeast are still the basic building blocks of all breads.

Yet for something that seems so simple, bread can be one of the most exacting and complex products to make. Success in bread making depends largely on your understanding of two basic principles: gluten development, which we discussed in the previous chapter, and yeast fermentation, which we have touched on and which we study in greater detail here.

This chapter focuses on the production of many kinds of yeast products, including breads, dinner rolls, sweet rolls, Danish pastry, and croissants.

After reading this chapter, you should be able to

1. Prepare breads and dinner rolls.
2. Prepare sweet dough products.
3. Prepare Danish pastry and croissants.

UNDERSTANDING YEAST PRODUCTS

Yeast Product Types

Although all yeast doughs are essentially made according to the same basic principles, it is useful to divide yeast products into categories such as the following.

Regular Yeast Dough Products

LEAN DOUGH PRODUCTS

A *lean dough* is one that is low in fat and sugar.

- Hard-crust breads and rolls, including French and Italian breads, kaiser rolls and other hard rolls, and pizza. These are the leanest of all bread products.
- Other white breads and dinner rolls. These have a higher fat and sugar content and, sometimes, also contain eggs and milk solids. Because they are slightly richer, they generally have soft crusts.
- Whole-grain breads. Whole wheat and rye breads are the most common. Many varieties of rye bread are produced with light or dark flours or with pumpernickel flour and various flavorings, especially molasses and caraway seeds.

RICH DOUGH PRODUCTS

There is no exact dividing line between rich and lean doughs but, in general, rich doughs contain higher proportions of fat, sugar, and, sometimes, eggs.

- Nonsweet breads and rolls, including rich dinner rolls and brioche. These have a high fat content but low enough sugar to be served as dinner breads. Brioche dough is especially rich, made with a high proportion of butter and eggs.
- Sweet rolls, including coffee cakes and many breakfast and tea rolls. These have high fat and sugar and, often, eggs. They are usually made with a sweet filling or topping.

Rolled-In Yeast Dough Products

Rolled-in doughs, also called *laminated doughs*, are those in which a fat is incorporated into the dough in many layers by means of a rolling and folding procedure. The alternating layers of fat and dough give the baked product a flaky texture.

- Nonsweet rolled-in doughs: croissants.
- Sweet rolled-in doughs: Danish pastry.

Mixing Methods

Mixing yeast doughs has three main purposes:

1. To combine all ingredients into a uniform, smooth dough.
2. To distribute the yeast evenly throughout the dough.
3. To develop gluten.

Three principal mixing methods are used for yeast doughs: the *straight dough method*, the *modified straight dough method*, and the *sponge method*.

Straight Dough Method

There is only one step in this method, as practiced by many bakers.

Some bakers dissolve the compressed yeast in some of the water before adding the remaining ingredients. Others omit this step. Active dry yeast, on the other hand, must be rehydrated before mixing.

The advantage of softening the yeast in water is that it helps ensure that the yeast is evenly distributed in the dough.

Procedure: Straight Dough Mixing Method

If desired, rehydrate yeast in all or part of the water. Combine all ingredients in the mixing bowl and mix.

Modified Straight Dough Method for Rich Doughs

For rich sweet doughs, the method is modified to ensure even distribution of the fat and sugar.

Procedure: Modified Straight Dough Method

1. Soften the yeast in part of the water.
2. Combine the fat, sugar, salt, milk solids, and flavorings. Mix until well combined, but do not whip until light.
3. Add the eggs gradually, as fast as they are absorbed.
4. Add the liquid and mix briefly.
5. Add the flour and yeast. Mix into a smooth dough.

Sponge Method

Sponge doughs are prepared in two stages.

Procedure: Sponge Method

1. Combine the liquid (or part of the liquid), the yeast, and part of the flour (and, sometimes, part of the sugar). Mix into a thick batter or soft dough. Let ferment until double in bulk.
2. Punch down and add the rest of the flour and remaining ingredients. Mix to a uniform, smooth dough.

KEY POINTS TO REVIEW

- What are the steps in the straight dough method?
- What are the steps in the modified straight dough method?
- What are the steps in the sponge method?

Steps in Yeast Dough Production

The production of yeast breads involves 12 basic steps. These steps are applied to yeast products in general, with variations depending on the particular product.

- | | |
|-----------------------------------|-----------------------|
| 1. Scaling ingredients | 7. Benching |
| 2. Mixing | 8. Makeup and panning |
| 3. Bulk fermentation | 9. Proofing |
| 4. Folding or punching | 10. Baking |
| 5. Scaling or portioning of dough | 11. Cooling |
| 6. Rounding | 12. Storing |

As you can see, mixing of ingredients into a dough is only one part of a complex procedure.

Scaling Ingredients

All ingredients must be weighed accurately. The only items that may be measured by volume are water, milk, and eggs, which may be scaled at 1 pint per pound (1 L per kg).

Mixing

Use the *dough arm* attachment when using a vertical mixer. Mix for the specified time.

The first two purposes of mixing—combining the ingredients into a dough and distributing the yeast—are accomplished during the first part of mixing. The remaining time is necessary to develop the gluten. Overmixed and undermixed doughs have poor volume and texture. (Review “Gluten Development,” p. 923.)

It is necessary for you to learn to tell by sight and feel when a dough is thoroughly mixed. This can be done only through experience and with the guidance of your instructor. A properly developed dough feels smooth and elastic. A lean dough should not be sticky.

Sometimes it is necessary to add a little more flour if the dough hasn't lost its stickiness after most of the mixing time has passed.

Rich doughs are generally undermixed slightly because greater tenderness is desired for these products.

Note: Mixing speeds and times given in bread formulas in this book are guidelines only. Small mixers might be damaged if they are run at too high a speed with a stiff dough. In such cases, use a lower speed and extend the mixing time as necessary. Depending on the mixer, developing a dough at first or slow speed requires about twice as much mixing time as at second speed. Follow the manufacturer's recommendations.

Bulk Fermentation

Fermentation is the process by which yeast acts on the sugars and starches in the dough to produce carbon dioxide gas and alcohol.

Gluten becomes smoother and more elastic during fermentation. An underfermented dough does not develop proper volume, and the texture will be coarse. A dough that ferments too long or at too high a temperature becomes sticky, hard to work, and slightly sour.

An underfermented dough is called a *young dough*. An overfermented dough is called an *old dough*.

Doughs with weak gluten, such as rye doughs and rich doughs, are usually underfermented or “taken to the bench young.”

Procedure for Fermenting Yeast Doughs

1. Place the dough in a lightly oiled container and oil the surface to prevent a crust from forming. (This may not be necessary if humidity is high—about 75 percent.)
2. Cover the container lightly and let the dough rise at a temperature of about 80°F (27°C).
3. Fermentation is complete when the dough has doubled in volume. If fermentation is complete, a dent will remain after the hand is pressed into the top of the dough.

Folding or Punching

Punching is *not* hitting the dough with your fist. It is a method of deflating the dough that *expels carbon dioxide, redistributes the yeast* for further growth, *relaxes the gluten*, and *equalizes the temperature* throughout the dough.

A second fermentation and punching may or may not take place, depending on the product.

Procedure for Punching Yeast Doughs

Pull up the dough on all sides, fold over the center, and press down. Then turn the dough upside down in the bowl.

Scaling or Portioning of Dough

Using a baker's scale, divide the dough into pieces of uniform weight, according to the product being made.

During scaling, allowance is made for weight loss due to evaporation of moisture in the oven. This weight loss is 10 to 13 percent of the weight of the dough. Allow an extra 1½ to 2 ounces of dough for each 1 pound of baked bread, or 50 to 65 grams per 500 grams baked bread.

Rounding

After scaling, the pieces of dough are shaped into smooth, round balls. This procedure forms a kind of skin by stretching the gluten on the outside of the dough into a smooth layer. Rounding simplifies later shaping of the dough and also helps retain gases produced by the yeast.

Your instructor will demonstrate rounding techniques. Machines are also available that divide and round portions of dough automatically. Figure 30.1 illustrates a piece of dough being rounded by hand.



Figure 30.1 To round a piece of dough, roll it on the bench with the palm of your hand. As you rotate the dough, use the edge of your hand to pinch the dough against the bench. This movement stretches the surface of the dough so it is completely smooth except for a seam at the bottom where it was pinched together.

Benching

Rounded portions of dough are allowed to rest on the bench 10 to 15 minutes. This relaxes the gluten to make shaping the dough easier. Also, fermentation continues during this time.

Makeup and Panning

The dough is shaped into loaves or rolls and placed in pans or on baking sheets. For all loaves and rolls, the seam must be centered on the bottom to avoid splitting during baking.

Breads and rolls take a great many forms. A variety of shapes and techniques is presented in the next section.

Proofing

Proofing is a continuation of the process of yeast fermentation, which increases the volume of the shaped dough. Bakers use different terms to distinguish between fermentation of the mixed dough and proofing of the made-up product before baking. Proofing temperatures are generally higher than fermentation temperatures.

If a proof box is not available, come as close to these conditions as you can by covering the products to retain moisture and setting them in a warm place.

Underproofing results in poor volume and dense texture. Overproofing results in coarse texture and some loss of flavor.

Rich doughs are slightly underproofed because their weaker gluten structure will not withstand much stretching.

Procedure for Proofing Yeast Dough Products

Place the panned products in a proof box at 80° to 85°F (27° to 30°C) and 70 to 80 percent humidity, as indicated in the formula. Proof until double in bulk.

