

recipe:

Berkeley Sourdough Bread

! CAUTION

Kids, please don't try this at home without the help of an adult.



Fernando Padilla, Plant Manager of Boudin Bakery in San Francisco, CA.

Sourdough breads take advantage of the flavors produced by "wild" yeast and bacteria. Once you've made a [sourdough starter](#), you can put it into action with the following bread recipe.

[Recipe Conversions](#)

What Do I Need?

For the starter:

- 1 piece of [starter](#) the size of a tangerine (kept out at room temperature for 6 to 8 hours or in the refrigerator for a few days)
- 2 cups warm water
- 2 cups organic, unbleached white or all-purpose flour

For the dough:

- 2 1/2 cups organic, unbleached white or all-purpose flour
- 1 1/2 teaspoons salt
- 3/4 cup starter from the previous step
- 3/4 cup cool water
- Cooking oil (to grease the bowl)

-
- a mixing bowl
 - a food processor (optional)
 - a large spoon
 - a baguette tray or parchment-lined baking tray
 - a razor blade
 - a spray bottle



The same "Mother Dough" (sourdough starter) has been used at Boudin Bakery in San Francisco, CA since 1849.

What Do I Do?

1. Break up the starter, dilute it in the water, and mix in the flour. Cover this mixture loosely and set it aside in a warm spot for 18–24 hours or until it is quite bubbly.

2. Mix the flour and salt together in a food processor fitted with the plastic dough blade. Pour the starter in and pulse the machine several times to mix the ingredients. Then, with the machine running, slowly add the water and continue mixing for a few minutes (If you don't have a food processor, simply mix the dough in a bowl for about 5 minutes, until it forms a ball.)

* Tip

Covering the dough as it rises helps to avoid moisture loss and contamination.

3. Remove the mixture from the bowl and place it on a well-floured work table and round it into a ball.
4. Let the dough rise in a well-oiled bowl, covered, in the refrigerator for 12–15 hours. Remove from the refrigerator and allow it to warm up at room temperature for 2 hours.
5. Divide the dough into 2 pieces, and stretch them into tight baguette shapes. Place each one on a baguette tray or a parchment-lined baking tray.
6. Cover the baguettes and let them rise for 6–7 hours, until they have doubled in size.
7. Preheat the oven to 450° F.
8. Using a sharp razor blade, slash the tops of the loaves diagonally 3 or 4 times (this will allow them to expand more easily while baking) and spray them with a fine mist of water from a spray bottle.
9. Place the loaves in the oven and immediately spray them, along with the walls and floor of the oven, with water. Repeat this step after about 5 minutes of baking.
10. Bake the loaves 25–30 minutes, until they are entirely golden and the crust is crisp and blistered.

What's Going On?

What's the purpose of spraying the dough and oven with water just before and 5 minutes into baking? The crust that begins to form on dough as it bakes can make it harder for the loaf to rise. Spraying the oven with water creates steam. This keeps the outer skin of the loaf moist and flexible, and helps it rise to its maximum volume with a good shape. Steam also encourages starch granules on the surface of the loaf to fully gelatinize, which gives the crust its crispy texture.

What Else Can I Try?



Sourdough comes in a variety of flavors, depending on what species of yeast and bacteria are present in the starter. You can also adjust the taste by letting the starter ferment for a longer or shorter period of time, which allows yeast and bacteria to add more or less of their flavors to the dough. After you've made one loaf, experiment by letting your starter ferment for a few days longer before mixing your dough.

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Blueberry Sourdough Muffins

Most sourdough bakers are on the lookout for ways to give their starters some exercise. These fruit-filled muffins with a bit of cornmeal crunch are a great way to put excess starter to work.

- 1 cup King Arthur Unbleached All-Purpose Flour
- 1 cup yellow cornmeal, preferably whole grain
- 3/4 teaspoon salt
- 1 teaspoon baking soda
- 1 1/2 teaspoons cinnamon
- 1 cup sourdough starter, ripe (fed) or discard
- 1/4 cup milk
- 1 large egg
- 1/4 cup melted butter or vegetable oil
- 1/2 cup maple syrup, molasses, or honey
- 2 cups blueberries, fresh or frozen
- Demerara or coarse sugar, for sprinkling tops

Directions

1. Preheat the oven to 425°F. Grease the wells of a 12-cup muffin pan, or line with papers and grease the inside of the papers.
2. Combine the dry ingredients in a mixing bowl.
3. In a second bowl, beat together the starter, milk, egg, melted butter, and sweetener. Blend the wet ingredients with the dry, taking about 20 seconds. Gently stir in the blueberries just until blended.
4. Fill the cups of the prepared pan two-thirds full; sprinkle the tops of the muffins with sugar.
5. Bake the muffins for 25 minutes, until a toothpick inserted in the center comes out clean. Remove the pan from the oven and allow the muffins to cool for 5 minutes before removing them from the pan. Don't let them cool in the pan, or they'll steam and the outside will become tough.

Tips from our bakers

- If using frozen berries, don't thaw them before adding to the batter; you'll have fewer blue streaks if they're added frozen, just before scooping.



AT A GLANCE

PREP	15 mins.
BAKE	23 mins. to 25 mins.
TOTAL	38 mins.
YIELD	12

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Buttery Sourdough Sandwich Biscuits

These big, palm-sized biscuits are perfect for a breakfast sandwich. Their sourdough tang pairs nicely with egg, ham, sausage, or whatever you choose to stuff them with. Better yet — the recipe uses your "discard" sourdough, the extra starter you might otherwise throw away during the feeding process.

- 1 cup King Arthur Unbleached All-Purpose Flour
- 2 teaspoons baking powder
- 3/4 teaspoon salt
- 1/2 cup (8 tablespoons) cold unsalted butter
- 1 cup sourdough starter, unfed/discard*
- *See "tips," below.

Directions

1. Preheat the oven to 425°F, with a rack in the upper third. Grease a baking sheet, or line it with parchment.
2. Combine the flour, baking powder, and salt. Work the butter into the flour until the mixture is unevenly crumbly.
3. Add the starter, mixing gently until the dough is cohesive.
4. Turn the dough out onto a lightly floured surface (a piece of parchment works well), and gently pat it into a 1"-thick round.
5. Use a sharp 2 3/8" biscuit cutter to cut rounds, cutting them as close to one another as possible. Pat any scraps together, and cut additional biscuits.
6. Place the biscuits onto the prepared baking sheet, leaving about 2" between them; they'll spread as they bake.
7. Bake the biscuits in the upper third of your oven for 20 to 23 minutes, until they're golden brown.
8. Remove the biscuits from the oven, and serve warm. Or cool completely, wrap in plastic, and store at room temperature for several days. Freeze, well-wrapped, for longer storage.
9. Yield: 6 large (3") biscuits.

Tips from our bakers

- Sourdough starters can vary in how liquid they are. If your biscuit dough seems very dry, dribble in a bit of milk or buttermilk until it comes together.
- Feel free to make smaller biscuits, if desired; they'll need slightly less time in the oven than the larger biscuits.



AT A GLANCE

PREP
10 mins. to 15 mins.

BAKE
20 mins. to 23 mins.

TOTAL
30 mins. to 38 mins.

YIELD
6 large biscuits

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Corn and Scallion Sourdough Pancakes

These savory little pancakes make great appetizers. Enhance their presentation by topping with black bean salad.

Pancakes

- 1/2 cup sourdough starter, ripe (fed) or discard
- 1 1/4 cups King Arthur Unbleached All-Purpose Flour
- 1 cup (8 ounces) milk
- 1 tablespoon vegetable oil
- 1 teaspoon baking soda
- 1/2 teaspoon salt
- 1 large egg
- 1 cup fresh/cooked or frozen/thawed corn kernels
- 3/4 cup chopped scallions, white and green part (5 or 6 scallions)

Salad

- 15 1/2-ounce can black beans
- 1 cup diced, seeded tomato (about 2 regular tomatoes)
- 1/2 cup diced red onion (1 small or 1/2 large)
- 1/2 avocado, diced
- 1/2 teaspoon salt
- 1 teaspoon wine vinegar
- 1 tablespoon vegetable oil
- hot sauce to taste, optional
- 1/2 cup sour cream, to garnish

Directions

1. To make the pancakes: Combine the starter, flour, and milk. Cover and let rest for 30 minutes in a warm place.
2. Add the oil, baking soda, salt, and egg and stir until combined. Fold in the corn and scallions.
3. Heat a silver dollar pancake pan over medium heat. Lightly grease the pan, then scoop a heaping tablespoon of batter into each of the cups. To make the pancakes using a griddle, heat it to 350°F, grease, and scoop heaping tablespoons onto the surface.
4. Flip each pancake over when its surface bubbles and the edges are slightly dry. Continue cooking until the bottom is golden.
5. Repeat with the remaining batter.
6. To make the salad: Combine all the ingredients except the sour cream. Scoop 1 tablespoon of salad and 1 teaspoon of sour cream onto each warm pancake, and serve hot or at room temperature.
7. Yield: 20 to 22 small pancakes.



AT A GLANCE

PREP

20 mins. to 30 mins.

BAKE

TOTAL

50 mins. to 60 mins.

YIELD

20 to 22 small pancakes.

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Extra-Tangy Sourdough Bread

This bread, with its mellow tang, is perfect for those who like their sourdough bread noticeably sour, but not mouth-puckeringly so.

- 1 cup ripe (fed) sourdough starter
- 1 1/2 cups lukewarm water
- 5 cups King Arthur Unbleached All-Purpose Flour, divided
- 2 1/2 teaspoons salt

Directions

1. Combine the starter, water, and 3 cups (12 3/4 ounces, 362g) of the flour. Beat vigorously for 1 minute.
2. Cover, and let rest at room temperature for 4 hours. Refrigerate overnight, for about 12 hours.
3. Add the remaining 2 cups (8 1/2 ounces, 241g) flour, and the salt. Knead to form a smooth dough.
4. Allow the dough to rise in a covered bowl until it's light and airy, with visible gas bubbles. Depending on the vigor of your starter, this may take up to 5 hours (or even longer), depending on how active your starter is. For best results, gently deflate the dough once an hour by turning it out onto a lightly floured work surface, stretching and folding the edges into the center, and turning it over before returning it to the bowl. Adding these folds will give you a better sense of how the dough is progressing, as well as strengthen it.
5. Gently divide the dough in half.
6. Gently shape the dough into two rounds or oval loaves, and place them on a lightly greased or parchment-lined baking sheet. Cover with lightly greased plastic wrap and let rise until very puffy, about 2 to 4 hours (or longer; give them sufficient time to become noticeably puffy). Don't worry if the loaves spread more than they rise; they'll pick up once they hit the oven's heat. Towards the end of the rising time, preheat the oven to 425°F.
7. Spray the loaves with lukewarm water.
8. Slash the loaves. If you've made round loaves, try one slash across the center, and a curved slash on each side of it; or slash in the pattern of your choice. For oval loaves, two diagonal slashes are fine. Make the slashes fairly deep; a serrated bread knife, wielded firmly, works well here.
9. Bake the bread for 25 to 30 minutes, until it's a very deep golden brown. Remove it from the oven, and cool on a rack.
10. Store bread, loosely wrapped in plastic, for several days at room temperature; freeze for longer storage.

Tips from our bakers

- Looking for a more sour/tangier loaf? Try adding 1/2 teaspoon to 5/8 teaspoon sour salt (citric acid) to the dough along with the regular salt.
- For a tasty loaf using commercial yeast (for faster rising), check out our recipe for Rustic Sourdough Bread.
- What makes the sour in sourdough bread? It's a combination of lactic and acetic acids, created as the dough rises and ferments. Refrigerating the dough encourages the production of more acetic than lactic acid; and acetic acid is much the tangier of the two. Thus, sourdough bread that's refrigerated before baking will have a more assertive sour flavor.



AT A GLANCE

PREP
15 mins. to 20 mins.

BAKE
30 mins.

TOTAL
23 hrs 45 mins. to 23 hrs 50 mins.

