

BEGINNER SOURDOUGH BAKING CLASS

Student Reference Binder

****SLO Food Market****

****Student Name:**** _____

****Class Date:**** _____

SECTION 0: WELCOME

How to Use This Binder

Welcome to sourdough baking! This binder contains everything you need to make your first loaves at home.

What's Inside

****Quick Reference Card (Section 2)**** - Keep this propped up on your counter while baking. It answers the most common questions: Is my starter ready? Is bulk fermentation done? All at a glance.

****Your First Bake (Section 3)**** - Follow this step-by-step for your first few loaves. Don't skip ahead - master this first.

****Core Skills (Sections 4-7)**** - Starter care, fermentation, shaping. Reference these as needed.

****Troubleshooting (Section 9)**** - When something goes wrong, look here. Every problem has a solution.

****Tracking Templates**** - Use these to log your bakes and spot patterns in your process.

Color Coding

Each section has a colored tab for quick navigation:

- ****Yellow/Orange**** = Quick Reference (use constantly)
- ****Blue**** = Your First Bake (your roadmap)

- **Green** = Starter
- **Orange** = Gluten & Mixing
- **Yellow** = Fermentation
- **Purple** = Shaping
- **Red** = Schedules
- **Gray** = Troubleshooting
- **White** = Your notes and logs

Start Here

Before your first bake:

1. Read Section 3 (Your First Bake) completely
2. Gather your equipment (Section 1)
3. Feed your starter the night before

During your bake:

- Keep the Quick Reference Card (Section 2) on your counter
- Follow Section 3 step-by-step
- Don't stress if it's not perfect

After your bake:

- Fill out a bake log
- Review what worked and what to change
- Bake again!

You've Got This

Sourdough has a reputation for being difficult. It's not - it just requires patience and attention to a few key moments. This binder will guide you through those moments.

By your 5th loaf, you'll understand your dough. By your 10th, you'll be confident. By your 20th, you'll wonder why you ever thought it was hard.

We're here to help. If you get stuck, reach out:

- **Email:** [your email]
- **Phone:** [your phone]
- **Visit:** SLO Food Market

Happy baking!

— Scott and the SLO Food Market Team

SECTION 1: EQUIPMENT & FLOUR ESSENTIALS

PAGE 1: What You Need to Get Started

Essential Equipment

You don't need much to make great sourdough. Here's what you actually need:

Must Have (Can't bake without these)

Digital Scale

- Must measure in grams
- Capacity: at least 2kg (2000g)
- Tare function (zeros out)
- Cost: \$15-30
- Brands: Ozeri, Greater Goods, Escali, OXO

****Why you need it:**** Volume measurements (cups) vary by 25-30%. Weight is precise and consistent every time.

Large Mixing Bowl

- Size: 3-4 quart capacity
- Material: Glass, ceramic, or stainless steel
- Cost: \$10-20

Bowl Covers

- Plastic wrap, shower caps, or reusable bowl covers
- Must seal to prevent drying
- Cost: \$5-10

Bench Scraper

- Metal or plastic
- For handling sticky dough and shaping

- Cost: \$5-10

****Jar for Starter****

- Wide-mouth quart jar (or larger)
- Glass or plastic
- Straight sides (so you can see rise)
- Cost: \$3-8

****Banneton (Proofing Basket)****

- Round, 9-inch diameter
- With or without cloth liner
- Cost: \$15-25
- ****Budget option:**** Use a bowl lined with a well-floured towel

****Dutch Oven****

- 5-7 quart size
- Must be oven-safe to 450°F (including lid)
- Cast iron, enameled cast iron, or ceramic
- Cost: \$30-80
- ****Budget option:**** Use a large oven-safe pot with lid, or a roasting pan with foil cover

****Parchment Paper****

- For transferring dough
- Unbleached preferred
- Cost: \$5-10

Nice to Have (Makes life easier)