Baking

As you recall from the previous chapter, many changes take place in a dough during baking. The most important changes are these:

1. **Oven spring**, which is the rapid rising in the oven due to production and expansion of trapped gases as a result of the oven heat. The yeast is very active at first but is killed when the temperature inside the dough reaches 140°F (60°C).

2. Coagulation of proteins and gelatinization of starches. In other words, the product becomes firm and holds its shape.
3. Formation and browning of the crust.

Load the ovens carefully, as proofed doughs are fragile until they become set by baking.

Oven temperatures must be adjusted for the product being baked. Rolls spaced apart are baked at a higher temperature than large loaves so they become browned in the short time it takes to bake them. In general, lean breads such as those popular in North America are baked at 400° to 425°F (200° to 220°C), while some French breads and rolls are baked at 425° to 475°F (220° to 245°C). Rich doughs and sweet doughs are baked at a lower temperature, 350° to 400°F (175° to 200°C), because their fat, sugar, and milk content makes the crust brown faster.

Hard-crust breads are baked with steam injected into the oven during the first part of the baking period. This aids the formation of a thin, crisp crust.

Rye breads also benefit from baking with steam for the first 10 minutes.

A break on the side of the loaf is caused by continued rising after the crust is formed. To allow for this final expansion, hard-crust breads are cut or scored before baking by making shallow slashes on the top of the loaf with a sharp knife or razor.

Small rolls bake completely without a break, so they are usually not scored.

Baking times vary considerably, depending on the product. A golden-brown crust color is the normal indication of doneness. Loaves that are done sound hollow when thumped.

Cooling

After baking, bread must be removed from pans and cooled rapidly on racks to allow the escape of excess moisture and alcohol created during fermentation.

Rolls baked apart from each other on sheets may be left on them because they will get adequate air circulation.

If soft crusts are desired, breads may be brushed with melted shortening before cooling.

Do not cool in a draft, or crusts may crack.

Storing

Breads to be served within 8 hours may be left on racks. For longer storage, wrap cooled breads in moistureproof bags to retard staling. Bread must be thoroughly cooled before wrapping, or moisture will collect inside the bags.

Wrapping and freezing maintains quality for longer periods. Refrigeration, on the other hand, increases staling.

Hard-crust breads should not be wrapped (unless frozen), or the crusts will soften.

Because of the complexity of bread production, many things can go wrong. To remedy common bread faults, check Table 30.1 for possible causes and correct your procedures.

Table 30.1 Bread Faults and Their Causes

FAULT	CAUSES
Shape	
Poor volume	Too much salt Too little yeast Weak flour Under- or overmixing Improper fermentation or proofing Oven too hot
Too much volume	Too little salt Too much yeast Too much dough scaled Overproofing

FAULT	CAUSES
Shape <i>(continued)</i>	
Poor shape	Too much liquid Improper molding or makeup Improper proofing Too much steam in oven
Split or burst crust	Overmixing Underfermentation Improper molding—seam not on bottom Oven too hot Not enough steam in oven
Texture and crumb	
Too dense or close-grained	Too little yeast Underproofing Too much salt Too little liquid
Too coarse or open	Too much yeast Too much liquid Incorrect mixing time Improper fermentation Overproofing Pan too large
Streaked crumb	Improper mixing procedure Poor molding or makeup techniques Too much flour used for dusting
Poor texture or crumbly	Fermentation time too long or too short Overproofing Baking temperature too low Flour too weak Too little salt
Gray crumb	Fermentation time too long or temperature too high
Crust	
Too dark	Too much sugar or milk Underfermentation (young dough) Oven temperature too high Baking time too long Insufficient steam at beginning of baking
Too pale	Too little sugar or milk Overfermentation (old dough) Overproofing Oven temperature too low Baking time too short Too much steam in oven
Too thick	Too little sugar or fat Overfermentation (old dough) Baked too long and/or at too low a temperature Too little steam
Blisters on crust	Too much liquid Improper fermentation Improper shaping of loaves
Flavor	
Flat taste	Too little salt
Poor flavor	Inferior, spoiled, or rancid ingredients Poor bakeshop sanitation Under- or overfermentation

DOUGH FORMULAS AND TECHNIQUES

Bread and Roll Formulas

The basic yeast dough mixing and baking methods discussed earlier in this chapter apply to the following formulas. Therefore, the methods are not repeated in detail for each formula. The basic procedures are indicated, and you should refer to the first part of this chapter if you need to refresh your memory for details.

Makeup techniques for loaves, rolls, and other items are described and illustrated after this recipe section.

Hard Rolls

INGREDIENTS	U.S.	METRIC	PERCENTAGE
Water	1 lb 10 oz	740 g	59 %
Yeast, fresh	1.5 oz	45 g	3.5 %
Bread flour	2 lb 12 oz	1250 g	100 %
Salt	1 oz	30 g	2.25 %
Sugar	1 oz	30 g	2.25 %
Shortening	1 oz	30 g	2.25 %
Egg whites	1 oz	30 g	2.25 %
<i>Yield:</i>	<i>4 lb 11 oz</i>	<i>2155 g</i>	<i>171 %</i>

Per 1 roll: Calories, 90; Protein, 3 g; Fat, 1 g (10% cal.); Cholesterol, 0 mg; Carbohydrates, 17 g; Fiber, 1 g; Sodium, 200 mg.

PROCEDURE

Mixing:

Straight dough method.

10 minutes, 2nd speed (see Note, p. 940).

Fermentation:

About 1 hour at 80°F (27°C).

Scaling and makeup:

Rolls—1 lb (500 g) per dozen.

French-type loaf—18 oz (550 g) per loaf.

See makeup technique after recipe section.

Dock after proofing. Brush with water.

Baking:

425°F (220°C). Steam for first 10 minutes.

Soft Rolls

INGREDIENTS	U.S.	METRIC	PERCENTAGE
Water	1 lb 9 oz	750 g	60 %
Yeast, fresh	1.5 oz	44 g	3.5 %
Bread flour	2 lb 10 oz	1250 g	100 %
Salt	0.8 oz	25 g	2 %
Sugar	4 oz	125 g	9.5 %
Nonfat milk powder	2 oz	60 g	4.75 %
Shortening	2 oz	60 g	4.75 %
Butter or margarine	2 oz	60 g	4.75 %
<i>Yield:</i>	<i>4 lb 15 oz</i>	<i>2374 g</i>	<i>189 %</i>

Per 1 roll: Calories, 120; Protein, 3 g; Fat, 2.5 g (20% cal.); Cholesterol, 0 mg; Carbohydrates, 20 g; Fiber, 0.5 g; Sodium, 190 mg.

PROCEDURE

Mixing:

Straight dough method.

10–12 minutes at 2nd speed (see Note, p. 940).

Fermentation:

1½ hours at 80°F (27°C).

Scaling and makeup:

16–20 oz (450–600 g) per dozen rolls.

See makeup techniques after recipe section.

Baking:

400°F (200°C).

French Bread

INGREDIENTS	U.S.	METRIC	PERCENTAGE
Water	1 lb 12 oz	875 g	58 %
Yeast, fresh	1.5 oz	45 g	3 %
Bread flour	3 lb	1500 g	100 %
Salt	1 oz	30 g	2 %
<i>Yield:</i>	<i>4 lb 14 oz</i>	<i>2450 g</i>	<i>163 %</i>

Per 1 ounce (28.35 g): Calories, 60; Protein, 2 g; Fat, 0.5 g (7% cal.); Cholesterol, 0 mg; Carbohydrates, 13 g; Fiber, 0 g; Sodium, 140 mg.

PROCEDURE

Mixing:

Straight dough method. Dissolve yeast in water before adding flour and salt.

3 minutes at 2nd speed; rest 2 minutes; 3 minutes more at 2nd speed (see Note, p. 940).

Fermentation:

1½ hours at 80°F (27°C).

Punch down.

1 hour at 80°F (27°C).

Scaling and makeup:

French loaves—12 oz (350 g).

Round loaves—18 oz (550 g).

Rolls—16–20 oz (450–600 g) per dozen.

See makeup techniques after recipe section.

Baking:

400°F (200°C). Steam for first 10 minutes.

White Pan Bread

INGREDIENTS	U.S.	METRIC	PERCENTAGE
Water	1 lb 8 oz	750 g	60 %
Yeast, fresh	1.5 oz	45 g	3.75 %
Bread flour	2 lb 8 oz	1250 g	100 %
Salt	1 oz	30 g	2.5 %
Sugar	1.5 oz	45 g	3.75 %
Nonfat milk powder	2 oz	60 g	5 %
Shortening	1.5 oz	45 g	3.75 %
<i>Yield:</i>	<i>4 lb 7 oz</i>	<i>2225 g</i>	<i>178 %</i>

Per 1 ounce (28.35 g): Calories, 70; Protein, 2 g; Fat, 1 g (13% cal.); Cholesterol, 0 mg; Carbohydrates, 13 g; Fiber, 0 g; Sodium, 160 mg.

PROCEDURE

Mixing:

Straight dough method.

10 minutes at 2nd speed (see Note, p. 940).

Fermentation:

1 hour at 80°F (27°C).

Makeup:

Pan loaves. See makeup techniques after recipe section.

Baking:

400°F (200°C).