YIELD
2 loaves

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Feeding and Maintaining Your Sourdough Starter

Once you've successfully created your own sourdough starter, you'll need to feed it regularly. If you bake a lot of sourdough treats, you may want to keep it on your counter, at room temperature. While this means feeding it twice a day, it also means your starter will be ready to bake when you are. If you're a more casual sourdough baker, store your starter in the refrigerator, feeding it just once a week.

scant 1 cup King Arthur Unbleached All-Purpose Flour
1/2 cup lukewarm water

Directions

- To store your starter at room temperature:** Stir the starter well and discard all but 4 ounces (1/2 cup). Add the water and flour. Mix until smooth, and cover. Repeat every 12 hours. Remove 1 cup starter to bake with when it's expanded and bubbly, then feed the remaining starter immediately; revert to your normal 12-hour schedule for subsequent feedings.
- To store your starter in the refrigerator:** Take the starter out of the fridge. There may be a bit of light amber or clear liquid on top. Either drain this off, or stir it in, your choice; it's simply a byproduct from the fermenting yeast.
- Remove all but 4 ounces (1/2 cup) starter; see "tips," at left, for ideas on what to do with it. Add the flour and lukewarm water to the remaining starter. Mix until smooth, and cover.
- Allow the starter to rest at room temperature (about 70°F) for at least 2 hours; this gives the yeast a chance to warm up and get feeding. After about 2 hours, refrigerate.
- To ready your refrigerated starter for baking:** Take the starter out of the fridge, discard all but 4 ounces (1/2 cup), and feed it as usual. Let it rest at room temperature for about 12 hours, until bubbly. Repeat as necessary, every 12 hours, until you notice the starter doubling or tripling in volume in 6 to 8 hours. That means it's strong enough to leaven bread.
- For the final feeding prior to baking, add enough flour and water to use in your recipe, with a little left over to feed and maintain the starter for the next time you bake. For instance, if your recipe calls for 1 cup (about 8 ounces) starter, add 4 ounces each water and flour. If your recipe calls for 2 cups (about 16 ounces) starter, add 8 ounces each water and flour.
- Once the starter is bubbling and vigorous, remove what you need for the recipe and set it aside. Feed the remaining starter as usual. Mix until smooth, and allow the starter to work for about 2 hours at room temperature before putting it back in the refrigerator.

Tips from our bakers

- Sourdough baking is as much art as science. This method for maintaining sourdough starter is just one of many you might choose to follow. It doesn't exactly match the process in our "Baker's Companion" cookbook, nor some of our recipes online, nor what your neighbor down the street does. And that's OK. If you have a process you've successfully followed before, then stick with it. Or try this one and compare. All good.
- Use "discard" starter to make pancakes, waffles, cake, pizza, flatbread, or another treat; see our recipes for discard ("unfed") starter. Or, simply give your excess to a friend so he or she can create his or her own starter.



AT A GLANCE

PREP
BAKE
TOTAL
YIELD
about 1 1/2 cups starter

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Fig and Walnut Sourdough

This robust, crusty sourdough is studded with rich figs and crunchy walnuts. It's a terrific partner for any artisanal cheese. If you don't have figs, dried cranberries are a tasty and colorful substitute.

- 1 1/4 cups ripe (fed) sourdough starter
- 1 cup water
- 3 cups King Arthur Unbleached All-Purpose Flour
- 1 1/2 teaspoons salt
- 1/4 teaspoon instant yeast (optional)
- 1/2 cup diced dried figs or cranberries
- 3/4 cup walnuts, roughly chopped

Directions

1. Combine the starter, water, and flour in the bowl of your mixer just until smooth. Cover the bowl and let the mixture sit (autolyse) for 1 hour.
2. After an hour, add the salt and yeast (if using), and knead the dough with your mixer's dough hook on medium speed for 5 to 7 minutes. Just before the kneading is done, mix in the figs or cranberries.
3. Stop the mixer and add the walnuts, using a dough scraper to fold them gently into the dough. Cover the bowl again and let the dough rise at room temperature for 40 to 60 minutes.
4. Turn the dough out onto a lightly greased surface (it will be fairly wet and possibly a bit sticky).
5. Scoop up the edge of the dough with your dough scraper and bring it to the center, pressing down. Give the circle of dough a quarter turn counterclockwise, and repeat three or four more times. You're stretching the dough a bit and rounding it at the same time. For two smaller loaves, divide the dough in half and round each.
6. Flour the banetton(s) you want to use, or a tea towel placed inside a bowl with a shape you find pleasing. Place the rounded dough into the banetton or bowl, bottom side up, cover with plastic wrap, and refrigerate overnight.
7. The next morning, preheat the oven to 450°F with a baking stone in the lower third. Put 1" of water into a small skillet that can go into the oven. Take your breads out of the refrigerator. They may not have risen a lot; that's OK.
8. Bring the water in the skillet to a simmer and place it in the bottom of the oven. Place a piece of parchment on a baker's peel or the back of a baking sheet.
9. Turn the loaves out of their banettons onto the parchment. Slash the top(s) of the loaves, and slide the bread(s), paper and all, onto the stone in the oven. Spray the inside of the oven generously with water from a spray bottle and set a timer for 5 minutes. Spray once more when the timer goes off, and bake for another 35 minutes, until the center of the loaf reads 200°F when measured with a digital thermometer. Remove from the oven and cool on a rack before slicing.

Tips from our bakers

- What is "ripe" sourdough starter? It's a starter that's been fed and allowed to work at room temperature until at its peak level of activity. It should be full of bubbles; if you watch it for 10 to 15 seconds, you should see bubbles coming to the surface and popping, as if a slow-motion boil is happening.



AT A GLANCE

PREP
60 mins. to 1 hrs 15 mins.

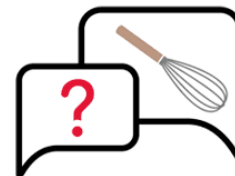
BAKE
40 mins. to 45 mins.

TOTAL
11 hrs

YIELD
1 large loaf, 20 slices

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- What's the 1/4 teaspoon of yeast doing in the ingredients? In this case it shortens the rise times a little bit. You can make a great loaf without it, which is why it's optional in the ingredients list; you'll want to keep an eye on the character of your dough and possibly adjust your expectations for rising times.



Fresh-Milled Miche

This crusty loaf, made with freshly milled grains, is adapted from King Arthur Flour baker Martin Philip's book, *Breaking Bread*, due out in October 2017. *Note: For best results, Martin advises using the gram weights of the ingredients listed below; simply click on "grams" at the top of the ingredient list.*

Levain

- 1/2 cup barely warm water (75°F to 80°)
- a heaping 2 tablespoons ripe (fed) sourdough starter
- 1 1/2 cups + 2 tablespoons whole wheat flour, freshly milled*
- 3/4 teaspoon salt

*While we strongly suggest you fresh-mill the whole wheat from wheat berries, you can substitute King Arthur White Whole Wheat Flour.

Dough

- 1 3/4 cups room-temperature water
- 2 cups + 2 tablespoons King Arthur Unbleached All-Purpose Flour
- 1 cup + 2 tablespoons whole wheat flour, freshly milled*
- 1/2 cup + 2 tablespoons whole rye flour, freshly milled*
- 1 1/2 teaspoons salt
- heaping 1/4 teaspoon instant yeast
- *See "tips," below

Directions

1. To make the levain: In a medium bowl, combine the water and sourdough culture. Mix with your hands and fingers until the culture is broken up and well distributed in the water.
2. Add the flour and salt. Mix briefly, then knead until smooth. Cover and set at room temperature (about 68°F) for 12 to 16 hours.
3. To make the dough: In a large mixing bowl, combine the dough water and stiff levain.
4. Mix with your hands until the levain is broken up in the water, then add the flours, salt, and yeast. Stir with the handle end of a wooden spoon until the dough forms a shaggy mass. If you find it easier, after stirring some, scrape the dough out of the bowl with a plastic scraper onto your work surface and knead briefly with your hands just until the dough comes together. Resist the urge to add flour.
5. Scrape the dough off the work surface and return to the bowl for bulk fermentation.
6. Scrape down the sides of the mixing bowl and allow the dough to rise, covered, for 3 hours at room temperature. While it rises, fold after 15, 30, 45, 60, and 120 minutes. *To fold dough, bring the outside edge closest to you into the center. Rotate the bowl 90°; bring the outside edge closest to you into the center. Repeat twice more: this counts as one fold.*
7. After the final fold, leave untouched for the last hour. As you perform each series of folds, you'll begin to notice that the dough becomes smoother, stronger, and more cohesive.
8. Pre-shape the dough into a round loaf. Cover and let rest for 15 minutes.
9. Uncover the dough and shape it into a smooth, round boule. Place the boule seam-side up in a floured banneton or floured, towel-lined bowl, approximately 10" wide and 4" deep. A 9" lined brotform should work just fine.
10. Cover and let rest for 50 to 60 minutes at room temperature.
11. Toward the end of this final rest, preheat the oven to 450°F with a lidded cast iron pot and lid in the oven. Our bread and potato pot is a good choice here.



AT A GLANCE

PREP
20 mins.

BAKE
40 mins. to 45 mins.

TOTAL
17 hrs 10 mins.

YIELD
1 loaf

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12. Transfer the loaf to a parchment sling, gently inverting it so that the side that was against the dusted towel — the smooth side — becomes the top.
 13. Score the bread several times with a lame and gently transfer to the pot, sling and all. The sling will remain underneath the loaf as it bakes.
 14. Put the lid on the pot and bake the bread for 40 to 45 minutes, removing the lid after 30 minutes. The loaf should be a deep golden brown by the end of its bake.
 15. Remove the bread from the oven, and cool it on a rack. Don't slice until it's fully cooled.
 16. Store bread in a paper bag at room temperature for several days. Freeze for longer storage.
-

Tips from our bakers

- For the best flavor, fresh mill the whole wheat and rye flours; you can mill rye flour from rye chops, coarsely chopped rye berries. Or you can also simply use King Arthur Whole Wheat Flour and whole rye flour (pumpernickel).



Fresh-Milled Spelt Sourdough Bread

This crusty artisan loaf features a deep-brown, crunchy/chewy crust, and tender hole-riddled interior. Spelt, an ancient type of wheat, lends the loaf its mild whole-grain flavor, and wonderful, light-as-air texture. Our thanks to baker/blogger Maurizio Leo for this recipe. *Note: For best results, measure the ingredients for this recipe in grams by clicking the gram option just above the list of ingredients.*

Levain

scant 1/4 cup ripe (fed) sourdough starter
 1/4 cup whole wheat flour, King Arthur White Whole Wheat Flour preferred
 scant 1/4 cup King Arthur Unbleached Bread Flour
 3 1/2 tablespoons water*
 *If your kitchen is cold, use warmer water (up to 90°F) to help the levain stay warm.

Soaker

scant 1 cup whole spelt berries
 scant 1 cup boiling water

Dough

4 cups King Arthur Unbleached All-Purpose Flour
 1 1/3 cups King Arthur Unbleached Bread Flour
 1/2 cup + scant 2 tablespoons whole wheat flour, King Arthur White Whole Wheat Flour preferred
 scant 2 cups whole spelt flour, freshly milled preferred
 2 1/4 cups water*, at room temperature
 4 teaspoons salt
 *See "tips," below

Directions

- To make the levain: Mix all of the levain ingredients together in a small bowl or container. Cover the container and keep the levain somewhere warm, around 76°F to 80°F, for 3 to 3 1/2 hours, until it's "mature" — showing signs of growth.
- To make the soaker: While the levain is maturing, use a home flour mill or high-powered blender to coarsely crack the whole spelt berries; their texture should resemble polenta or corn grits. Transfer the cracked spelt to a heat-resistant bowl.
- Immediately pour the boiling water over the cracked spelt and stir until completely hydrated. Cover to prevent excessive moisture loss, and let cool at room temperature. If your house is excessively warm, add part (or all) of the salt called for in the recipe to the soaker itself. Adding salt will help prevent enzymatic activity in the soaker, which can lead to a potentially undesirable sour flavor.
- To make the dough: Mix all of the dough ingredients together, except any remaining salt. Cover the bowl and let the dough rest for 3 hours at room temperature, until the levain is ready to use. Note: The final target dough temperature for this dough is 78°F to 80°F. If your kitchen is cold, use lukewarm water in order to adjust the temperature of the dough by the end of mixing.
- To finish the dough: Once the levain is mature, add it to the dough in the bowl. Add the soaker, with any of its remaining liquid, as well as any remaining salt. Stir in an additional 2 tablespoons water. Mix and knead the dough by hand, or with a stand mixer fitted with a dough hook, until the dough is somewhat smooth and shows some strength, about 3 to 4 minutes.
- Cover the bowl and let the dough rest for 10 minutes; then mix for an additional 3 minutes (less if using a stand mixer), until the dough becomes smoother in consistency and starts to show further strength.