****Dough Whisk**** - \$8-12, great for initial mixing

****Silicone Bowl Scraper**** - \$5-8, flexible, gets every bit of dough

****Lame or Razor Blade**** - \$10-20 for lame, \$3 for pack of razors (for scoring)

****Baking Stone or Steel**** - \$30-60, improves bottom crust

****Instant-Read Thermometer**** - \$15-25, check internal temp

****Proofing Box**** - \$50-150, controls temperature (not necessary for beginners)

Total Startup Cost

****Minimum (if you have nothing):**** \$80-120

****With nice-to-haves:**** \$150-200

Budget-Friendly Alternatives

Don't have much to spend? Here's how to start for under \$60:

- ✓ Digital scale: \$15-20 (NON-NEGOTIABLE)
- ✓ Bowl you already own: \$0
- ✓ Shower caps for covers: \$5
- ✓ Bench scraper: \$5
- ✓ Quart jar: \$3
- ✓ Bowl + kitchen towel (instead of banneton): \$0
- ✓ Enamel roasting pan or large pot with lid: \$15-30
- ✓ Parchment: \$5

****Total: \$48-68****

You can upgrade later. Start simple.

Where to Buy

****Local:****

- SLO Food Market (we carry most of these)
- Restaurant supply stores
- Kitchen specialty shops

****Online:****

- Amazon
- King Arthur Baking

- Breadtopia
- WebstaurantStore (bulk/commercial)

PAGE 2: Flour Guide

Flour Types - What to Use

Not all flour is the same. Protein content matters for sourdough.

Bread Flour ★ START HERE

****Protein content:** 12-13%**

****Best for:** Sourdough (this is what we use at SLO Food Market)**

****Why it works:** Higher protein = more gluten = better structure and rise**

****Brands we recommend:****

- King Arthur Bread Flour
- Central Milling Artisan Bakers Craft
- Bob's Red Mill Artisan Bread Flour

****Use this for your first 5-10 loaves.** Master the basics with bread flour before experimenting.**

All-Purpose Flour

****Protein content:** 10-11%**

****Best for:** Feeding your starter (it's cheaper)**

****For baking:** Works but gives less structure than bread flour**

****When to use:** When you can't get bread flour, or for softer breads**

****You can bake with AP flour, but bread flour gives better results for sourdough.****

Whole Wheat Flour

****Protein content:** 13-14%**

****Best for:** Adding flavor and nutrition (use 10-30% in your recipe)**

****Things to know:****

- Absorbs more water (increase hydration by 5-10g per 100g whole wheat)

- Ferments faster (bran feeds yeast more)
- Creates denser crumb
- Deeper, nuttier flavor

****Don't use 100% whole wheat for your first loaves.** Start with 10-20% and work up.**

Whole Wheat vs White Whole Wheat

****Regular whole wheat:** Made from red wheat, stronger flavor**

****White whole wheat:** Made from white wheat, milder flavor, lighter color**

Both work the same way in recipes.

Rye Flour

****Protein content:** Variable**

****Best for:** Small amounts for flavor (10-20% max)**

****Things to know:****

- Very active fermentation (use sparingly)
- Creates sticky dough
- Unique tangy flavor
- Low gluten

****Use 10-15% rye in combination with bread flour, not alone.****

What About "High-Protein" or "Sir Lancelot" Flour?

These are 14%+ protein flours. Great for bagels and pizza. Overkill for sourdough. Stick with regular bread flour (12-13%).

Why Protein Matters

****Protein = Gluten Potential****

More protein → More gluten → Stronger structure → Better rise

Flour Type	Protein	Result
Cake/Pastry	7-9%	Too weak for bread
All-Purpose	10-11%	Works, not optimal
Bread Flour	12-13%	Perfect for sourdough
High-Protein	14%+	Tough, chewy (too much)

Our Recommendation for Beginners

For your dough:

- 100% bread flour for first 10 loaves
- Then experiment with 10-20% whole wheat

For feeding your starter:

- All-purpose flour (cheaper, works great)
- Or bread flour if you want

Keep it simple at first. Master the process, then experiment with flours.