VARIATION

Whole Wheat Bread

Prepare basic White Pan Bread using

Bread flour	1 lb	500 g	40 %
Whole wheat flour	1 lb 8 oz	750 g	60 %

Rye Bread and Rolls



INGREDIENTS	U.S.	METRIC	PERCENTAGE
Water	1 lb 8 oz	750 g	60 %
Yeast, fresh	1.5 oz	45 g	3.75 %
Rye flour	1 lb	500 g	40 %
Bread flour	1 lb 8 oz	750 g	60 %
Salt	1 oz	30 g	2.5 %
Shortening	1 oz	30 g	2.5 %
Molasses	1 oz	30 g	2.5 %
Caraway seeds	0.5 oz	15 g	1.25 %
<i>Yield:</i>	<i>4 lb 4 oz</i>	<i>2150 g</i>	<i>172 %</i>

Per 1 ounce (28.35 g): Calories, 60; Protein, 2 g; Fat, 1 g (14% cal.); Cholesterol, 0 mg; Carbohydrates, 12 g; Fiber, 2 g; Sodium, 160 mg.

PROCEDURE

Mixing:

Straight dough method.

5–6 minutes at 2nd speed (see Note, p. 940).

Fermentation:

1 hour at 80°F (27°C).

Scaling and makeup:

1 lb (500 g) per pan loaf.

1 lb (500 g) per dozen rolls.

See makeup techniques after recipe section.

Baking:

400°F (200°C). Steam for first 10 minutes.

Focaccia



INGREDIENTS	U.S.	METRIC	PERCENTAGE
Water	1 lb 8 oz	750 g	60 %
Yeast, fresh	1 oz	35 g	2.75 %
Bread flour	2 lb 8 oz	1250 g	100 %
Salt	0.7 oz (3½ tsp)	20 g	1.75 %
Sugar	0.2 oz (1¼ tsp)	6 g	0.5 %
Olive oil	2 oz	60 g	5 %
<i>Yield:</i>	<i>4 lb 3 oz</i>	<i>2121 g</i>	<i>170 %</i>

Per 1 ounce (28.35 g): Calories, 70; Protein, 2 g; Fat, 1 g (13% cal.); Cholesterol, 0 mg; Carbohydrates, 12 g; Fiber, 1 g; Sodium, 115 mg.

PROCEDURE

Mixing:

Straight dough method.

8 minutes at 1st speed (see Note, p. 940).

Fermentation:

1½ hours at 80°F (27°C) or 2 hours at 75°F (24°C).

Makeup:

Oil sheet pans with olive oil. Roll out dough to about ¾ in. (2 cm) thick and place in pans (see **Figure 30.2**). Brush tops generously with olive oil. After proofing, press dimples into the dough at approximately 3-in. (8-cm) intervals.

Baking:

425°F (220°C). Steam for first 10 minutes.

VARIATIONS

Rosemary Focaccia

After pressing in the dimples, sprinkle the top with rosemary (preferably fresh) and coarse salt.

Olive Focaccia

Mix 30% (12 oz/375 g) chopped oil-cured black olives into the dough.

Figure 30.2 Focaccia.



(a) Roll and stretch the dough into a rectangle large enough to fill the pan.



(b) Place the dough in the pan. Top with olive oil.



(c) With the fingertips, poke holes heavily at regular intervals.



(d) Top with the desired topping, such as fresh herbs and coarse salt.

Brioche

INGREDIENTS	U.S.	METRIC	PERCENTAGE
Milk	8 oz	250 g	20 %
Yeast, fresh	2 oz	60 g	5 %
Bread flour	8 oz	250 g	20 %
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Eggs	1 lb 4 oz	625 g	50 %
Bread flour	2 lb	1000 g	80 %
Sugar	2 oz	60 g	5 %
Salt	0.5 oz	15 g	1.25 %
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Butter, softened	1 lb 8 oz	750 g	60 %
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<i>Yield:</i>	<i>6 lb</i>	<i>3010 g</i>	<i>241 %</i>

Per 1 roll: Calories, 160; Protein, 4 g; Fat, 10 g (56% cal.); Cholesterol, 60 mg; Carbohydrates, 14 g; Fiber, 0 g; Sodium, 190 mg.

VARIATION

To make the dough less sticky and less difficult to handle, reduce the butter to 35–50% (14–20 oz/450–625 g). This adjustment also reduces cost. However, the brioche will not be as rich and delicate.

PROCEDURE

Mixing:

Sponge method:

1. Scald milk and cool to lukewarm. Dissolve yeast. Add flour and mix to make a sponge. Let rise until double.
2. Gradually mix in eggs and then dry ingredients (using the paddle attachment) to make a soft dough.
3. Beat in butter, a little at a time, until completely absorbed and dough is smooth. Dough will be very soft and sticky.

Fermentation:

Cover with plastic film and place in retarder overnight.

Makeup:

1½ oz (50 g) per roll.

See makeup techniques after recipe section. Dough is very soft and is easiest to make up when chilled.

Egg-wash after proofing.

Baking:

400°F (200°C).



Sweet Roll Dough

INGREDIENTS	U.S.	METRIC	PERCENTAGE
Milk	1 lb	500 g	40 %
Yeast, fresh	3 oz	100 g	7.5 %
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Butter/margarine/ shortening (see Note)	8 oz	250 g	20 %
Sugar	8 oz	250 g	20 %
Salt	0.5 oz	15 g	1.25 %
Eggs	6 oz	175 g	15 %
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Bread flour	2 lb	1000 g	80 %
Cake flour	8 oz	250 g	20 %
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<i>Yield:</i>	<i>5 lb 1 oz</i>	<i>2540 g</i>	<i>203 %</i>

Per 1 ounce (28.35 g): Calories, 90; Protein, 2 g; Fat, 3 g (31% cal.); Cholesterol, 15 mg; Carbohydrates, 13 g; Fiber, 0.5 g; Sodium, 90 mg.

Note: Any of the fats listed may be used alone or in combination.

PROCEDURE

Mixing:

Modified straight dough method:

1. Scald milk. Cool to lukewarm. Dissolve yeast in milk.
2. Mix fat, sugar, and salt until smooth, using paddle. Beat in eggs.
3. Add liquid and flour. With dough arm, mix 4 minutes at 2nd speed.

Fermentation:

1½ hours at 80°F (27°C).

Makeup:

See makeup techniques after recipe section.

Baking:

375°F (190°C).

VARIATION

Raised Doughnuts

Prepare basic sweet roll dough, but reduce the fat and sugar by half. Mace, nutmeg, or other spices may be added.

Scaling: 1½ oz (50 g) each.

Give full proof.

Frying: 360°F (182°C).

Drain. Roll in cinnamon sugar or 6X sugar when cool.

VIENNOISERIE

Viennoiserie (vee en wahz ree), or Viennese pastry, is the general term given to sweet yeast-raised dough goods, both laminated and non-laminated. Brioche, Danish, and croissants are classic examples of viennoiserie.

Rolled-In Doughs: Danish Pastry and Croissants

Rolled-in or laminated doughs contain many layers of fat sandwiched between layers of dough. These layers create the flakiness you are familiar with in Danish pastry.

Two basic kinds of rolled-in yeast doughs are made in the bakeshop:

- Danish pastry
- Croissants

Rolled-in doughs are mixed only slightly because the rolling-in procedure continues to develop the gluten.

Butter is the preferred fat for flavor and the melt-in-the-mouth quality of rolled-in doughs. Specially formulated shortenings are available when lower cost and greater ease of handling are more important considerations.

Rolling-In Procedure for Danish and Croissant Dough

The rolling-in procedure has two parts.

1. Enclosing the fat in the dough.

In the method illustrated in Figure 30.3, the fat is spotted on two-thirds of the dough and the dough is folded in thirds like a business letter. This results in five layers: three layers of dough and two layers of fat.

2. Rolling out and folding the dough to increase the number of layers.

In these doughs, we use a *simple fold*, or *three-fold*, which means we fold the dough in thirds. Each complete rolling and folding step is called a *turn*. We give the dough three turns, creating over 100 layers of dough and fat.

Figure 30.3 Rolling-in procedure for Danish and croissant dough.



(a, b) Roll the dough into a rectangle about 3 times as long as it is wide and $\frac{1}{2}$ to $\frac{3}{4}$ in. (1 to 2 cm) thick. Smear the butter over two-thirds of the length of the dough, leaving a margin at the edges.



(c) Fold the unbuttered third over the center third.



(d) Fold the remaining third on top. Rest the dough in the retarder (under refrigeration) 20 to 30 minutes to allow the gluten to relax.



(e) Place the dough on the bench at right angles to its position in step (d). Take this step before each rolling-out of the dough so the gluten is stretched in all directions, not just lengthwise. Roll the dough into a rectangle.



(f) Fold again into thirds by first folding the top third over the center. Be sure to brush off excess dusting flour from between the folds.



(g) Fold over the remaining third. You have now completed the first turn or fold. Incorporating the butter doesn't count as a turn. Press one finger in the dough near the end to make one indentation. This indicates "1 turn" to anyone who may have to take up where you left off, or to you if you have several batches going. Refrigerate the dough 20 to 30 minutes to relax the gluten. Repeat the above rolling and folding procedures for a second and third turn, resting the dough between turns. Mark the number of turns in the dough with two or three fingers. After the third turn, rest the dough in the retarder several hours or overnight. Cover it with plastic film to prevent crusting. The dough is then ready for makeup.