AT A GLANCE

PREP
20 mins.

BAKE
50 mins. to 50 mins.

TOTAL
23 hrs 15 mins.

YIELD
2 loaves

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7. Transfer the dough to a tub or thick-walled bowl for bulk fermentation; this will take about 3 hours.
8. Give the dough one set of stretch and folds during this period. For the set, stretch the north side up and fold over to just short of the south side, then repeat for the south, east and west sides for a total of four folds (which equals one set). If the dough feels excessively slack or wet at the end of this one set, perform an additional set 30 minutes later.
9. Let the dough rise for the remainder of the 3 hours, until you see bubbles on the top and below the surface. The edge where the dough meets the container should be domed slightly, and the entire dough should jiggle when shaken.
10. Dump the dough onto an un-floured work surface. Using a bench knife and floured hand, gently divide and pre-shape the dough into two taut rounds.
11. Let the dough rest for 25 minutes, uncovered. During this time, prepare two proofing baskets (or bowls) lined with towels dusted with all-purpose flour. Lined brotforms work well here.
12. To shape the dough: Working with one round at a time, liberally flour the work surface and the top of the resting dough. Using floured hands and a bench knife, flip one round over onto the floured surface and fold the top half up and over to the middle and the bottom half up and over the recently folded top. You'll have a long horizontal rectangle sitting in front of you. Turn the rectangle 90° and grab a small portion of the top, pull up and fold over a little bit, pressing down to seal. Take the rolled top and continue to gently roll it downward toward your body with two hands working together. As you do each roll and work your way down the vertical rectangle, use your thumbs to gently press the dough into itself.
13. Once rolled up, transfer the shaped loaves to the prepared baskets, seam side up; the "good" side of the loaf should be at the bottom of the basket. Cover the baskets with plastic and let proof overnight in the refrigerator for a total of 14 to 16 hours.
14. The next day, preheat your oven (with a baking stone on a middle rack, if you're using a stone) for 1 hour at 500°F.
15. When the oven is ready, remove the dough from the fridge. Turn it out of the baskets, so the smooth side is on top. If you're using a stone, turn the risen loaves onto pieces of parchment; you'll move both parchment and pan onto the baking stone using a peel or giant spatula. If you're using a pan, turn them onto a parchment-lined or lightly greased baking sheet. score with a sharp blade (I like one single slash from top to bottom at about a 30° angle) and load into the oven.
16. Slash the loaves with a sharp blade; a single slash from top to bottom at about a 30° angle is attractive.
17. Put the bread into the oven. Add steam to the oven via your favorite method. Try setting an oven-proof pan (e.g, cast iron) on a lower rack, and adding 1 cup boiling water. After 20 minutes reduce the oven temperature to 450°F. Bake the bread for an additional 20 minutes, until it's a deep golden brown and the interior temperature registers at least 210°F.
18. Remove the bread from the oven, and place it on a rack to cool. Let it cool for 2 to 3 hours before slicing.

Tips from our bakers

- Note that freshly milled spelt absorbs more water than aged spelt. If you're not using freshly milled spelt, withhold 1/4 cup water from the amount called for in the dough, adding it back in while mixing only if necessary to create a smooth, soft dough. This will help you avoid over-hydration.



Jewish Rye Bread

Looking for a Jewish Rye bread recipe made the traditional way, with a rye sour and old bread soaker? This Jewish Rye delivers tangy rye flavor and a moist, chewy crumb. It's the perfect foundation for the thickest, juiciest deli sandwich you can assemble.

Please read this recipe all the way through before starting; it's good to understand right up front the time commitment, and there are several useful tips at the end. Also, your successful execution of this recipe will be greatly enhanced if you read and reference its accompanying blog post, [How to Make Jewish Rye Bread](#), along the way. The post includes numerous helpful photos illustrating preparation techniques.

Rye sour

- 1 rounded tablespoon ripe (fed) sourdough starter
- 2 1/4 cups organic pumpernickel flour
- 7/8 cup room-temperature water (70°F)

Old bread soaker

- 1 large slice rye bread or other old/stale bread, cubed (1 heaping cup)
- 1/3 cup cool water

Dough

- 3 1/2 cups King Arthur Organic All-Purpose Flour or King Arthur Unbleached All-Purpose Flour
- all of the rye sour from above, minus one rounded tablespoon*
- 1 cup + 1 tablespoon water (80°F)
- 1/3 cup old bread soaker from above, at room temperature
- 1 tablespoon caraway seeds (optional)
- 1/2 teaspoon ground caraway seeds (optional)
- 2 teaspoons salt
- 1 teaspoon instant yeast

*The remaining rounded tablespoon of rye sour can either be discarded or used to start Rye Sourdough Starter.

Directions

1. To make the rye sour: Mix the ingredients until all the flour is fully moistened; the mixture will be very stiff. Place the sour in a nonreactive container, sprinkle with a light coating of pumpernickel flour, cover, and let rest for 13 to 16 hours, preferably at a temperature of 70°F.
2. To make the old bread soaker: Cut the bread into 1" cubes and place them in a lidded container. Add the cool water, shaking the container to fully moisten the bread. Store the mixture overnight in the refrigerator. Next day, squeeze out the excess water and stir the bread until it breaks down and becomes the consistency of stiff oatmeal. Measure out 1/3 cup (3 ounces, 85g), and bring to room temperature (or warm briefly in the microwave). The remainder can be stored in the refrigerator for up to a week.
3. To make the dough: Place all of the dough ingredients in a mixing bowl. For best (and easiest) mixing and kneading, use a stand mixer; see manual kneading directions in "tips," below. Using the dough hook, mix on lowest speed for 3 minutes, then speed 2 for 3 minutes. Ideal dough temperature after mixing is 78°F.
4. Place the dough in an oiled bowl and cover. Allow the dough to rise in a warm spot (78°F) for 1 hour.
5. Deflate the dough; for best technique, see our video, [how to deflate risen dough](#). Cover the dough and allow it to rest for 10 minutes on a floured surface, folded side up.



AT A GLANCE

PREP
50 mins.
BAKE
40 mins. to 50 mins.
TOTAL
16 hrs 35 mins.
YIELD
one large loaf, 18 slices

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6. Preheat the oven and a baking stone (if you have one) for 1 hour at 460°F. For added steam, preheat a cast iron frying pan on the shelf below the stone for the same amount of time.
7. Shape the loaf into a bâtard, or football shape, taking care not to rip the surface of the dough. Use flour on your hands and the table to help prevent sticking. Pinch the bottom seam closed, if necessary.
8. Place the loaf on a lightly greased piece of parchment paper; sprinkle the parchment with coarse cornmeal, if desired, before adding the loaf. Cover and let rise for 40 to 45 minutes in a warm spot (78°F).
9. Spray or brush the top of the loaf with room-temperature water and sprinkle with caraway seeds, if desired. Score the loaf with 5 horizontal cuts across the top of the loaf, holding the blade perpendicular to the surface of the loaf. The cuts should slightly diminish in length as they approach the tips of the loaf.
10. Carefully place the parchment onto a peel (or the bottom on a baking sheet), and slide parchment and loaf onto the hot stone, partially covering the loaf with a stainless steel bowl (see "tips," below), to trap the rising steam. If you're not baking on a stone, simply transfer the parchment and loaf to a baking sheet, and place in the oven — cover partially with a stainless steel bowl.
11. Pour 1/2 cup boiling water into the frying pan and shut the oven door; this will create the steam necessary for a chewy, shiny crust. Bake the bread for 10 minutes, then remove the bowl.
12. Reduce the oven temperature to 430°F, and bake for 30 to 35 more minutes, checking often for color. The finished loaf should be a deep golden brown when done; its internal temperature should be at least 205°F.
13. Spray or brush the loaf with water again after removing it from the oven. Cool the bread on a rack overnight before slicing.

Tips from our bakers

- This is difficult dough to knead by hand because it's very sticky. If you're up for the challenge, stir all the ingredients together in a bowl until the mixture forms a shaggy mass. Turn the dough out onto an unfloured work surface. Using a bowl scraper to help, knead by hand for 10 minutes, or until the dough is relatively smooth. Scrape the kneading surface frequently to help prevent sticking; the dough will continue to be sticky throughout the process. Wetting your hands, rather than adding more flour, will help prevent sticking without making the dough too dry.
- For best steam, cover the loaf with a large metal bowl, with the front of the bowl hanging over the front of the baking sheet or stone so the steam from the frying pan below can vent into the bowl. When you're ready to remove the bowl, use a butter knife to lift it, then grip and remove.
- Once you've baked this loaf, be sure to save a large slice in the freezer to make old bread soaker the next time you want to bake this recipe.



Mission Fig Bread

This dense and chewy bread, with its crunchy crust, is packed with flavor. Read all the way through the directions before starting; it's an overnight bread, so you'll need to plan ahead. Also, this recipe comes from baker Martin Philip and our King Arthur Flour Bakery. Since our bakers put together their formulas using gram measurements, rather than ounces or volume, you'll be most successful if you make this bread with the aid of a gram scale.

Preferment

- 1 cup + 1 tablespoon King Arthur Unbleached All-Purpose Flour
- 6 tablespoons King Arthur White Whole Wheat Flour or Premium Whole Wheat Flour
- 1/2 cup lukewarm water
- 1 tablespoon ripe (fed) sourdough starter

Soaker

- 6 tablespoons water
- 1/2 cup + 1 tablespoon cracked wheat

Dough

- 1 3/4 cups King Arthur White Whole Wheat Flour or Premium Whole Wheat Flour
- 1 cup King Arthur Unbleached All-Purpose Flour
- 1 teaspoon instant yeast
- 1 scant cup room-temperature water (about 70°F)
- all of the preferment (above)
- a scant 2 1/2 teaspoons salt
- all of the soaker (above)
- 1 cup dried Mission figs, stemmed and chopped slightly larger than marble size
- 1 1/2 teaspoons anise seed, toasted in a skillet until lightly browned

Directions

1. To make the preferment: Mix the flour, water, and sourdough starter until thoroughly combined. Cover and let rest at room temperature for 12 to 16 hours; the dough will be nice and bubbly.
2. To make the soaker: Toast the cracked wheat in a skillet set over low heat until the grains are lightly browned, and smell toasty. Combine the wheat and water, and let rest overnight.
3. To make the dough: In a large bowl, combine the flours and yeast, then stir in the water, mixing until no dry bits remain. If you're using a stand mixer, this may take up to 3 to 4 minutes at low speed.
4. Let the dough rest in the bowl, covered, for 20 minutes.
5. Add the preferment, soaker, and salt, mixing until fully incorporated. Mix for 6 to 7 minutes at medium-low speed; the dough should be smooth (aside from the cracked wheat) and elastic.
6. Add the fig and anise seed, mixing on low speed until evenly distributed. The dough may be quite stiff; that's OK.
7. Check the dough temperature; it should be between 75°F and 80°F. This is the optimum temperature for rising dough, so try to find a spot that's around that temperature.
8. Cover the bowl, and let the dough rise for 15 minutes. Give the dough its first fold by reaching into the bowl and pulling a corner of dough up, folding it back toward the middle, and pushing it down. Repeat, working your way around the dough ball, for a total of 4 to 6 times. This will both de-gas the dough, helping the yeast to work; and strengthen the dough's structure.



AT A GLANCE

PREP
20 mins.

BAKE
32 mins. to 37 mins.

TOTAL
17 hrs 3 mins.