How to Store Flour

Bread flour & all-purpose:

- Cool, dry place
- Airtight container
- Lasts 6-8 months at room temp

Whole grain flours (whole wheat, rye):

- Refrigerator or freezer (oils go rancid faster)
- Airtight container
- Lasts 3-4 months refrigerated, 6-12 months frozen

Bring refrigerated flour to room temp before using (or use slightly warmer water to compensate).

Local Flour Sources

Where to buy quality flour:

- SLO Food Market (we stock the brands we use)

- King Arthur Baking (online)
- Central Milling (online, California-based)
- Local co-ops and natural food stores

****Grocery store flour works too.**** King Arthur is available at most supermarkets.

SECTION 3: YOUR FIRST BAKE - COMPLETE WALKTHROUGH

PAGE 1: The Big Picture

Weekend Morning Bake Timeline

This schedule gives you fresh bread Saturday morning at 9 AM.

FRIDAY

****9:00 AM**** - Feed starter (5 min)

↓ **wait 6 hours**

****3:00 PM**** - Mix dough (10 min)

****3:30 PM**** - Fold #1 (2 min)

****4:00 PM**** - Fold #2 (2 min)

****4:30 PM**** - Fold #3 (2 min)

****5:00 PM**** - Fold #4 (2 min)

↓ **bulk fermentation - no touching**

****8:00 PM**** - Shape dough (10 min)

****8:15 PM**** - Into fridge

↓ **cold proof overnight - you sleep**

SATURDAY

****7:00 AM**** - Preheat oven (2 min)

↓ **wait 1 hour**

****8:00 AM**** - Score & load (5 min)

****8:45 AM**** - Remove from oven (1 min)

↓ *cool 1+ hours*

****10:00 AM**** - ****SLICE & ENJOY!****

Active Time

****Day 1 (Friday):**** 30 minutes spread across 11 hours

****Day 2 (Saturday):**** 8 minutes

****Total hands-on time: 38 minutes over 2 days****

Everything else is waiting. The yeast does the work.

What You Need

****Ingredients:****

- 50g active starter (you'll build to 300g)
- 500g bread flour
- 350g water
- 10g salt

****Equipment:****

- Digital scale
- Large bowl
- Bowl cover
- Bench scraper
- Banneton or bowl + towel
- Dutch oven
- Parchment paper
- Lame or sharp knife

PAGE 2: Step-by-Step Instructions (Part 1)

STEP 1: Feed Starter (Friday 9 AM, 5 min)

****What to do:****

1. Take 30g of your starter (discard the rest)

2. Add 135g all-purpose flour
3. Add 135g room temperature water
4. Stir until completely mixed (no dry flour)
5. Cover loosely (needs to breathe)
6. Leave at room temp

****Set a reminder for 3:00 PM****

****What's happening:**** The yeast is eating and multiplying. In 6 hours it will be at peak activity.

[PHOTO: Starter being fed, before and after mixing]

STEP 2: Mix Dough (Friday 3 PM, 10 min)

****First, check your starter:****

- ☐ Has it doubled in size?
- ☐ Is the top domed (not flat)?
- ☐ Lots of bubbles on surface?
- ☐ Does it pass the float test? (drop a spoonful in water - should float)

****If NO to any → wait another 30-60 min****

****If YES to all → proceed!****

****Mix the dough:****

1. In large bowl: 300g active starter + 350g water
2. Stir until starter dissolves in water
3. Add 500g bread flour
4. Add 10g salt
5. Mix with hands until no dry flour remains

****What it should look like:**** Shaggy, rough, sticky mess. This is CORRECT.

6. Cover bowl
7. Set timer for 30 minutes

[PHOTO: Shaggy dough just after mixing]

****What's happening:**** Flour is hydrating. Gluten is starting to form.

STEP 3: Develop Gluten (Friday 3:30-5:00 PM, 2 min each)

****You'll do 4 sets of stretch & folds, 30 minutes apart.****

****How to do a stretch & fold:****

1. Wet your hand
2. Grab one edge of dough
3. Stretch it up gently (6-8 inches)
4. Fold it over to the center
5. Rotate bowl 90°
6. Repeat - grab, stretch, fold
7. Do this 4 times total (once on each "side")
8. Flip dough over (smooth side up)
9. Cover bowl