In Chapter 31, you will learn an even more complex rolling-in procedure used for puff pastry, which is leavened only by steam, not by yeast. This procedure produces over 1,000 layers!

KEY POINTS TO REVIEW

- What are the 12 steps in yeast dough production?
- What are the steps in the procedure for fermenting yeast doughs?
- What are the steps in the rolling-in procedure for Danish and croissant doughs?



Danish Pastry



INGREDIENTS	U.S.	METRIC	PERCENTAGE
Milk	1 lb	400 g	40 %
Yeast, fresh	2.5 oz	65 g	6.25 %
Butter	5 oz	125 g	12.5 %
Sugar	6 oz	150 g	15 %
Salt	0.8 oz	20 g	2 %
Cardamom	1 tsp	2 g (5 mL)	0.2 %
Eggs	8 oz	200 g	20 %
Egg yolks	2 oz	50 g	5 %
Bread flour	2 lb	800 g	80 %
Cake flour	8 oz	200 g	20 %
Butter	1 lb 4 oz	500 g	50 %
<i>Yield:</i>	<i>6 lb 4 oz</i>	<i>2507 g</i>	<i>251 %</i>

Per 1 ounce (28.35 g): Calories, 110; Protein, 2 g; Fat, 6 g (53% cal.); Cholesterol, 35 mg; Carbohydrates, 10 g; Fiber, 0 g; Sodium, 120 mg.

PROCEDURE

Mixing:

Modified straight dough method:

1. Scald milk. Cool to lukewarm. Dissolve yeast in milk.
2. Mix butter, sugar, salt, and spice until smooth, using paddle. Beat in eggs and yolks.
3. Add liquid (from step 1) and flour. With dough arm, mix 3–4 minutes on 2nd speed.
4. Rest in retarder 20–30 minutes.
5. Roll in remaining butter and give 3 three-folds, as shown in **Figure 30.3**.

Makeup:

See makeup techniques after recipe section.

Proofing:

90°F (32°C) with little steam. Egg-wash after proofing.

Baking:

375°F (190°C).

Croissants



INGREDIENTS	U.S.	METRIC	PERCENTAGE
Milk	1 lb	450 g	57 %
Yeast, fresh	1 oz	30 g	4 %
Sugar	1 oz	30 g	4 %
Salt	0.5 oz	15 g	2 %
Butter, soft	3 oz	80 g	10 %
Bread flour	1 lb 12 oz	800 g	100 %
Butter	1 lb	450 g	57 %
<i>Yield:</i>	<i>4 lb 1 oz</i>	<i>1855 g</i>	<i>234 %</i>

Per 1 ounce (28.35 g): Calories, 110; Protein, 2 g; Fat, 7 g (57% cal.); Cholesterol, 20 mg; Carbohydrates, 10 g; Fiber, 0 g; Sodium, 160 mg.

PROCEDURE

Mixing:

Straight dough method.

Scald milk, cool to lukewarm, and dissolve yeast. Add remaining ingredients except last 1 lb (450 g) butter. Mix into a smooth dough. Do not overmix.

Fermentation:

1 hour at 80°F (27°C).

Punch down, spread out on flat pan, and rest in retarder 30 minutes.

Roll in last amount of butter and give 3 three-folds (see **Figure 30.3**). Rest in retarder overnight.

Makeup:

See **Figure 30.19** on page 957.

Proofing:

80°F (27°C). Egg-wash after proofing.

Baking:

400°F (200°C).

Fillings and Toppings for Sweet Dough Products and Danish

Cinnamon Sugar

YIELD: ABOUT 1 LB (500 G)

U.S.	METRIC	INGREDIENTS
1 lb	500 g	Sugar
0.5 oz	15 g	Cinnamon

Per 1 ounce (28.35 g): Calories, 110; Protein, 0 g; Fat, 0 g (0% cal.); Cholesterol, 0 mg; Carbohydrates, 0 g; Fiber, 0 g; Sodium, 0 mg.

PROCEDURE

Stir together thoroughly.

Streusel or Crumb Topping

YIELD: 2 LB (1 KG)

U.S.	METRIC	INGREDIENTS
8 oz	250 g	Butter and/or shortening
5 oz	150 g	Granulated sugar
4 oz	120 g	Brown sugar
½–1 tsp	2–5 mL	Cinnamon or mace
½ tsp	2 mL	Salt
1 lb	500 g	Pastry flour

Per 1 ounce (28.35 g): Calories, 130; Protein, 1 g; Fat, 6 g (40% cal.); Cholesterol, 15 mg; Carbohydrates, 19 g; Fiber, 2 g; Sodium, 85 mg.

PROCEDURE

Rub all ingredients together until crumbly.

VARIATION

Nut Streusel

Add 4 oz (125 g) finely chopped nuts to basic mixture.

Clear Glaze for Coffee Cakes and Danish

YIELD: 2 LB (1 KG)

U.S.	METRIC	INGREDIENTS
1 cup	250 mL	Water
1 lb	500 g	Light corn syrup
8 oz	250 g	Granulated sugar

Per 1 ounce (28.35 g): Calories, 70; Protein, 0 g; Fat, 0 g (0% cal.); Cholesterol, 0 mg; Carbohydrates, 18 g; Fiber, 0 g; Sodium, 15 mg.

PROCEDURE

1. Mix together and bring to a boil. Stir to ensure the sugar is completely dissolved.
2. Brush on while hot.

Date, Prune, or Apricot Filling

YIELD: 3 LB (1.5 KG)

U.S.	METRIC	INGREDIENTS
2 lb	1 kg	Dates, prunes (pitted), or dried apricots
6 oz	200 g	Sugar
1 pt	500 mL	Water

Per 1 ounce (28.35 g): Calories, 65; Protein, 0 g; Fat, 0 g (0% cal.); Cholesterol, 0 mg; Carbohydrates, 17 g; Fiber, 1 g; Sodium, 0 mg.

PROCEDURE

1. Chop dried fruit very fine, or pass through a grinder.
2. Combine all ingredients in a saucepan. Bring to a boil. Simmer and stir until thick and smooth, about 10 minutes.
3. Cool before using.

Almond Filling

YIELD: 3 LB (1500 G)

U.S.	METRIC	INGREDIENTS
1 lb	500 g	Almond paste
1 lb	500 g	Sugar
8 oz	250 g	Butter and/or shortening
4 oz	125 g	Pastry or cake flour
4 oz	125 g	Eggs

Per 1 ounce (28.35 g): Calories, 130; Protein, 1 g; Fat, 7 g (48% cal.); Cholesterol, 20 mg; Carbohydrates, 16 g; Fiber, 1 g; Sodium, 45 mg.

PROCEDURE

1. With paddle attachment, mix almond paste and sugar at low speed until evenly mixed.
2. Mix in fat and flour until smooth.
3. Beat in eggs, a little at a time, until smooth.

Cheese Filling

YIELD: APPROXIMATELY 2 LB 3 OZ (1125 G)

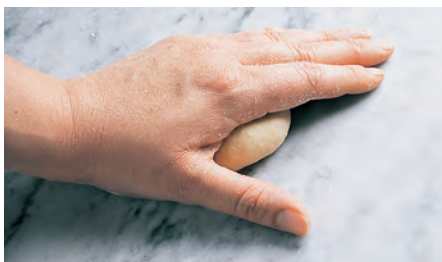
U.S.	METRIC	INGREDIENTS
1 lb	500 g	Baker's cheese
5 oz	150 g	Sugar
0.12 oz (½ tsp)	3 mL	Salt
3 oz	100 g	Eggs
3 oz	100 g	Butter and/or shortening, soft
1½ tsp	7 mL	Vanilla
1.5 oz	50 g	Cake flour
3–5 oz	100–150 g	Milk
4 oz	125 g	Raisins (optional)

Per 1 ounce (28.35 g): Calories, 60; Protein, 3 g; Fat, 2.5 g (38% cal.); Cholesterol, 20 mg; Carbohydrates, 6 g; Fiber, 0 g; Sodium, 70 mg.

PROCEDURE

1. Using the paddle attachment, cream the cheese, sugar, and salt until smooth.
2. Add the eggs, butter, and vanilla. Blend in.
3. Add the cake flour. Blend until just absorbed.
4. Add the milk, a little at a time, adding just enough to bring the mixture to a smooth, spreadable consistency.
5. Stir in the raisins, if desired.

Figure 30.4 Rounding small rolls.



(a) Holding the palm of the hand fairly flat, roll the dough in a tight circle on the workbench. Do not use too much flour for dusting, as the dough must stick to the bench a little for the technique to work.



(b) As the ball of dough takes on a round shape, gradually cup your hand.



(c) The finished ball of dough should have a smooth surface, except for a slight pucker on the bottom.

Makeup Techniques

The object of yeast dough makeup techniques is to shape the dough into rolls or loaves that bake properly and have an attractive appearance. When you shape a roll or loaf correctly, you stretch the gluten strands on the surface into a kind of smooth skin. This tight gluten surface holds the item in shape. This is especially important for loaves and rolls that are baked free-standing, not in pans.

Units that are not made up correctly develop irregular shapes and splits and may flatten out on the pan.

Following are a few of the many makeup techniques for yeast doughs.