YIELD
2 loaves

🕒 OVERNIGHT

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9. Repeat folding the dough after another 15 minutes (at the 30-minute mark since it started rising), and once more at the 45-minute mark.
10. Let the dough rise for 90 to 120 minutes, or until it's noticeably puffy, though perhaps not doubled in bulk.
11. Gently deflate the dough, and divide it into two pieces about 560g each.
12. Gently pre-shape the pieces by gathering the corners of the dough and folding them to the center to form a loose ball. Place the balls, seam-side down, on a very lightly floured surface, cover, and let rest for 10 to 15 minutes.
13. Working with one piece of dough at a time, shape as a batard with tapered points. Tuck one end underneath to create a teardrop shape. Place seam-side up on a flour-dusted couche or smooth cotton towel. Repeat with the second piece of dough. Need help shaping? See our tips for shaping a batard video.
14. Gently cover the loaves, and let them rise for about 60 minutes, until they're puffy.
15. While the loaves are rising, preheat your oven to 450°F, with a baking stone on the middle rack. Place a cast iron pan on the oven's lowest rack; you'll use it to create steam.
16. To bake on a stone: Roll the proofed loaves, seam-side down, onto a peel dusted with semolina or whole wheat flour. If you aren't using a stone, roll them onto a parchment-lined baking sheet, seam-side down.
17. Score the dough with a baker's lame or very sharp knife, cutting an arc from the midpoint of the tip to the midpoint of the base.
18. Add 1 cup boiling water to the cast iron pan. Quickly use the peel to load the loaves onto the stone (or place the pan in the oven), and close the door.
19. Bake the loaves for 32 to 37 minutes, or until they're a rich mahogany color. The top crust will feel firm, and the bottom crust will be robust, but not burned. If you have a digital thermometer, the loaf's center temperature should be about 200°F.
20. Remove the loaves from the oven, and transfer them to a rack to cool.
21. Yield: 2 loaves.

Tips from our bakers

- Want to try Martin's favorite figs? Look for unsulphered, dried Black Mission figs.
- If your figs seem especially dry, give them a quick soak in hot water for about 20 to 30 minutes, then drain and add to the recipe as usual.



Naturally Leavened Brioche-Style Kugelhopf

Kirsch-macerated raisins and sour cherries add sweetness to this traditional Austrian holiday bread, naturally leavened with sourdough starter. The subtle aroma and flavor of orange blossom water offer a hint of bitter orange peel. This recipe comes to us courtesy of Maurizio Leo, whose blog, *The Perfect Loaf*, examines all things sourdough.

- 1/2 cup sweetened tart cherries
- 1/2 cup Thompson raisins
- 1 cup Kirsch liqueur, or other cherry-flavored liqueur
- 13 tablespoons European-style butter
- 4 cups + 2 tablespoons King Arthur Unbleached Bread Flour
- 2 1/4 teaspoons salt
- 3/4 cup + 2 tablespoons ripe (fed) sourdough starter
- 1/2 cup + 1 tablespoon cold whole milk
- 4 large eggs, cold
- 1/4 cup granulated sugar
- 1 tablespoon orange blossom water, optional
- confectioners' sugar, for dusting

Directions

1. The night before baking the kugelhopf, soak the cherries and raisins in the kirsch. Use a jar that's slender enough to ensure the fruit is completely submerged in the liquor.
2. Measure out the butter and cut it into 1-tablespoon chunks. Let it sit on the counter at room temperature for 30 minutes, until called for at the end of mixing.
3. Drain the cherries and raisins, reserving leftover Kirsch for another use, if desired.
4. In the bowl of a stand mixer, stir together the flour and salt.
5. In a separate bowl whisk together the mature liquid sourdough starter, cold milk, cold eggs, and sugar.
6. Set the stand mixer fitted with a dough hook to stir (slowest speed), and slowly add the liquid mixture to the flour mixture over the course of 2 to 3 minutes, until incorporated.
7. Let the dough rest for 10 minutes. While the dough is resting, combine the drained fruit with the orange blossom water in a separate bowl.
8. Turn the stand mixer to medium speed and mix the dough for 8 to 9 minutes, scraping down the sides with a bowl scraper when necessary, until it starts to ball around the dough hook (it will still stick to the bottom and slightly to the sides of the bowl). The dough should look smooth with no clumps, and start to display signs of elasticity.
9. With the mixer set to medium-low speed, add the butter 1 tablespoon at a time over the course of 5 to 6 minutes. After adding the butter the dough should look elastic and shiny, with no lumps remaining.
10. Set the mixer to stir and add the fruit a little at a time, until incorporated and well distributed.
11. Transfer the dough from the mixer to a bowl and cover with plastic wrap for its bulk fermentation (first rise). Set the covered bowl in a warm spot, about 75°F.



AT A GLANCE

PREP
60 mins.

BAKE
40 mins. to 45 mins.

TOTAL
20 hrs 45 mins.

YIELD
1 loaf

☾ OVERNIGHT

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12. After the first 30 minutes of rise, use your two slightly wet hands to grab the dough at the top of the bowl, stretching it up and folding it over to the bottom of the bowl. Rotate the bowl 180° and perform the same action. Then, rotate the bowl 90° and repeat, stretching the dough at the top of the bowl and folding it to the bottom, and vice versa, bottom to top. The dough should now be folded into a tight little package in the center of the bowl. Cover again with plastic wrap.
13. Let the dough rest for 30 minutes. Repeat the above folds at 30-minute intervals for a total of four sets. After the last set let the dough rest for 30 minutes.
14. Melt 1/2 tablespoon butter and use a pastry brush to coat the entire interior of a 10-cup kugelhopf mold or 10- to 12-cup Bundt pan. Place a single almond at the very bottom of the mold in each "peak."
15. Lightly flour the counter and, using a bench knife, dump the dough out of the bulk container onto the counter. With the bench knife and lightly floured hands, round the dough several times into a tight circle (boule) shape. The dough will be sticky; rely on the knife and your floured hands to build a little more strength into the dough, so it's a tight round.
16. Using your fingers, punch a hole directly in the center of the dough and stretch the hole wide enough to allow the center of the mold to push through.
17. Using the bench knife and your hand, place the dough into the buttered mold. Gently pat the dough so it's even around the entire mold. Cover the mold loosely with plastic wrap. Let the dough rise for 3 to 3 1/2 hours at 75°F, until it reaches the rim of the mold.
18. Towards the end of fermentation, place a rack in the bottom third of the oven and preheat the oven to 400°F.
19. Bake the kugelhopf for 30 minutes, rotating the mold halfway through. Turn the oven down to 375°F and bake for an additional 10 to 15 minutes, until the bread tests done. Because a large portion of the dough isn't visible it can be hard to tell when the bread is done; bake until the visible part of the dough is a deep, golden brown and the bread's internal temperature is around 200°F to 205°F. Keep an eye on the bread for the last 10 minutes, tenting it with foil or adjusting the bake time as necessary.
20. Remove the bread from the oven and cool it on a rack for 10 minutes. Turn the bread out of the mold onto the rack and allow it to cool completely, 3 to 4 hours.
21. Dust the bread with confectioners' sugar and serve.
22. Store any leftovers, well wrapped, at room temperature; freeze for longer storage.

Tips from our bakers

- Since this dough has no added yeast, your starter will be doing all of the rising work. Make sure your starter is very vigorous and active, feeding it several times before using, if necessary.



Naturally Leavened Sourdough Bread

This bread, with its deep brown crust, rich, deep, flavor, and mild tang relies on ripe, active starter for its rise. Without the addition of commercial yeast, it's a true artisan loaf. Are you a beginning sourdough baker? Please start with our Rustic Sourdough Bread recipe, which offers the added security of commercial yeast. Once you master that, move on to this loaf, which is more appropriate for intermediate sourdough bakers.

- 2 cups (16 ounces) ripe (fed) sourdough starter
- 5 cups King Arthur Unbleached All-Purpose Flour
- 3/4 cup King Arthur White Whole Wheat Flour or Premium Whole Wheat Flour
- 1 3/4 cups room-temperature water
- 2 1/2 teaspoons salt

Directions

1. If you're measuring the sourdough starter using volume rather than weight, stir it down before measuring. Combine the starter, flours, and water in a large bowl and mix well, until all of the flour is moistened and the dough has formed a cohesive mass. Add extra water or flour if needed to form a soft, tacky dough.
2. Cover the dough and let it rest for 20 minutes. This rest, known as an autolyse, allows the flour to absorb the water, which starts the dough's gluten formation, and makes it easier to knead.
3. After the rest, add the salt and knead the dough until it's smooth and supple, though still somewhat soft and tacky. When fully kneaded, place the dough back in the bowl, cover, and let it rise for 1 hour.
4. Give the dough a fold: Turn it out onto a floured surface and, using a bowl scraper or bench knife, fold it like a business letter. Turn the dough 90 degrees. Gently flatten it a bit, and repeat the letter fold. Return the dough to the bowl, cover, and let it rise for another hour.
5. At the end of the rise, turn the dough out onto a lightly floured surface and divide it in half. Gently shape into two rounds, cover, and let rest for 20 minutes.
6. After this rest, shape the loaves into tight rounds, and place them seam side up in bowls lined with floured cloth, or on a cloth couche. Cover and let rise until light and airy, about 2 to 2 1/2 hours.
7. About 60 minutes before the bread is ready to bake, preheat the oven with a baking stone in it (if you have a stone) to 450°F. For the best crust, place an empty cast iron frying pan on the oven rack below the stone to preheat.
8. When the loaves are risen, gently turn them out of their bowls onto parchment, slash them with a sharp knife or lame, and slide the parchment directly onto the stone in the oven. If you're not using a stone, turn them out onto a parchment-lined (or lightly greased) baking sheet, slash them, and place the baking sheet in the oven.
9. Pour 1 cup of boiling water into the cast iron frying pan. Be sure to wear good oven mitts to prevent steam burns.
10. Bake the bread until it's crusty and golden, about 35 to 40 minutes. Remove the loaves from the oven and cool on a rack before slicing.
11. Store leftover bread, in a paper bag or loosely covered in plastic, for a day or so at room temperature; wrap and freeze for longer storage.



AT A GLANCE

PREP	20 mins.
BAKE	35 mins. to 40 mins.
TOTAL	5 hrs 35 mins.
YIELD	2 loaves

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Old-Fashioned Maine Sourdough Waffles

Do you sometimes forget to feed your sourdough starter? Making waffles can be an easy reminder. Using the starter you'd ordinarily discard as the basis for tangy, crisp/tender waffles is a win/win! Sourdough waffles are extraordinarily light, and their flavor has an edge (because of the period of fermentation) that puts them in another category from the more usual baking powder version. Traditionally they're served with butter and maple syrup, but their unique flavor combines well with things savory as well.

Overnight Sponge

- 1 cup King Arthur Unbleached All-Purpose Flour
- 1 cup King Arthur White Whole Wheat Flour or Premium Whole Wheat Flour
- 2 tablespoons sugar
- 2 cups buttermilk
- 1 cup sourdough starter, unfed/discard

Batter

- 2 large eggs
- 1/4 cup butter, melted (or vegetable oil)
- 3/4 teaspoon salt
- 1 teaspoon baking soda

Directions

1. To make the sponge: Mix together the flours and sugar in a medium-sized mixing bowl. Stir in the buttermilk, which you've warmed briefly in the microwave (don't worry if it separates a bit).
2. Stir in the starter. Cover loosely with plastic wrap. Let sit at room temperature overnight.
3. To make the waffle batter: Beat together the eggs, butter or oil, salt, and baking soda until light. Blend this mixture into the sponge, and see dramatic chemistry begin to happen.
4. Spray your waffle iron with a bit of vegetable oil pan spray. (This is probably necessary only for the first waffle.) Pour 1/2 to 1 cup batter onto the iron, depending on its size. Cook the waffle for approximately 2 minutes, or until it's as done as you like. Remove gently with a fork.
5. Repeat with the remaining batter. Serve waffles hot, with butter and maple syrup, or your choice of toppings.
6. Leftover waffles can be frozen for a few weeks, and reheated in the toaster.

Tips from our bakers

- Need some sourdough starter to get started? See our step-by-step directions for creating your own sourdough starter from scratch. Or, if you're looking for a head-start, check out our classic fresh sourdough starter, a simpler path to fresh, ready-to-use sourdough starter.
- Waffle irons come in all shapes and sizes. This recipe makes 6 1/2 cups of batter, so you'll have a better idea of how many you can expect to get. A 7" Belgian style waffle uses about 3/4 cup of batter; a waffle that makes thinner, "standard" waffles uses about 1/2 cup and will yield more finished waffles.



AT A GLANCE

PREP
30 mins.

BAKE

TOTAL
8 hrs 30 mins.

YIELD
12 waffles

☾ OVERNIGHT

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Pain au Levain

Though it begins with sourdough starter, this lovely bread's rich flavor is only mildly tangy. With its wonderfully open crumb, it's great alongside soup, stew, or pasta; and also makes a delicious sandwich. Bonus: This loaf uses no commercially produced yeast, for those of you who enjoy baking with starter alone.

Levain

- 1 1/4 cups King Arthur Unbleached All-Purpose Flour
- 1/3 cup room-temperature (70°F) water
- 1/8 cup ripe (fed) sourdough starter

Dough

- 5 1/4 cups King Arthur Unbleached All-Purpose Flour
- 1/2 cup King Arthur organic pumpernickel flour or rye flour
- 2 cups + 2 tablespoons water, 75°F to 80°F
- 1 tablespoon salt

Directions

1. To make the levain: Knead together the levain ingredients to make a smooth, stiff dough. Place the levain in a lightly oiled bowl, cover it, and allow it to ferment overnight at room temperature (65°F to 75°F). It should take the levain about 12 hours to mature. The mature levain will have doubled in size and be domed on top, or just beginning to sink in the middle.
2. To make the dough: Tear the levain into small pieces and add it to the dough water. Add the remaining ingredients and mix until there are no remaining dry pockets of flour. If mixing by hand, use a dough scraper to blend the dough and break down the levain. In a stand mixer, mix the dough on the lowest speed for 2 minutes using the hook attachment.
3. Cover the bowl and allow the dough to rest for 30 minutes.
4. Knead the dough by hand for 3 minutes, or in a stand mixer for 1 1/2 minutes on speed 2. The dough will be quite sticky.
5. Allow the dough to rise for 60 minutes in an oiled and covered bowl.
6. Give the dough a fold and return it to the bowl to rise for another 60 minutes.
7. Gently deflate the dough and divide it in half. Pre-shape it into two rounds. Place the rounds seam side up on a floured surface, covered well. Let the rounds relax for 20 minutes.
8. Shape the loaves into either a bâtard (football) shape or a round (depending on how you plan to bake it).
9. Cover the loaves with greased plastic wrap and allow them to rise on lightly greased parchment for approximately 2 hours. Loaves can also rise in an oiled Dutch oven or cloche; or seam side up in a well-floured brotform, or a bowl lined with a very well-floured cloth.
10. Alternatively, refrigerate the loaves after shaping for up to 16 hours before baking.
11. Preheat the oven to 450°F. If you're planning to bake on a stone with steam, preheat the stone and a cast iron frying pan on the shelf below the stone for 60 minutes.
12. Score the loaves with one long angled cut down the center of the loaf, and spray or brush them with water.
13. When baking on a stone, slide the parchment and loaf onto the hot stone. Pour 1 1/2 cups boiling water into the cast iron frying pan. Be sure to wear good oven mitts to prevent a steam burn.



AT A GLANCE

PREP	15 mins.
BAKE	35 mins. to 40 mins.
TOTAL	17 hrs 25 mins.
YIELD	2 loaves

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14. If baking in a Dutch oven or cloche, remove the lid after 20 minutes and allow the loaf to finish baking in a dry oven.
 15. Bake the bread for 35 to 40 minutes. The loaves should be a rich brown, firm on the sides, and sound hollow when tapped on the bottom. Their internal temperature should be 195°F.
 16. Remove the loaves from the oven, and cool them on a rack. Store at room temperature, lightly wrapped, for a day or so; freeze for longer storage.
-

Tips from our bakers

- Check out this helpful video: [Dividing dough and shaping loaves](#); and this blog post: [preparing shaped loaves for refrigeration](#).
- If you need to bake one loaf at a time, this dough can handle a staggered bake and shouldn't rise too much, even at room temperature.
- 9" parchment rounds are a great way to help protect your loaves from sticking to your Dutch oven or cloche. Be sure to oil the sides of the pot as well.
- When baking in a Dutch oven or cloche you can either bake the loaf in the pot in a preheated oven or start baking in a cold oven. Remove the lid after 20 minutes when baking in a preheated oven, and 30 minutes when starting in a cold oven. Overall baking time will be a bit longer with the cold start (more like 50 to 60 minutes).



Rustic Olive Sourdough Bread

This loaf's slight tang of sourdough, plus the brininess of olives, are perfectly complementary. The strength of these flavors works well with assertive sandwich fillings such as tuna, smoked fish, or meat. Which is not to say the bread isn't equally good slathered with salted butter, as a side to a Mediterranean-inspired meal.

- 1 cup sourdough starter, ripe (fed) or discard
- 1 1/4 cups lukewarm water
- 1/4 cup olive oil
- 2 teaspoons instant yeast
- 1 tablespoon sugar
- 2 1/2 teaspoons salt
- 2 cloves garlic, finely chopped
- 1 tablespoon fresh oregano, finely chopped; or 1 1/2 teaspoons dried oregano
- 4 1/2 to 4 3/4 cups King Arthur Unbleached All-Purpose Flour
- 1/2 to 1 cup cup drained, pitted, and coarsely chopped kalamata olives

Directions

1. Combine all of the ingredients, except the olives, mixing and kneading to form a smooth dough then fold in the olives.
2. Cover the dough, and allow it to rise until it's doubled in size, about 90 minutes.
3. Gently divide the dough in half; it'll deflate somewhat.
4. Shape each piece of dough into a round loaf. Place each loaf on a lightly greased or parchment-lined baking sheet.
5. Cover the loaves and let them rise until very puffy, about 1 hour. Towards the end of the rising time, preheat the oven to 425°F.
6. Spray the loaves with lukewarm water, and make two fairly deep diagonal slashes in each.
7. Bake the loaves for 25 to 30 minutes, until they're a very deep golden brown. Remove them from the oven, and cool on a rack.

Tips from our bakers

- For robust olive flavor, add 1 cup sliced olives, with 4 to 6 tablespoons additional flour, to the dough.
- For a crunchier crust, bake the loaves on a preheated pizza stone.



AT A GLANCE

PREP

10 mins. to 20 mins.

BAKE

25 mins. to 30 mins.

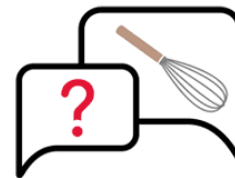
TOTAL

3 hrs 5 mins. to 3 hrs 20 mins.

YIELD

two 8" round loaves.

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Rye Sourdough Starter

Are you a devoted rye bread baker looking to develop a rye starter for your sourdough rye recipes? Here's a simple way to turn some of the discard from your current sourdough starter into a rye starter you can maintain and use for all your rye baking needs.

First feeding

- 1/4 cup sourdough starter, unfed/discard
- 1/4 cup room temperature water (70°F)
- heaping 1/2 cup organic pumpernickel flour

Second and subsequent feedings

- 1/4 cup starter from above
- 1/4 cup room temperature water (70°F)
- heaping 1/2 cup organic pumpernickel flour

Directions

1. For the first feeding: Combine the 1/4 cup starter with 1/4 cup room-temperature water and a heaping 1/2 cup pumpernickel flour (organic preferred).
2. Place the starter in a nonreactive container. Sprinkle a light coating of pumpernickel flour over the top of the starter and cover it.
3. Allow the starter to rise for 12 hours at room temperature (70°F).
4. For the second feeding: Keep 1/4 cup of your initial starter, the one you made 12 hours earlier; discard or give away the rest. Feed the 1/4 cup starter with 1/4 cup room-temperature water and a heaping 1/2 cup pumpernickel flour.
5. Sprinkle the top of the starter with pumpernickel flour and cover it. Allow the starter to rise for 12 hours at room temperature.
6. Repeat feedings as above until the starter is rising well and has a pleasantly tangy odor. The more feedings you give it the better, as it takes a few days for the starter to completely establish itself as a rye starter.
7. Once the starter is rising well, you can refrigerate it for up to a week before feeding it again. Feed your starter as above and allow it to sit out at room temperature for 2 hours before returning to the fridge.

Tips from our bakers

- If your rye starter has been stored in the refrigerator, be sure to give it two or three feedings at room temperature (morning and evening) before you plan to use it in a recipe. This will revive it and help achieve optimum rise and flavor in your bread.
- Add your rye starter to a recipe after it's been fed and isn't quite doubled in size. It will be domed on top, with islands of rye flour surrounded by cracks and crevices. This will likely take about 8 hours at 70°F, but everyone's starter will be a little different.
- You can substitute medium rye flour for pumpernickel, but pumpernickel flour is preferable. The starter will likely ferment more quickly with medium rye flour because it'll be better.
- If you've made Jewish Rye Bread you can use the remaining rounded tablespoon of rye sour in place of the 1/4 cup of unfed sourdough starter in the first feeding, then proceed as above.



AT A GLANCE

PREP
15 mins.

BAKE

TOTAL
3 days 15 mins.

YIELD
6 ounces (3/4 cup) starter

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Seeded Sourdough Soda Bread

Soda bread is one of our staples around St. Patrick's Day, and this year we wanted to do something a little different. While we've always loved our tried and true soda bread recipe, we've also embraced this variation, which is chock full of our Harvest Grains Blend and has a just a touch of background sourdough note.

- 2 1/2 cups King Arthur Irish-Style Wholemeal Flour
- 1 1/4 cups King Arthur Unbleached All-Purpose Flour
- 1/2 cup Harvest Grains Blend, or other seeds and grains of your choice
- 1 teaspoon baking soda
- 3/4 teaspoon salt
- 1 cup sourdough starter, ripe (fed) or discard
- 1/4 cup (4 tablespoons) melted butter
- 3 tablespoons honey
- 3/4 cup milk

Directions

1. Preheat the oven to 400°F. Lightly grease a baking sheet, or line it with parchment.
2. In a medium-sized mixing bowl, whisk together the flours, Harvest Grains Blend, baking soda, and salt.
3. In a separate bowl (or in a measuring cup), whisk together the starter, butter, honey, and milk. Pour this mixture into the dry ingredients and stir to combine. The dough will be stiff; if it's too crumbly to squeeze together, add another tablespoon or two of milk.
4. Knead the dough a couple of times to make sure it's holding together, divide it in half, and shape each half into a ball. Flatten the balls slightly, and place them on the prepared baking sheet. Use a sharp knife to cut a 1/2"-deep cross, extending all the way to the edges, atop each loaf.
5. Bake the loaves for 30 to 40 minutes, until they're golden brown and a cake tester or toothpick inserted into the center comes out clean. Remove the loaves from the oven, and brush their tops with melted butter, if desired.
6. Yield: two 6" to 8" loaves.

Tips from our bakers

- If you don't have our Irish-Style Wholemeal Flour, our Premium Whole Wheat Flour is a good substitute.



AT A GLANCE

PREP
10 mins. to 15 mins.

BAKE
30 mins. to 40 mins.

TOTAL
40 mins. to 55 mins.

YIELD
Two 6" to 8" loaves.

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Sourdough Carrot Cake with Cream Cheese Frosting

This recipe comes from Michael Jubinsky, a long-time King Arthur Flour spokesman, now retired. Says Michael, "It's "worth its weight in gold!" See other wonderful sourdough cake recipes in our *King Arthur Flour 200th Anniversary Cookbook*.