Hard Rolls and Breads

ROUND ROLLS

1. Scale the dough as indicated in the recipes, usually 1 pound (450 g) per dozen.
2. Round each unit as shown in Figure 30.4.
3. Place rolls 2 inches (5 cm) apart on sheet pans sprinkled with cornmeal.

ROUND LOAVES

1. Flatten the rounded, benched dough into a circle. Fold the four sides over the center, then round again.
2. Place on sheet pans sprinkled with cornmeal.

CLUB ROLLS

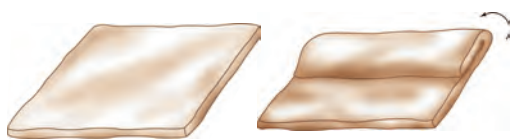
1. Make up as shown in Figure 30.5.
2. Place 2 inches (5 cm) apart on sheet pans sprinkled with cornmeal.

CRESCENT ROLLS

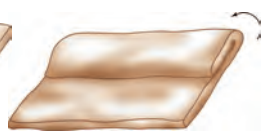
1. Scale dough into 20-ounce (600-g) units.
2. After rounding and benching, flatten the dough and roll it out into a circle 12 inches (30 cm) across.
3. With a pastry wheel, cut the dough circle into 12 equal wedges or triangles. (Alternative method: For large quantities of dough, roll it out into a rectangle and cut like croissant dough. See Figure 30.19 on p. 957.)
4. Roll the triangles into crescents using the same technique as for croissants (see Figure 30.19 on p. 957).

Note: If using soft roll dough, brush the dough with butter before cutting it into triangles. Do not use any fat.

Figure 30.5 Making club rolls.



(a) Flatten the piece of dough roughly into a rectangle.



(b) Begin to roll the dough by folding over the back edge of the rectangle. Press the seam firmly with your fingertips.



(c) Continue to roll the dough, always pressing the seam firmly after each turn. As you roll the dough, the front edge will appear to shrink. Stretch the front corners as shown by the arrows to keep the width uniform.



(d) When the roll is finished, seal the seam well so you have a tight roll.



(e) Dock the proofed roll with a single slash to give the baked roll this appearance.

FRENCH-TYPE LOAVES

1. Scale the dough into units weighing 12 to 18 ounces (350 to 500 g).
2. Make up as shown in Figure 30.6.

Figure 30.6 Making French-type loaves.



(a) Flatten the rounded, relaxed dough with your hands or with a rolling pin.



(b) Stretch the oval with the hands to lengthen it.



(c) Roll the dough tightly.



(d) Seal the seam well. If a longer, thinner loaf is required, relax the rolled units again for a few minutes. Flatten them with your palms and stretch the dough lightly to increase its length. Once again, roll tightly and seal the seam. Roll the loaf on the bench under your palms to make it even and to stretch it to the desired shape and length.



(e) Place the dough seam-side down on pans dusted with cornmeal. Proofing the loaves on special trough-shaped pans maintains their shape. Proof. Wash with water. Slash with diagonal cuts or with one lengthwise cut; this can be done before or after proofing.

Soft Roll Doughs

TIED OR KNOTTED ROLLS

1. Scale dough to 16 to 20 ounces (450 to 600 g) per dozen.
2. With the palm of the hand, roll each unit on the workbench into a strip or rope of dough.
3. Tie rolls as shown:
 - Single-knot rolls: Figure 30.7
 - Double-knot rolls: Figure 30.8
 - Braided rolls: Figure 30.9
 - Figure-eight rolls: Figure 30.10
4. Place 2 inches (5 cm) apart on greased baking sheets.
5. Egg-wash after proofing.

Figure 30.7 Tying a single-knot roll

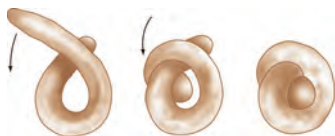


Figure 30.8 Tying a double-knot roll

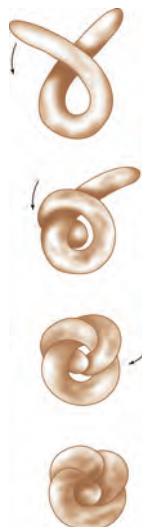


Figure 30.9 Tying a braided roll



Figure 30.10 Tying a figure-eight roll



PAN ROLLS

1. Scale dough to 16 to 20 ounces (450 to 600 g) per dozen.
2. Make up as for round hard rolls.

Figure 30.11 Parker House rolls.



(a) Round the scaled piece of dough.



(b) Flatten the center of the dough with a thin rolling pin as shown.



(c) Fold the dough over and press down on the folded edge to make a crease.



(d) The baked roll has this shape.

3. Place on greased pans $\frac{1}{2}$ inch (1 cm) apart.

PARKER HOUSE ROLLS

1. Scale dough to 16 to 20 ounces (450 to 600 g) per dozen.
2. Make up as shown in Figure 30.11.
3. Place on greased baking sheet $\frac{1}{2}$ inch (1 cm) apart.

CLOVERLEAF ROLLS

1. Scale dough to 16 to 20 ounces (450 to 600 g) per dozen.
2. Make up and pan as shown in Figure 30.12.

BUTTERFLAKE ROLLS

Make up as shown in Figure 30.13.

Pan Loaves

Shaping dough into loaves to be baked in loaf pans is illustrated in Figure 30.14
Figure 30.12 Cloverleaf rolls.

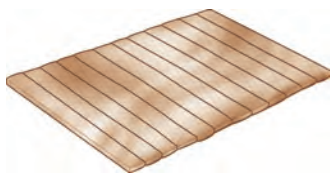


(a) Divide each piece of dough into 3 equal parts. Shape into balls. Place 3 balls in the bottom of each greased muffin tin.

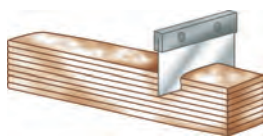


(b) The baked roll has this appearance.

Figure 30.13 Butterflake rolls.



(a) Roll the dough into a thin rectangle. Brush with melted butter. Cut into strips 1 in. (2.5 cm) wide.



(b) Stack 6 strips. Cut into pieces $1\frac{1}{2}$ in. (3.5 cm) long.



(c) Place the pieces on end in greased muffin tins. Proof.



(d) The baked rolls have this appearance.

Figure 30.14 Pan loaves.



(a) Start with the rounded, benched dough. Flatten it with the palms of the hands.



(b) Stretch it into a long rectangle.



(c, d) Fold into thirds.

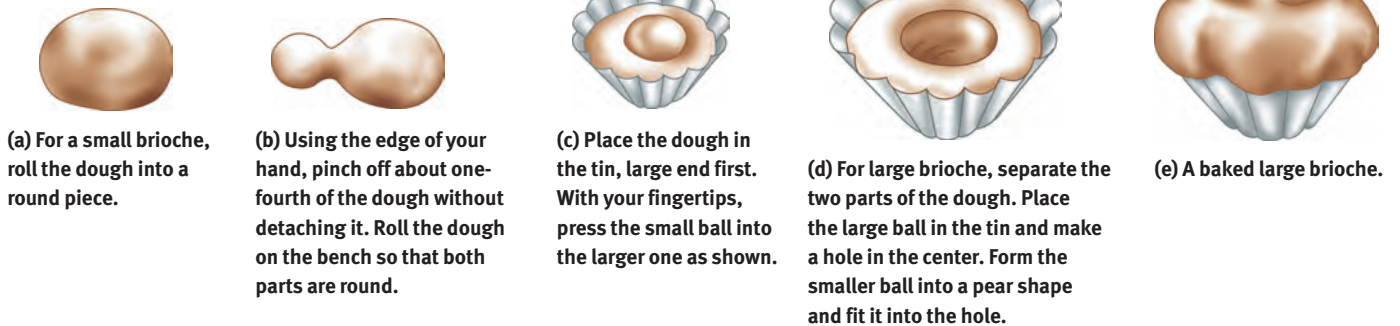


(e) Roll the dough into a tight roll of the same length as the pan it is to be baked in. Seal the seam well and place the dough seam side down in the greased pan.

Brioche

Brioche dough may be made into many shapes. The traditional shape is shown in Figure 30.15.

Figure 30.15 Making brioche.



(a) For a small brioche, roll the dough into a round piece.

(b) Using the edge of your hand, pinch off about one-fourth of the dough without detaching it. Roll the dough on the bench so that both parts are round.

(c) Place the dough in the tin, large end first. With your fingertips, press the small ball into the larger one as shown.

(d) For large brioche, separate the two parts of the dough. Place the large ball in the tin and make a hole in the center. Form the smaller ball into a pear shape and fit it into the hole.

(e) A baked large brioche.

Sweet Dough Products

Note: Many sweet dough products may be glazed with Clear Glaze (p. 950) and/or iced with Flat Icing (p. 984) after baking. Flat icing is drizzled over the cooled products without covering them completely.

CINNAMON ROLLS

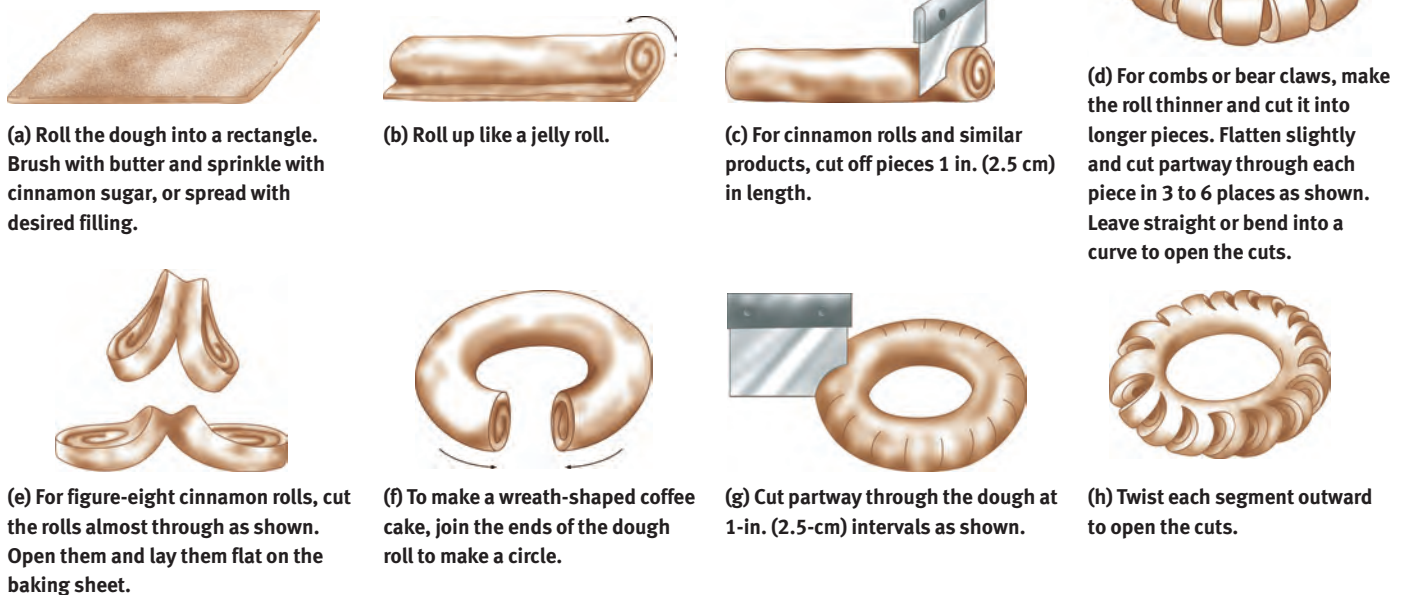
1. Scale dough into 20-ounce (600-g) units. On a floured board, roll each piece of dough into a rectangle measuring 9 × 12 inches and about $\frac{1}{4}$ inch thick (23 × 30 × 0.5 cm).
2. Brush with butter and sprinkle with 2 ounces (60 g) cinnamon sugar.
3. Roll up like a jelly roll 12 inches (30 cm) long, as shown in the illustration.
4. Cut into 1-inch (2.5-cm) rolls.
5. Place cut side down in greased muffin tins or on greased sheet pans. One full-size pan, 18 × 26 inches (46 × 66 cm), holds 48 rolls placed 6 by 8.

For variations on the basic cinnamon roll shape, see Figure 30.16.

CINNAMON RAISIN ROLLS

Prepare like cinnamon rolls, but add 2 ounces (60 g) raisins to the filling.

Figure 30.16 The filled dough roll is the starting point for a variety of sweet dough



(a) Roll the dough into a rectangle. Brush with butter and sprinkle with cinnamon sugar, or spread with desired filling.

(b) Roll up like a jelly roll.

(c) For cinnamon rolls and similar products, cut off pieces 1 in. (2.5 cm) in length.

(d) For combs or bear claws, make the roll thinner and cut it into longer pieces. Flatten slightly and cut partway through each piece in 3 to 6 places as shown. Leave straight or bend into a curve to open the cuts.

(e) For figure-eight cinnamon rolls, cut the rolls almost through as shown. Open them and lay them flat on the baking sheet.

(f) To make a wreath-shaped coffee cake, join the ends of the dough roll to make a circle.

(g) Cut partway through the dough at 1-in. (2.5-cm) intervals as shown.

(h) Twist each segment outward to open the cuts.

CARAMEL ROLLS

1. Prepare like cinnamon rolls.
2. Before panning, spread the bottoms of the pans or muffin tins with the following mixture. Use about 1 ounce (30 g) of the mixture per roll.

2 lb (1 kg) brown sugar

8 oz (250 g) corn syrup

10 oz (300 g) butter

4 oz (125 mL) water

Cream the sugar, corn syrup, and butter. Beat in the water.

Quantities given are enough for 1 sheet pan of 48 rolls.

CARAMEL NUT ROLLS OR PECAN ROLLS

Prepare like caramel rolls, but sprinkle the sugar-butter mixture in the pans with chopped nuts or pecan halves before placing the rolls in the pans.

WREATH COFFEE CAKE

1. Make a filled dough roll as for cinnamon rolls, but do not cut it into separate pieces. Other fillings, such as prune or date, may be used instead of butter and cinnamon sugar.
2. Shape the roll into a circle as shown in Figure 30.16f–h. Place on a greased baking sheet. Cut and shape as shown in the illustration.
3. Egg-wash after proofing.

FILLED COFFEE CAKE

1. Scale dough into 12-ounce (350-g) units.
2. Roll each unit into a rectangle measuring 9 × 18 inches (23 × 46 cm).
3. Spread half of each rectangle with desired filling, using about 6 ounces (175 g) filling.
4. Fold the unsprayed half over the spread half to make a 9-inch (23-cm) square.
5. Place in greased 9-inch (23-cm) square pan.
6. Sprinkle with Streusel Topping (p. 950), about 4 ounces (125 g) per pan.
7. Proof and bake.

Figure 30.17 Spiral Danish rolls.



(a) Roll the dough into a rectangle 16 in. (40 cm) wide and less than $\frac{1}{4}$ in. (0.5 cm) thick. (The length of the rectangle depends on the quantity of dough.) Brush the dough with melted butter. Sprinkle half of it with cinnamon sugar as shown.



(b) Fold the unsugared half over the sugared half. You now have a rectangle 8 in. (20 cm) wide. Roll the dough gently with a rolling pin to press the layers together.



(c) Cut the dough into strips $\frac{1}{2}$ in. (1 cm) wide.



(d) Place a strip crosswise in front of you on the bench.



(e) With the palms of your hands on the ends of the strip, roll one end toward you and the other away from you so the strip twists. Stretch the strip slightly as you twist it.



(f) Curl the strip into a spiral shape on the baking sheet. Tuck the end underneath and pinch it against the roll to seal it in place. If desired, press a hollow in the center of the roll and place a spoonful of filling (such as a fruit filling) in the center.

Rolled-In Dough Products

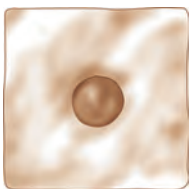
DANISH ROLLS AND COFFEE CAKES

Most of the techniques given in the previous section for sweet dough products may be used for Danish pastry.

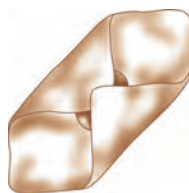
Two additional methods are illustrated in Figures 30.17 and 30.18.

Baked Danish dough products are frequently glazed with Clear Glaze (p. 950) and/or iced with Flat Icing (p. 984).

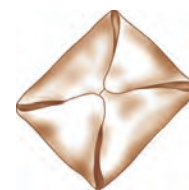
Figure 30.18 Danish pockets.



(a) Roll the dough to less than $\frac{1}{4}$ in. (0.5 cm) thick and cut into 5-in. (13-cm) squares. Place desired filling on the center of each square. Brush the corners lightly with water—this helps them seal when pressed together.



(b) Fold two opposite corners over the center. Press down firmly to seal them. (If desired, rolls may be left in this shape.)



(c) Fold the other two corners over the center and again press them firmly together.

CROISSANTS

The method for making up croissants is illustrated in Figure 30.19.

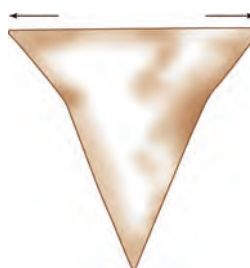
Figure 30.19 Making croissants.



(a) Roll the dough into a rectangle 10 in. (26 cm) wide and about $\frac{1}{8}$ in. (3 mm) thick. (The length depends on the amount of dough used.)



(b) Cut into triangles as shown. Special roller cutters are available that do this quickly.



(c) Place a triangle on the bench in front of you. Stretch the back corners outward slightly, as shown by the arrows.



(d) Begin to roll the dough toward the point.



(e) Stretch the point of the triangle slightly as you roll it.



(f) Finish rolling the dough.



(g) Bend the roll into a crescent shape. The point of the triangle must be toward the inside of the crescent and tucked under the roll so it won't pop up during baking.

TERMS FOR REVIEW

lean dough

rolled-in or laminated
dough

straight dough method

modified straight
dough method

sponge method

fermentation
young and old doughs

punching

proofing
oven spring

QUESTIONS FOR DISCUSSION

1. What are the three major purposes of mixing yeast doughs?
2. Explain the difference in procedure between the straight dough method and the sponge method. How is the straight dough method sometimes modified for sweet doughs, and why is this necessary?
3. What are the 12 steps in the production of yeast products? Explain each briefly.
4. Judging from what you know about fermentation of doughs, do you think it might be necessary for bakers to modify procedures from winter to summer? How?
5. As you know, butter is very hard when cold and melts easily at warm temperatures. What precautions do you think are necessary when using butter as the rolling-in fat for Danish pastry?