Cake

- 1 1/2 cups vegetable oil
- 2 cups granulated sugar
- 1 cup sourdough starter, unfed/discard
- 3 large eggs
- 1 cup crushed pineapple, drained
- 2 cups grated carrots
- 1/2 cup chopped walnuts
- 1/2 cup shredded unsweetened coconut
- 2 teaspoons vanilla extract
- 2 1/2 cups King Arthur Unbleached All-Purpose Flour
- 2 teaspoons cinnamon
- 1/2 teaspoon salt
- 1 teaspoon baking soda

Frosting

- 6 tablespoons butter, at room temperature
- 1 cup cream cheese, softened
- 1 teaspoon vanilla extract
- 3 1/2 cups confectioners' sugar
- 1 cup chopped pecans or walnuts, optional
- 1/2 cup mini diced ginger (candied ginger) or 1 teaspoon ground ginger, optional
- 2 to 4 tablespoons milk

Directions

1. Preheat the oven to 350°F. Grease and flour a 9" x 13" pan or two 8" x 2" round pans.
2. To make the cake: Combine the oil and sugar, and stir in the starter. Add the eggs one at a time, beating well after each.
3. Fold in the pineapple, carrots, walnuts, coconut, and vanilla.
4. In a separate bowl, combine the flour, cinnamon, salt, and baking soda.
5. Add the dry ingredients to the wet ingredients, stirring just to combine. Pour the batter into the prepared pan.
6. Bake the cake for 45 minutes, or until a toothpick inserted into the center comes out clean, and the sides are just beginning to pull away from the edge of the pan.
7. Remove the cake from the oven and cool it completely on a rack before frosting.
8. To make the frosting: Combine the butter, cream cheese, and vanilla; beat until light and fluffy.
9. Add the sugar gradually, beating to combine.
10. Stir in the nuts and/or ginger. Add the milk, a little at a time, until the frosting is a spreadable consistency.
11. Serve the cake at room temperature. Store it in the refrigerator for up to 5 days. Unfrosted, the cake can be frozen, well wrapped, for up to 3 months. Frost just before serving.



AT A GLANCE

PREP	25 mins.
BAKE	45 mins.
TOTAL	2 hrs
YIELD	2 dozen servings

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Tips from our bakers

- To make the 4 layer cake shown, cut each 8" round in half horizontally. Spread approx. 1/3 cup icing between layers and frost the outside of the cake with the remaining 2 cups of icing.



Sourdough Cinnamon Crumb Cake

A crown of buttery cinnamon crumbs nicely balances the tang of sourdough in this unique take on a classic crumb coffee cake.

Topping

- 2 cups King Arthur Unbleached All-Purpose Flour
- 1 cup granulated sugar
- 1 1/2 teaspoons ground cinnamon
- 1/2 teaspoon salt
- 1 teaspoon vanilla extract
- 1/2 teaspoon almond extract
- 12 tablespoons (3/4 cup) unsalted butter, melted

Batter

- 8 tablespoons (1/2 cup) unsalted butter
- 1 cup granulated sugar
- 2 large eggs
- 1 tablespoon vanilla extract
- 1 cup sourdough starter, unfed/discard
- 2 cups King Arthur Unbleached All-Purpose Flour
- 1 tablespoon potato flour or 2 tablespoons instant mashed potato flakes
- 1 teaspoon baking powder
- 1/2 teaspoon baking soda
- 1/2 teaspoon salt
- 1/4 cup milk
- confectioners' sugar (optional)

Directions

1. Preheat the oven to 350°F. Grease a 9" square pan.
2. To make the topping: In a medium bowl, whisk together the flour, sugar, cinnamon, and salt. Add the vanilla and almond extracts to the melted butter and pour the butter into the flour mixture, stirring until you have a uniformly moist mixture. Set aside while you make the batter.
3. To make the batter: In a large mixing bowl, beat the butter and sugar until well combined. Add the eggs, vanilla, and starter, mixing until smooth and scraping the bowl's sides and bottom as you go.
4. In a medium bowl, whisk together the all-purpose flour, potato flour, baking soda, salt, and baking powder. Add to the butter/starter mixture, stirring until evenly combined. Add the milk and mix until smooth.
5. Spread the batter in the prepared pan. Sprinkle the crumb mixture evenly over the top.
6. Bake the cake for 45 to 50 minutes, until a paring knife inserted in the center comes out clean, and the edge of the cake just barely pulls away from the pan. Remove it from the oven and cool on a rack; dust the top with confectioners' sugar if desired.
7. Store the cake, the pan covered with plastic, at room temperature for several days; freeze for longer storage.

Tips from our bakers

- Some bakers have commented on the "overly generous" amount of crumb topping. After re-testing just to make sure, we stand by the amount of topping as written: enough to cover the cake generously, without leaving any bare spots. If desired, reduce the topping ingredient amounts by 25 percent.



AT A GLANCE

PREP	30 mins.
BAKE	45 mins. to 50 mins.
TOTAL	1 hrs 15 mins.
YIELD	16 servings

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Sourdough Dinner Rolls

Sourdough adds a touch of its distinct flavor and chewiness to these light, moist, buttery rolls. They're baked, clustered together, in two 8" round pans, ensuring that each roll retains its soft, pillowy texture on all sides. They're perfect for soaking up a melting pat of butter, or gravy and cranberry sauce at a Thanksgiving feast.

- 1/2 cup ripe (fed) sourdough starter
- 1 cup lukewarm water
- 2 1/2 cups King Arthur Unbleached All-Purpose Flour
- 1 1/2 teaspoons salt
- 2 tablespoons sugar
- 6 tablespoons unsalted butter, at room temperature
- 1/4 cup Baker's Special Dry Milk, or nonfat dry milk
- 1/4 cup potato flour
- 1 1/2 teaspoons instant yeast

Directions

1. Combine all of the ingredients, and mix and knead — by hand, mixer, or bread machine set on the dough cycle — adding more flour or water if necessary to make a soft, smooth dough.
2. Place the dough into a lightly greased bowl, cover, and allow it to rise at warm room temperature until it's nearly doubled in bulk, 60 to 90 minutes.
3. While the dough is rising, lightly grease two 8" round cake pans.
4. Transfer the dough to a lightly greased work surface, gently deflate it, and divide it into 16 pieces.
5. Shape each piece of dough into a ball. Place eight balls in each of the round pans; if you space the balls evenly, they shouldn't touch one another.
6. Cover the pans and allow the rolls to rise until they touch one another and are very puffy, about 60 to 90 minutes.
7. While the rolls are rising, preheat the oven to 350°F.
8. Bake the rolls for 24 to 26 minutes, until they're a light golden brown on top; a digital thermometer inserted into one of the center rolls should read 190°F.
9. Remove the rolls from the oven and, after 2 or 3 minutes, carefully transfer them to a rack to cool.



AT A GLANCE

PREP
25 mins.

BAKE
24 mins. to 26 mins.

TOTAL
3 hrs 1 mins.

YIELD
16 rolls

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Sourdough English Muffins

Who doesn't love English muffins? Homemade sourdough muffins seem even more scrumptious, and some of the taste-testers here had to admit that these crusty, chewy, tangy gems were some of the best they'd ever eaten.

- 2 tablespoons sugar
- 2 cups warm water (110°F-115°F)
- 1 tablespoon active dry yeast or instant yeast
- 1 cup sourdough starter, ripe (fed) or discard; ripe will give you a more vigorous rise
- 7 cups King Arthur Unbleached All-Purpose Flour
- 1/2 cup Baker's Special Dry Milk or nonfat dry milk
- 1/4 cup (4 tablespoons) butter, at room temperature
- 1 tablespoon salt
- 1/4 teaspoon sour salt (citric acid), optional; for enhanced sour flavor
- semolina or cornmeal, for coating

Directions

1. Combine all of the dough ingredients, except the cornmeal/semolina, in a large bowl.
2. Mix and knead — by hand, electric mixer, or bread machine — to form a smooth dough. The dough should be soft and elastic, but not particularly sticky; add additional flour if necessary.
3. Place the dough in a lightly greased bowl, cover, and set it aside to rise for about 1 1/2 hours, or until it's noticeably puffy. For most pronounced sour flavor, cover the bowl, and immediately place it in the refrigerator (without rising first). Let the dough chill for 24 hours; this will develop its flavor.
4. Gently deflate the dough, turn it out onto a lightly floured work surface, cover it, and let it sit for a few minutes, to relax the gluten. Divide the dough in half. Working with one piece at a time, roll 1/2" thick, and cut in 3" rounds. Re-roll and cut any remaining scraps. Repeat with the remaining half of dough.
5. Alternatively, divide the dough into 24 pieces (total). Shape each piece into a round ball, then flatten each ball into a 3" round. For a somewhat more even rise as the muffins cook, flatten each ball slightly larger than 3", and trim edges with a 3" cutter (or trim all around the edge with a pair of scissors). Muffins with cut (rather than flattened) sides will rise more evenly.
6. Place the rounds, evenly spaced, onto cornmeal- or semolina-sprinkled baking sheets (12 per sheet). Sprinkle them with additional cornmeal or semolina, cover with plastic wrap, and let them rise until light and puffy, about 45 to 60 minutes. If the dough has been refrigerated overnight, the rise time will be about 2 hours.
7. Carefully transfer the rounds (as many as a time that will fit without crowding) right-side up to a large electric griddle preheated to 350°F, or to an ungreased frying pan that has been preheated over medium-low heat.
8. Cook the muffins for about 10 to 12 minutes on each side, or until an instant-read thermometer inserted in the center of a muffin registers 190°F. The edges may feel a bit soft; that's OK.
9. Remove the muffins from the griddle, and cool on a rack. Store tightly wrapped at room temperature for 4 or 5 days; freeze for longer storage.
10. Yield: 2 dozen large muffins.

Tips from our bakers



AT A GLANCE

PREP
25 mins. to 40 mins.
BAKE
20 mins. to 34 mins.
TOTAL
2 hrs 45 mins. to 1 days 3 hrs 14 mins.
YIELD
2 dozen large muffins

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- This recipe is easily halved, if you don't want to make 2 dozen muffins. Halve all of the ingredients; for a slightly faster rise, reduce the yeast to 2 teaspoons, rather than 1 1/2 teaspoons.
- For best sourdough flavor, refrigerate the dough for 24 hours before shaping and cooking the muffins.
- For best shape, cook muffins for about 5 minutes on their first side; then lay a cake pan, cookie sheet, or similar flat (though not overly heavy) object atop them. Continue cooking for 7 minutes or so; then remove the pan, turn muffins over, and finish cooking without the pan on top. This helps keep muffins flat across the top (rather than domed).
- To shorten cooking time, use a lidded electric fry pan heated to 325°F. Cook the muffins for about 10 minutes without the lid (or until they're nicely browned), turn them over, and add the lid. Don't set the lid on tight; leave a small opening for any steam to escape. Cook the muffins for an additional 8 to 10 minutes, until their bottom sides are browned.
- If you're having trouble getting muffins to cook all the way through on the stove top, cook until golden brown on both sides, then transfer to a preheated 350°F oven and bake until the muffins' interior shows no sign of wet dough, about 10 minutes or so.



Sourdough Focaccia

It's hard to forget a meal at Mindy Segal's restaurant, Hot Chocolate, in Chicago. For us, the thick squares of soft yet chewy sourdough focaccia were so memorable that we had to create our own version. The restaurant serves its focaccia with honey-sweetened ricotta, but it's just as tasty served plain.