Chapter 31

FOOD SERVICE INDUSTRY SANITATION AND SAFETY TOOLS AND EQUIPMENT BASIC PRINCIPLES OF FOOD SCIENCE MANAGEMENT NUTRITION MISE EN PLACE STOCKS AND SAUCES SOUPS UNDERSTANDING MEATS AND GAME UNDERSTANDING POULTRY AND GAME BIRDS COOKING POULTRY AND GAME BIRDS UNDERSTANDING FISH AND SHELLFISH COOKING FISH AND SHELLFISH UNDERSTANDING



Blueberry, corn, and bran muffins, page 963.

Quick Breads

Quick breads are the perfect solution for operations that want to offer their patrons fresh, homemade bread products but can't justify the labor cost of making yeast breads. Also, quick breads have the advantage of being easily made in almost unlimited varieties, using such ingredients as whole wheat flour, rye flour, cornmeal, bran, oatmeal, and many kinds of fruits, nuts, and spices.

As their name implies, quick breads are quick to make. Because they are leavened by chemical leaveners and steam, not by yeast, no fermentation time is necessary. And because they are usually tender products with little gluten development, mixing them takes just a few minutes.

Although prepared biscuit and muffin mixes are available, the only extra work required to make these products from scratch is the time to scale a few extra ingredients. With a careful and imaginative selection of ingredients and an understanding of basic mixing methods, you can create superior products.

You may already have studied two kinds of quick bread in the breakfast chapter: pancakes and waffles. In this chapter, we present two basic mixing methods and apply them to biscuits, muffins, quick loaf breads and coffee cakes, and corn breads. In addition, we discuss popovers, which are leavened by steam only.

After reading this chapter, you should be able to

1. Prepare baking powder biscuits and variations.
2. Prepare muffins, loaf breads, coffee cakes, and corn breads.
3. Prepare popovers.

Mixing and Production Methods

Types of Dough

Dough mixtures for quick breads are generally of two types:

1. *Soft doughs* are used for biscuits. These products are rolled out and cut into desired shapes. They are mixed by the biscuit method.
2. *Batters* may be either *pour batters*, which are liquid enough to pour, or *drop batters*, which are thicker and drop from a spoon in lumps.

Most quick-bread batters are mixed by the *muffin method*, except for drop biscuits, which are mixed by the *biscuit method*, and some rich cakelike muffins and coffee cakes, which are mixed by a cake-mixing method called the *creaming method*. The biscuit and muffin methods are presented in this chapter. The creaming method is presented in Chapter 32, along with other cake methods.

The muffins and loaf breads in this chapter should be thought of as breads rather than as tea cakes. They are lower in fat and sugar than some of the rich, cakelike muffins sometimes seen.

Gluten Development in Quick Breads

Only slight gluten development is desired in most quick breads. Tenderness is the desired quality, in contrast to the chewy quality of yeast breads. In addition, chemical leavening agents do not create the same kind of textures that yeast does and are not strong enough to create a light, tender product if the gluten is too strong.

1. Muffin, loaf bread, and pancake batters are mixed as little as possible, just until the dry ingredients are moistened. This, plus the presence of fat and sugar, keeps gluten development low.
Overmixing muffins produces not only toughness but also irregular shapes and large, elongated holes inside the product. This latter condition is called *tunneling*.
2. Biscuit dough is often lightly kneaded, enough to develop some flakiness but not enough to toughen the product.
3. Popovers are the exception among quick breads. They are made with a thin batter and leavened by steam only. Large holes develop inside the product during baking, and the structure must be strong enough to hold without collapsing. Thus, bread flour is used, and the batter is mixed well to develop the gluten. The high percentage of egg in popovers also helps build structure.

The Biscuit Method

Procedure: Biscuit Method

1. Scale all ingredients accurately.
2. Sift the dry ingredients together into a mixing bowl.
3. Cut in the shortening, using the paddle attachment or the pastry knife attachment. If preferred, you may cut in the fat by hand, using a pastry blender or your fingers. Continue until the mixture resembles coarse cornmeal.
4. Combine the liquid ingredients. Biscuits may be prepared in advance up to this point. Portions of each mixture may then be scaled and combined just before baking.
5. Add the liquid to the dry ingredients. Mix just until the ingredients are combined and a soft dough is formed. Do not overmix.
6. Bring the dough to the bench and knead it lightly by pressing it out and folding it in half. Rotate the dough 90 degrees after each fold.
7. Repeat this procedure about 10 to 20 times, or for about 30 seconds. The dough should be soft and slightly elastic but not sticky. Overkneading toughens the biscuits. The dough is now ready for makeup.

Variations on the basic procedure produce different characteristics in the finished product.

1. Using slightly more shortening and cutting it in less—until the pieces are the size of peas—produces a flakier biscuit.
2. Omitting the kneading step produces a tender, crustier biscuit, but one with less volume.

MAKEUP OF BISCUITS

1. Roll the biscuit dough into a sheet about ½ inch (1 cm) thick, being careful to roll it evenly and to a uniform thickness.
Biscuits approximately double in height during baking.
2. Cut into desired shapes.
When using round hand cutters, cutting straight down produces the best shape after baking. Do not twist the cutter. Space the cuts closely to minimize scraps.
Cutting into squares or triangles with a pastry cutter or knife eliminates scraps that would have to be rerolled. Roller cutters also eliminate or reduce scraps. Reworked scraps are tougher.
3. Place the biscuits ½ inch (1 cm) apart on a baking sheet for crisp-crustured biscuits, or touching each other for softer biscuits. Bake as soon as possible.
If desired, the tops may be brushed with egg wash or milk before baking to aid browning.

THE RUBBED DOUGH METHOD

The method for mixing biscuit doughs, in its simplest form, consists of two essential steps: rubbing or cutting the fat into the dry ingredients, and mixing in the combined wet ingredients. These are the same essential steps as for mixing pie doughs by a method called the *rubbed dough method*, as detailed on page 1007. Although the end product is quite different, many pastry chefs consider these methods to be the same and refer to them by the same name.

The Muffin Method

This mixing method is used not only for muffins but also for pancakes, waffles, quick loaf breads, and coffee cakes. Loaf breads and coffee cakes are sometimes higher in fat and sugar than muffins, so they can withstand more mixing without toughening.

The muffin method is not as suitable for formulas high in fat and sugar, unlike the cake-mixing method called the *creaming method*, discussed in Chapter 32. Consequently, quick breads mixed by the muffin method are not as rich and cakelike as many of today's popular muffins, which are closer to cakes than to traditional muffins. Keep this in mind as you practice the muffin method with the recipes in this chapter.

Procedure: Muffin Method

1. Sift together the dry ingredients (see Figure 31.1).
2. Combine all liquid ingredients, including melted fat or oil.
3. Add the liquids to the dry ingredients and mix just until all the flour is moistened. The batter will look lumpy. Do not overmix.
4. Pan and bake immediately. The dry and liquid mixtures may be prepared in advance. Once they are combined, the batter should be baked without delay, or loss of volume may result. When portioning batter into muffin tins, be careful not to stir the mix and toughen it. Scoop the batter from the outside edge for best results.

Figure 31.1 The muffin method.



(a) Sift together the dry ingredients.



(b) Add the combined liquid ingredients to the dry ingredients and mix just until the flour is moistened.



(c) Pan and bake immediately. Scoop the batter from the outside edge to minimize additional mixing.

THE WELL MIXING METHOD

The muffin method is sometimes called the *well mixing method*. This name comes from the technique, commonly used in European pastry shops, of mixing a dough directly on the workbench rather than in a bowl. In order to keep the liquid ingredients from flowing away, the chef makes a well in the dry ingredients (see Figure 31.2) and pours the liquid ingredients into this well. When you are mixing in a bowl, it is of course not necessary to make a well to confine the liquids. But the habit has stuck, and the name has become attached to this mixing method.



Figure 31.2 Make a well in the mound of flour and add the liquids.

KEY POINTS TO REVIEW

- What are the steps in the biscuit method?
- What are the steps in the muffin method?
- Why must popover batter be mixed more thoroughly than muffin and biscuit doughs?

Summary: Biscuit and Muffin Methods

Biscuit Method

1. Combine dry ingredients and cut in fat.
2. Combine liquid ingredients.
3. Add liquid and dry ingredients and mix just until combined.
4. If required, knead very lightly.

Muffin Method

1. Combine dry ingredients.
2. Combine liquid ingredients, including melted fat.
3. Add liquid to dry ingredients and mix just until combined.

Formulas

Biscuits

INGREDIENTS	U.S.	METRIC	PERCENTAGE
Bread flour	1 lb 4 oz	600 g	50 %
Pastry flour	1 lb 4 oz	600 g	50 %
Salt	0.75 oz	25 g	2 %
Sugar	2 oz	60 g	5 %
Baking powder	2.5 oz	75 g	6 %
Shortening (regular) and/or butter	14 oz	425 g	35 %
Milk	1 lb 10 oz	775 g	65 %
<i>Yield:</i>	<i>5 lb 5 oz</i>	<i>2560 g</i>	<i>213 %</i>

Per 1 biscuit: Calories, 130; Protein, 2 g; Fat, 7 g (48% cal.); Cholesterol, 0 mg; Carbohydrates, 15 g; Fiber 1 g; Sodium, 260 mg.