Dough

- 1 1/2 cups ripe (fed) sourdough starter
- 1 1/2 cups lukewarm water
- 6 cups High-Gluten Flour
- 6 tablespoons olive oil, plus extra for the pan and the top of the focaccia
- 1 tablespoon salt
- 2 tablespoons honey, salted or regular*
- 1 tablespoon instant yeast
- fresh or dried rosemary, for topping
- *If using regular honey, add 1/2 teaspoon salt

Spread

- 1 cup ricotta cheese
- 1 tablespoon Bees Knees Salted Honey or regular honey*
- *If using regular honey, add 1/4 teaspoon salt

Directions

1. To make the dough: Combine the starter and water in a large mixing bowl.
2. Combine the flour with the starter, water, and remaining ingredients. Mix and knead — by hand or stand mixer — until the dough is smooth and elastic. If you're using a stand mixer, this should take 5 to 7 minutes on the lowest speed using the dough hook attachment. If you're kneading by hand, you'll need 12 to 15 minutes.
3. Place the dough in a bowl that's been lightly coated with olive oil, cover, and allow to rise for 60 minutes.
4. Gently fold the dough over three or four times, and let it rise for another 60 minutes.
5. Drizzle a generous 2 tablespoons olive oil into the center of a large sheet cake pan. Don't have a large sheet cake pan? See "tips," below.
6. Transfer the dough to the pan, and turn it over to coat it with the oil.
7. Gently stretch the dough into the edges and corners of the pan. As soon as the dough begins to shrink back, cover it, and let it rest for 10 to 15 minutes. Gently stretch the dough again, repeating the rest once more, if necessary, until the dough fills the pan.
8. Cover the pan and transfer it to the refrigerator to let the dough rise for 14 to 16 hours (overnight).
9. The next day, remove the pan of dough from the refrigerator and preheat the oven to 425°F for 30 minutes (if your kitchen is warm) to 60 minutes (in a cooler kitchen)
10. Just before you're ready to bake, gently dimple the dough at irregular intervals with your fingers, pressing down firmly but not abruptly; you don't want to deflate the focaccia too much.
11. Drizzle 2 tablespoons olive oil (or enough to collect a bit in the dimples), then sprinkle with rosemary and a bit of flaked sea salt.
12. Bake the focaccia for 20 to 25 minutes, until light golden brown.
13. Remove the focaccia from the oven. Allow it to cool enough for you to handle it comfortably, 10 to 15 minutes, then turn it out of the pan onto a rack.



AT A GLANCE

PREP
30 mins.

BAKE
20 mins. to 25 mins.

TOTAL
19 hrs 40 mins.

YIELD
one 13" x 18" focaccia

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14. Make the spread by stirring together the ricotta and honey. Serve the focaccia warm or at room temperature, accompanied by the spread; it's best the same day it's made. You can freeze any leftover focaccia and reheat defrosted slices in a toaster or 350°F oven, just until warmed through.
-

Tips from our bakers

- If you don't have a large sheet cake pan, this recipe can be baked in two 9" x 13" pans. Or to make a smaller focaccia, cut the recipe in half and bake in a 9" x 13" pan.
- You can use all-purpose flour in place of the high-gluten flour, but be sure to start with 1/4 cup less water when you mix the dough.



Sourdough Maple Walnut Bread

Reminiscent of sourdough flapjacks with a drizzle of Vermont maple syrup, this bread is delicious at any time of day.

- 1 1/2 cups King Arthur White Whole Wheat Flour
- 1 cup King Arthur Unbleached All-Purpose Flour
- 1/2 cup sugar
- 1 teaspoon baking powder
- 1/2 teaspoon baking soda
- 1 teaspoon salt
- 3/4 cup sourdough starter, unfed/discard
- 1/2 cup buttermilk
- 8 tablespoons (1/2 cup) unsalted butter, melted
- 2 large eggs
- 1/2 cup maple syrup
- 1/2 teaspoon maple flavor (optional, but recommended for enhanced flavor)
- 1 1/2 cups chopped walnuts

Directions

1. Preheat the oven to 350°F. Grease a 9" x 5" loaf pan.
2. In a large bowl, whisk together the flours, sugar, baking powder, baking soda, and salt.
3. In a separate bowl, mix together the starter, buttermilk, melted butter, eggs, maple syrup, and maple flavor (if using). Add the wet ingredients to the dry, stirring just until the mixture is evenly combined. Stir in the walnuts.
4. Spoon the batter into the prepared pan. Bake until the top of the loaf is golden brown and a paring knife inserted in the center comes out clean, 65 to 70 minutes. Tent the bread with foil after 45 minutes if it's browning too quickly.
5. Remove the bread from the oven and cool in the pan on a rack for 15 minutes before turning it out of the pan. Return to the rack and cool completely before slicing.
6. Store the bread, tightly wrapped in plastic, at room temperature for several days; freeze for longer storage.



AT A GLANCE

PREP
15 mins.

BAKE
1 hrs 5 mins. to 1 hrs 10 mins.

TOTAL
1 hrs 20 mins.

YIELD
1 loaf, 16 slices

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Sourdough Popovers

With only five ingredients, this recipe means you can have popovers mixed up and ready to go into the oven as soon as it's heated up. Half an hour later — hot popovers! The sourdough starter gives them just the slightest tang. And, while these aren't the lightest popovers you'll ever experience, their combination of crisp crust and soft interior is a wonderfully comforting treat.

- 1 cup milk (full-fat, reduced-fat, or skim)
- 3 large eggs
- 1/2 cup sourdough starter, ripe (fed) or discard
- 3/4 teaspoon salt
- 1 cup King Arthur Unbleached All-Purpose Flour

Directions

1. In the microwave or in a small saucepan, warm the milk until it feels just slightly warm to the touch.
2. Combine the warm milk with the eggs, sourdough starter and salt, then mix in the flour. Don't over-mix; a few small lumps are OK. The batter should be thinner than a pancake batter, about the consistency of heavy cream.
3. Heat a muffin or popover pan in the oven while it's preheating to 450°F.
4. Carefully remove the hot pan from the oven, and spray it thoroughly with non-stick pan spray, or brush it generously with oil or melted butter. Quickly pour the batter into the cups, filling them almost to the top. If you're using a muffin tin, fill cups all the way to the top. Space the popovers around so there are empty cups among the full ones; this leaves more room for expansion.
5. Bake the popovers for 15 minutes, then reduce the oven heat to 375°F and bake for an additional 15 to 20 minutes, until popovers are golden brown.
6. Remove the popovers from the oven and serve immediately.
7. Yield: 6 popovers.

Tips from our bakers

- Can you double this recipe to make a dozen popovers? Sure, go right ahead; simply double all the ingredients.
- Can you make these with whole wheat flour? Sure. The result will be a very eggy whole wheat muffin, though, not a popover.
- For sweet, cinnamon-sugar popovers: Prepare and bake the popovers as instructed. When the popovers come out of the oven, brush them with melted butter (about 1/4 cup per batch), and roll them in cinnamon-sugar (about 1/4 cup per batch).
- For savory, cheddar-herb popovers: Mix 2 teaspoons herbes de Provence and 1/4 cup Vermont cheese powder to the flour before stirring it into the sourdough-egg mixture. Finish the popovers according to the recipe instructions.



AT A GLANCE

PREP
5 mins. to 8 mins.

BAKE
30 mins. to 35 mins.

TOTAL
35 mins. to 43 mins.

YIELD
6 popovers

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Sourdough Pumpernickel Bread

This bread, made without the help of commercial yeast, is a great accompaniment to borscht or any other hearty soup. It's made with whole grain rye flour, a.k.a. pumpernickel. Rye flour has less gluten-forming protein than wheat, and so creates a denser bread. For an even heartier loaf, substitute a cup of whole wheat flour for a cup of the all-purpose.

After you've put the dough together and shaped it, it'll need to rise for 2 or 3 hours. If you make one loaf, it'll need to bake for about 45 minutes. Two loaves will each take about 35 minutes. Take this timing into consideration before you start.

Sponge

- 1 1/3 cups ripe (fed) sourdough starter
- 1 cup room temperature black coffee or potato water (water in which potatoes have been boiled)
- 2 cups pumpernickel flour
- 1/2 cup chopped onion

Dough

- 2 tablespoons vegetable oil
- 2 teaspoons salt
- 1/4 cup molasses
- 4 cups King Arthur Unbleached All-Purpose Flour

Directions

1. To make the sponge: Measure the starter into a bowl. Add the coffee or potato water, pumpernickel, and onion. Stir together, cover, and let bubble away at room temperature overnight.
2. To make the dough: The next day, stir the oil, salt and molasses into the sponge. Stir in the flour 1 cup at a time, until the dough comes together.
3. Turn the dough out onto a lightly floured surface and knead, adding only enough additional flour to keep it from sticking to your hands.
4. There are a number of ways to shape this dough. Make one large round loaf, which you'll place on a pumpernickel-sprinkled baking sheet. Or make two smaller versions of the same thing. Or place the entire amount of dough into a large (10" x 5") loaf pan. Or divide it in half, and use two smaller (8 1/2" x 4 1/2") loaf pans.
5. Cover the loaves with a piece of lightly greased plastic wrap. Let them rise in a draft-free spot. You can predict the amount of rise somewhat by the temperature of the space where they're rising: at 55°F to 60°F, they'll probably take 3 to 5 hours to rise; at 65°F to 70°F, 2 to 4 hours.
6. A short time before the loaves have doubled in size, place them in a preheated 350°F oven; they'll continue to rise during the first 15 minutes of baking.
7. Bake two smaller loaves for about 35 minutes; one large loaf will bake for about 45 minutes.
8. The loaves are done when the centers measure 200°F when measured with an instant-read thermometer. Remove from the oven and put on a rack to cool before slicing.
9. Yield: 1 or 2 loaves, 24 servings.

Tips from our bakers



AT A GLANCE

PREP
25 mins. to 35 mins.

BAKE
35 mins. to 45 mins.

TOTAL
3 hrs to 6 hrs 20 mins.

YIELD
24 servings

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- When you knead dough that contains rye flour, it will never completely lose its tacky feel. Instead of adding extra flour, which would make the loaves dry heavy, oil your hands and work surface to prevent sticking.



Sourdough Pumpkin Spice Bread

Adding sourdough starter to this classic fall recipe gives it a lighter texture and intriguing, tangy flavor.

- 1/3 cup vegetable oil
- 1/2 cup sugar
- 1/4 cup molasses
- 2 large eggs
- 1 cup pumpkin purée
- 3/4 cup sourdough starter, unfed/discard
- 1 teaspoon vanilla extract
- 2 cups King Arthur Unbleached All-Purpose Flour
- 3/4 teaspoon salt
- 1/2 teaspoon ground cinnamon
- 1/2 teaspoon ground ginger
- 1/2 teaspoon ground cloves
- 1/4 teaspoon ground nutmeg
- 1/2 teaspoon baking powder
- 1/2 teaspoon baking soda
- 1/2 cup chopped walnuts
- 1/2 cup raisins, packed

Directions

1. Preheat the oven to 350°F. Grease a 9" x 5" loaf pan.
2. In a large bowl, stir together the oil, sugar, molasses, eggs, and pumpkin. Stir in the starter and vanilla.
3. In a medium bowl, whisk together the flour, salt, spices, baking powder, and baking soda. Stir the dry ingredients into the wet until evenly combined. Stir in the nuts and raisins.
4. Transfer the batter to the prepared pan and bake for 60 to 65 minutes, until a paring knife inserted in the center comes out clean.
5. Remove the bread from the oven and cool it in the pan on a rack for 15 minutes before turning it out of the pan back onto the rack. Allow the bread to finish cooling completely before slicing.
6. Store the bread, tightly wrapped in plastic, at room temperature for several days; freeze for longer storage.



AT A GLANCE

PREP
15 mins.

BAKE
60 mins. to 1 hrs 5 mins.

TOTAL
1 hrs 15 mins.

YIELD
1 loaf, 16 slices

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Sourdough Rye Bread

While this bread machine bread isn't "authentic" sourdough, it makes a wonderfully textured, high-rising, great-tasting loaf, thanks to King Arthur Whole-Grain Bread Improver. Want to bake a round loaf (as pictured above) instead of baking in your machine? See "tips," below.

Starter

- 3/4 cup milk heated to 120°F, then cooled to 100°F
- 1 teaspoon active dry or instant yeast
- 3/4 cup white rye flour

Dough

- 2 tablespoons vegetable oil
- 1 1/2 tablespoons molasses
- 1 1/2 tablespoons honey
- 1 large egg
- 1 recipe starter, above; or 1 cup ripe (fed) sourdough starter
- 1/3 cup water
- 2 1/4 cups King Arthur Unbleached All-Purpose Flour
- 3/4 cup white rye flour
- 1 1/2 teaspoons table salt or 2 teaspoons kosher salt
- 2 tablespoons caraway seeds
- 1 1/2 teaspoons active dry yeast or instant yeast
- 4 teaspoons King Arthur Whole-Grain Bread Improver



AT A GLANCE

PREP
12 mins.

BAKE

TOTAL
3 days 3 hrs 20 mins.