PROCEDURE

Mixing and makeup:

Biscuit method.

Scaling:

Approximately 1 lb (500 g) per dozen 2-in. (5-cm) biscuits.

Baking:

425°F (220°C), about 15 minutes.

VARIATIONS

Buttermilk Biscuits

Use buttermilk instead of regular milk.

Cheese Biscuits

Add 30% (12 oz/360 g) grated cheddar cheese to dry ingredients.

Currant Biscuits

Add 15% (6 oz/180 g) dried currants to dry ingredients. Increase sugar to 10% (4 oz/125 g). Sprinkle tops with cinnamon sugar before baking.

Herb Biscuits

Add 5% (2 oz/60 g) fresh chopped parsley to the dry ingredients.



Plain Muffins



INGREDIENTS	U.S.	METRIC	PERCENTAGE
Pastry flour	2 lb 8 oz	1200 g	100 %
Sugar	1 lb 4 oz	600 g	50 %
Baking powder	2.5 oz	72 g	6 %
Salt	0.5 oz	15 g	1.25 %
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Eggs, beaten	12 oz	360 g	30 %
Milk	1 lb 12 oz	840 g	70 %
Vanilla extract	1 oz	30 g	2.5 %
Melted butter or shortening	1 lb	480 g	40 %
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<i>Yield:</i>	<i>7 lb 8 oz</i>	<i>3597 g</i>	<i>299 %</i>

Per 1 muffin: Calories, 170; Protein, 3 g; Fat, 7 g (36% cal.); Cholesterol, 40 mg; Carbohydrates, 25 g; Fiber, 3 g; Sodium, 230 mg.

PROCEDURE

Mixing:

Muffin method.

Scaling and panning:

Grease and flour muffin tins, or use paper liners.

Scale batter with a No. 16 scoop, 2 oz (60 g) per unit.

Baking:

400°F (200°C), about 20 minutes.

VARIATIONS

Raisin Spice Muffins

Add 20% raisins (8 oz/250 g), 2½ tsp (12 mL) cinnamon, and 1 tsp (5 mL) nutmeg to the dry ingredients.

Date Nut Muffins

Add 15% (6 oz/185 g) each chopped dates and chopped walnuts to the dry ingredients.

Blueberry Muffins

Gently fold 40% (1 lb/480 g) well-drained blueberries into the finished batter.

Whole Wheat Muffins

Use 70% (1 lb 12 oz/840 g) pastry flour and 30% (12 oz/ 360 g) whole wheat flour. Reduce baking powder to 4% (1½ oz/50 g) and add 0.75% (2 tsp/10 mL) baking soda. Add 10% (4 oz/ 120 g) molasses to the liquid ingredients.

Corn Muffins

Use 65% (1 lb 10 oz/800 g) pastry flour and 35% (14 oz/ 400 g) yellow cornmeal. (See also Corn Bread formula, p. 965.)

Bran Muffins

Use 30% (12 oz/360 g) bran, 40% (1 lb/480 g) bread flour, and 30% (12 oz/360 g) pastry flour. Add 15% (6 oz/ 180 g) raisins to the dry ingredients. Add 15% (6 oz/180 g) molasses to the liquid ingredients.

Crumb Coffee Cake

Increase fat to 50% (1 lb 4 oz/600 g). Pour into greased, paper-lined sheet pan and spread smooth. Top with 80% (2 lb/1 kg) Streusel Topping (p. 950). Bake at 360°F (180°C), about 30 minutes.



Muffins, clockwise from top: blueberry, corn, bran

Banana Bread

INGREDIENTS	U.S.		METRIC		PERCENTAGE	
Pastry flour	1 lb	8 oz	700 g		100 %	
Sugar		10 oz	275 g		40 %	
Baking powder		1.25 oz	35 g		5 %	
Baking soda		1 tsp	3.5 g (5 mL)		0.5 %	
Salt		2 tsp	9 g (10 mL)		1.25 %	
Chopped walnuts		6 oz	175 g		25 %	
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Eggs		10 oz	275 g		40 %	
Ripe banana pulp, puréed	1 lb	8 oz	700 g		100 %	
Oil, melted shortening, or butter		8 oz	225 g		33 %	
<hr/>						
<i>Yield:</i>	<i>5 lb</i>	<i>4 oz</i>	<i>2397 g</i>		<i>344 %</i>	

Per 1 ounce (28.35 g): Calories, 90; Protein, 2 g; Fat, 4.5 g (41% cal.); Cholesterol, 15 mg; Carbohydrates, 12 g; Fiber, 1 g; Sodium, 120 mg.

PROCEDURE

Mixing:

Muffin method.

Scaling:

1 lb 10 oz (750 g) per loaf pan measuring $8\frac{1}{2} \times 4\frac{1}{2}$ in. (22 × 11 cm).

Baking:

375°F (190°C), about 50 minutes.

Popovers

INGREDIENTS	U.S.		METRIC		PERCENTAGE	
Eggs	1 lb	4 oz	625 g		125 %	
Milk	2 lb		1000 g (1 L)		200 %	
Salt		0.25 oz (1¼ tsp)	8 g (6 mL)		1.5 %	
Melted butter or shortening	2	oz	60 g		12.5 %	
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Bread flour	1 lb		500 g		100 %	
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<i>Yield:</i>	<i>4 lb</i>	<i>6 oz</i>	<i>2193 g</i>		<i>439 %</i>	

Per 1 popover: Calories, 70; Protein, 3 g; Fat, 3 g (38% cal.); Cholesterol, 60 mg; Carbohydrates, 8 g; Fiber, 0 g; Sodium, 95 mg.

PROCEDURE

Mixing:

1. Beat eggs, milk, and salt with whip attachment until well blended. Add melted fat.
2. Replace whip with paddle. Mix in flour until completely smooth.

Scaling and panning:

Grease every cup of popover tins or every other cup of muffin tins—popovers need room for expansion. Fill cups about two-thirds full, about 1½ oz (50 g) batter per unit.

Baking:

450°F (230°C) for 10 minutes. Reduce heat to 375°F (190°C) for 20–30 minutes.

Before removing them from oven, be sure popovers are dry and firm enough to avoid collapse. Remove from pans immediately.



Popovers

Corn Bread, Muffins, or Sticks

INGREDIENTS	U.S.	METRIC	PERCENTAGE
Pastry flour	1 lb 4 oz	600 g	50 %
Cornmeal	1 lb 4 oz	600 g	50 %
Sugar	6 oz	175 g	15 %
Baking powder	2 oz	60 g	5 %
Salt	0.75 oz	25 g	2 %
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Eggs, beaten	8 oz	250 g	20 %
Milk	2 lb 2 oz	1000 g (1 L)	85 %
Corn syrup	2 oz	60 g	5 %
Melted butter or shortening	12 oz	350 g	30 %
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<i>Yield:</i>	<i>6 lb 8 oz</i>	<i>3120 g</i>	<i>262 %</i>

Per 1 muffin: Calories, 160; Protein, 3 g; Fat, 7 g (39% cal.); Cholesterol, 35 mg; Carbohydrates, 22 g; Fiber, 2 g; Sodium, 290 mg.

PROCEDURE

Mixing:

Muffin method.

Scaling:

60 oz (1700 g) per half-size sheet pan (13 x 18 in./33 x 46 cm).
24 oz (725 g) per 9-in. (23-cm) square pan or per dozen muffins.
10 oz (300 g) per dozen corn sticks.
Grease and flour pans well.

Baking:

400°F (200°C) for corn bread, 25–30 minutes. 425°F (220°C) for muffins or sticks, 15–20 minutes.

Orange Nut Bread

INGREDIENTS	U.S.	METRIC	PERCENTAGE
Sugar	12 oz	350 g	50 %
Grated orange zest	1 oz	30 g	4 %
Pastry flour	1 lb 8 oz	700 g	100 %
Nonfat dry milk	2 oz	60 g	8 %
Baking powder	1 oz	30 g	4 %
Baking soda	2 tsp	10 g	1.4 %
Salt	2 tsp	10 g (10 mL)	1.4 %
Chopped walnuts	12 oz	350 g	50 %
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Eggs	5 oz	150 g	20 %
Orange juice	6 oz	175 g	25 %
Water	1 lb	450 g	65 %
Oil, melted butter, or shortening	6 oz	175 g	25 %
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<i>Yield:</i>	<i>5 lb 5 oz</i>	<i>2490 g</i>	<i>344 %</i>

Per 1 ounce (28.35 g): Calories, 80; Protein, 2 g; Fat, 4 g (39% cal.); Cholesterol, 5 mg; Carbohydrates, 12 g; Fiber, 1 g; Sodium, 130 mg.

PROCEDURE

Mixing:

Muffin method.

Blend the sugar and orange zest thoroughly before adding remaining dry ingredients to ensure even distribution.

Scaling:

1 lb 10 oz (750 g) per loaf pan measuring 8½ × 4½ in. (22 × 11 cm).

Baking:

375°F (190°C), about 50 minutes.

TERMS FOR REVIEW

pour batter

muffin method

tunneling

well mixing method

drop batter

biscuit method

QUESTIONS FOR DISCUSSION

1. If you made a batch of muffins that came out of the oven with strange, knobby shapes, what would you expect was the reason?
2. What is the most important difference between the biscuit method and the muffin method?
3. How is the mixing method for popovers different from the mixing method for muffins? What is the leavening agent for popovers?