YIELD
one 9" x 5" loaf

☾ OVERNIGHT

Directions

1. To make the starter: Combine the milk, yeast, and flour. The mixture will be thick. Cover with plastic wrap and place in a warm (at least 70°F) place for three days, stirring occasionally. The mixture will thin out slightly.
2. To make the bread: Place all the ingredients into your bread machine bucket in the order recommended by the manufacturer; this recipe is appropriate for 1 1/2-pound to 2-pound machine. Program for basic or white bread, and press start.
3. Check the dough about 10 minutes before the end of the final kneading cycle; it should be soft and smooth. Adjust the consistency with additional flour or water, as needed.
4. When the machine completes its cycle, remove the baked bread, and cool it on a rack.
5. Store bread in a plastic bag for 3 days on the counter; or freeze for up to 3 months.

Tips from our bakers

- If you like the look of a more rustic loaf, use the bread machine's dough cycle. Once the cycle is complete, remove the dough from the pan of the bread machine and form it into a round loaf. Place in a greased 9" round pan or ceramic baker, cover, and let rise for 45 to 60 minutes. Preheat the oven to 400°F. When the loaf is almost doubled, slash the top and bake for 25 to 30 minutes, until nicely browned and hollow-sounding when thumped on the bottom. Remove from the oven and cool on a rack.
- Want some classic sourdough starter? See our step-by-step directions for creating your own sourdough starter from scratch. Or, if you're looking for a head-start, check out our classic fresh sourdough starter, a simpler path to fresh, ready-to-use sourdough starter.
- You'll need to make the starter three days before you plan to bake the bread, or substitute 1 cup of your own sourdough starter if you wish.

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Sourdough Starter

Whether it conjures up a crusty, flavorful loaf of bread or a bubbling crock of flour/water starter, sourdough is a treasured part of many bakers' kitchens. But where does the path to sourdough bread begin? Right in your own kitchen, with your own homemade sourdough starter.

Sourdough baking is as much art as science. The method you'll read here for making sourdough starter isn't an exact match for the one you read on another site, or in a cookbook, or in your great-grandma's diary. But it's the tried-and-true method we use for making starter here at King Arthur Flour, and we feel you'll have success with it.

To begin your starter

1 cup whole rye (pumpernickel) or whole wheat flour

1/2 cup cool water*

*See "tips," below

To feed your starter

a scant 1 cup King Arthur Unbleached All-Purpose Flour

1/2 cup cool water (if your house is warm), or lukewarm water (if your house is cool)

Directions

- Day 1:** Combine the pumpernickel or whole wheat flour with the cool water in a non-reactive container. Glass, crockery, stainless steel, or food-grade plastic all work fine for this. Make sure the container is large enough to hold your starter as it grows; we recommend at least 1-quart capacity.
- Stir everything together thoroughly; make sure there's no dry flour anywhere. Cover the container loosely and let the mixture sit at warm room temperature (about 70°F) for 24 hours. See "tips," below, for advice about growing starters in a cold house.
- Day 2:** You may see no activity at all in the first 24 hours, or you may see a bit of growth or bubbling. Either way, discard half the starter (4 ounces, about 1/2 cup), and add to the remainder a scant 1 cup King Arthur Unbleached All-Purpose Flour, and 1/2 cup cool water (if your house is warm); or lukewarm water (if it's cold).
- Mix well, cover, and let the mixture rest at room temperature for 24 hours.
- Day 3:** By the third day, you'll likely see some activity — bubbling; a fresh, fruity aroma, and some evidence of expansion. It's now time to begin two feedings daily, as evenly spaced as your schedule allows. For each feeding, weigh out 4 ounces starter; this will be a generous 1/2 cup, once it's thoroughly stirred down. Discard any remaining starter.
- Add a scant 1 cup (4 ounces) King Arthur Unbleached All-Purpose Flour, and 1/2 cup water to the 4 ounces starter. Mix the starter, flour, and water, cover, and let the mixture rest at room temperature for approximately 12 hours before repeating.
- Day 4:** Weigh out 4 ounces starter, and discard any remaining starter. Repeat step #6.
- Day 5:** Weigh out 4 ounces starter, and discard any remaining starter. Repeat step #6. By the end of day #5, the starter should have at least doubled in volume. You'll see lots of bubbles; there may be some little "rivulets" on the surface, full of finer bubbles. Also, the starter should have a tangy aroma — pleasingly acidic, but not overpowering. If your starter hasn't risen much and isn't showing lots of bubbles, repeat discarding and feeding every 12 hours on day 6, and day 7, if necessary — as long as it takes to create a vigorous (risen, bubbly) starter. *Note: see "tips," below.*



AT A GLANCE

PREP
50 mins.

BAKE

TOTAL
5 days 50 mins.

YIELD
sufficient sourdough for ongoing
baking

🌙 OVERNIGHT

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9. Once the starter is ready, give it one last feeding. Discard all but 4 ounces (a generous 1/2 cup). Feed as usual. Let the starter rest at room temperature for 6 to 8 hours; it should be active, with bubbles breaking the surface. *Hate discarding so much starter? See "tips," below.*
 10. Remove however much starter you need for your recipe — typically no more than 8 ounces, about 1 cup. If your recipe calls for more than 1 cup of starter, give it a couple of feedings without discarding, until you've made enough for your recipe plus 4 ounces to keep and feed again.
 11. Transfer the remaining 4 ounces of starter to its permanent home: a crock, jar, or whatever you'd like to store it in long-term. Feed this reserved starter with 1 cup of flour and 1/2 cup water, and let it rest at room temperature for several hours, to get going, before covering it. If you're storing starter in a screw-top jar, screw the top on loosely rather than airtight.
 12. Store starter in the refrigerator, and feed it regularly; we recommend feeding it with a scant 1 cup flour and 1/2 cup water once a week.
-

Tips from our bakers

- Should you use bottled water? Unless your tap water is so heavily treated that you can smell the chemicals, there's no need to use bottled water; tap water is fine.
- Why does this starter begin with whole-grain flour? Because the wild yeast that gives sourdough starter its life is more likely to be found in the flora- and fauna-rich environment of a whole-grain flour than in all-purpose flour.
- A note about room temperature: the colder the environment, the more slowly your starter will grow. If the normal temperature in your home is below 68°F, we suggest finding a smaller, warmer spot to develop your starter. For instance, try setting the starter atop your water heater, refrigerator, or another appliance that might generate ambient heat. Your turned-off oven — with the light turned on — is also a good choice.
- Why do you need to discard half the starter? It seems so wasteful... But unless you discard starter at some point, eventually you'll end up with a very large container of starter. Also, keeping the volume down offers the yeast more food to eat each time you feed it; it's not fighting with quite so many other little yeast cells to get enough to eat. You don't have to actually discard it if you don't want to, either; you can give it to a friend, or use it to bake. There are quite a few recipes on our site using "discard" starter, including pizza crust, pretzels, and waffles, and even chocolate cake.
- One of our readers offers the following thoughts about the duration of everyday feeding, which we think is great advice: "Conditions vary so widely that 7 days can be far too little. I've learned the key is to watch for a dramatic and consistent rise in the jar — at least doubling between 1 and 4 hours after feeding. This could be 7 days or less after you begin, or it could be three weeks (for me it was 12 to 14 days). I would encourage you to consider tweaking your wording a bit to guide bakers to watch for this phenomenon, rather than watch the calendar." Thanks, Ken!
- Want to put your starter on hold for the summer, or as you go on vacation? Here's how: [Drying your sourdough starter.](#)



Stiff Sourdough Starter

This dough-like stiff starter has double the amount of flour as the typical liquid starter, which is equal parts water and flour. Use it in our recipe for Artisan Sourdough Bread.

First feeding

- 1 cup sourdough starter, unfed/discard*
- 1 scant cup King Arthur Unbleached All-Purpose Flour
- *Use starter that's 100% hydration: equal parts flour and water by weight.

Second feeding

- 1/4 cup room-temperature water
- 1/4 cup lightly packed stiff starter (from first feeding above)
- 1 scant cup King Arthur Unbleached All-Purpose Flour

Directions

1. For the first feeding: Mix the liquid starter and flour together in a bowl until the dough becomes a shaggy mass. Knead until the dough becomes smooth and firm and there are no dry spots. You may need to add an extra tablespoon or two of flour if the dough feels very sticky.
2. Place the starter in an oiled container with the lid on and allow it to ferment at room temperature for approximately 8 hours.
3. For the second feeding: Tear the stiff starter into pieces, and place it in a bowl. Add the water and flour. Mix and then knead to make a firm, smooth dough, with no dry pockets of flour. This should only take a few minutes.
4. Place the starter in a bowl, and cover the bowl with plastic.
5. Allow the starter to ferment for approximately 8 hours, or until it's doubled in size and domed, with the center just beginning to recede. This mature or "fed" stiff starter is now ready to use in your recipe.
6. If you plan to maintain your stiff starter but aren't going to bake with it immediately, let it ferment at room temperature for 2 hours (instead of the 8 hours mentioned in step #5), then refrigerate.

Tips from our bakers

- Want to turn your stiff starter back into a liquid starter? Rip the stiff starter into small pieces and mix it with lukewarm water. The ratio is 3 parts starter to 1 part water, by either weight or volume: e.g., 3/4 cup (6 ounces) stiff starter added to 1/4 cup (2 ounces) water. The easiest way to mix the stiff starter and water is at low speed in a stand mixer, using the beater attachment.
- If after 8 hours you find the starter has fermented too quickly and collapsed, it will still work. If this happens consistently, use cooler water and add a pinch of salt. Alternatively, mix the starter earlier in the day and refrigerate it immediately, removing it from the refrigerator right before you go to bed, then using it in your bread recipe the next day.



AT A GLANCE

PREP
15 mins.

BAKE

TOTAL
8 hrs 15 mins.

YIELD
1 cup (8 ounces) stiff starter

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Vollkornbrot

One hundred percent pumpernickel bread? Yes, it can be done! In fact, this loaf requires very little active hands-on time or kneading, and the biggest challenge you'll face is allowing it to sit for 24 to 48 hours once it's made. Enjoy thin slices of this loaf with cured ham or salmon, your favorite preserve, or a simple slather of butter. It will keep for weeks, wrapped in plastic in the refrigerator, or for months in the freezer, so the possibilities are endless.

Starter

- 3 3/4 cups pumpernickel flour
- 1 3/4 cups warm water
- 2 tablespoons ripe (fed) sourdough starter; or 1/4 teaspoon instant yeast

Soaker

- 2 cups rye chops
- 1 1/4 cups water

Dough

- 2 cups pumpernickel flour
- 1/4 cup water
- 1 tablespoon salt
- 1/2 cup sunflower seeds
- 2 teaspoons instant yeast

Directions

1. Mix the starter ingredients until smooth, cover, and let rest at room temperature overnight.
2. At the same time, combine the soaker ingredients, cover, and let rest at room temperature overnight.
3. The next day, lightly grease the inside of a 13" pain de mie (pullman loaf) pan, then dust it with pumpernickel flour.
4. Combine the starter, soaker, and dough ingredients, by hand or using a stand mixer. Mix and knead the dough until it becomes dense and sticky, but still loose; it won't require a lot of mixing.
5. Transfer the dough directly to a lightly greased work surface and form it into a 13" log. Place the log into the prepared pan.
6. Sprinkle a thin layer of pumpernickel flour over the surface of the dough, cover with plastic wrap, and allow the dough to sit for 60 minutes, until just slightly risen.
7. Towards the end of the rising time, preheat the oven to 450°F.
8. Bake the loaf (without the lid on the pan) for 15 minutes, then reduce the oven temperature to 425° and bake for 50 to 60 minutes longer, until the surface is cracked and dark brown.
9. Remove the bread from the pan, transfer it to a baking sheet, and bake for another 5 to 10 minutes, until the loaf's internal temperature reaches at least 205° on a digital thermometer inserted into the center.
10. Remove the loaf from the oven, and transfer it to a rack to cool completely.
11. Wrap the cooled bread in a towel, or place it in a paper bag and let it rest for at least 24 to 48 hours before slicing.



AT A GLANCE

PREP
15 mins.

BAKE
1 hrs 10 mins. to 1 hrs 25 mins.

TOTAL
14 hrs 40 mins.

YIELD
one 13" loaf.

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