****Schedule:****

- 3:30 PM - Fold #1
- 4:00 PM - Fold #2
- 4:30 PM - Fold #3
- 5:00 PM - Fold #4

****After Fold #4, do the windowpane test:****

- Take small piece of dough
- Gently stretch between fingers
- Can you stretch it thin enough to see light through?
- ****YES = ready for bulk**** ✓
- ****NO = do one more fold in 30 min****

[PHOTO: Stretch & fold motion sequence]

[PHOTO: Windowpane test - passing]

****What's happening:**** You're building gluten structure that will trap gas and give your bread strength.

STEP 4: Bulk Fermentation (Friday 5-8 PM, 0 min active)

****What to do:****

1. After final fold, cover bowl
2. Place in a warm spot (70-75°F ideal)
3. ****Leave it alone for 3 hours****
4. Set alarm for 8:00 PM

****Do NOT disturb it. No peeking, no touching.****

****At 8:00 PM, check if it's ready:****

****Visual check:****

- ☐ Has it risen 50-75%? (NOT doubled)
- ☐ Surface is bubbly and domed?
- ☐ Jiggles when you move bowl?

****Poke test:****

- Flour your finger
- Poke dough ½ inch deep
- Does it spring back SLOWLY (3-5 seconds) and leave a slight indent?

****If YES to all → Shape it now!****

****If NO → wait 30 more minutes, check again****

[PHOTO: Dough at 50-75% rise, bubbly surface]

[PHOTO: Poke test showing slow spring-back]

****What's happening:**** Yeast is producing CO₂, dough is rising, flavor is developing. This is the most important stage.

PAGE 3: Step-by-Step Instructions (Part 2)

STEP 5: Shape (Friday 8 PM, 10 min)

****Pre-shape:****

1. Lightly flour your counter
2. Turn dough out onto counter
3. Fold edges to center 6-8 times (working around in a circle)
4. Flip over so smooth side is up
5. Cover with towel
6. ****Let rest 15 minutes**** (bench rest)

[PHOTO: Pre-shape folding motion]

****Final shape (after 15 min rest):****

1. Lightly flour top of dough
2. Flip over (smooth side down, seam side up)
3. Fold far edge to center
4. Fold right side to center
5. Fold left side to center

6. Fold near edge up and over (like closing an envelope)
7. Flip over (smooth side up)
8. Cup hands around dough
9. Drag toward you in small circular motions
10. Rotate dough, drag again
11. Repeat 5-8 times until surface is taut

[PHOTO: Letter folds sequence]

[PHOTO: Drag-and-rotate motion creating surface tension]

****You should see/feel:**** Tight, smooth surface. Dough holds its shape.

****Into the banneton:****

1. Flour banneton **HEAVILY** (use way more flour than you think)
2. Use bench scraper to lift dough
3. Flip into banneton **SEAM SIDE UP**
4. Pinch seam closed if it looks loose
5. Cover with plastic bag or shower cap

[PHOTO: Heavily floured banneton]

[PHOTO: Dough placed seam-up in banneton]

STEP 6: Cold Proof (Friday 8:15 PM - Saturday 8 AM)

****What to do:****

1. Put covered banneton in refrigerator
2. Go relax / sleep
3. Set alarm for 7:00 AM Saturday

****What's happening:**** Final rise happening slowly in cold. Flavor developing. Structure setting up.

****This can go 12-48 hours.**** For this bake: 13 hours.

STEP 7: Preheat (Saturday 7 AM, 2 min)

****What to do:****

1. Place Dutch oven with lid in oven
2. Set oven to 450°F
3. ****Preheat for FULL HOUR****

4. Don't skip this - thermal mass matters
5. Set timer for 1 hour

Make coffee. Have breakfast. Relax.

STEP 8: Score & Load (Saturday 8 AM, 5 min)

****BE CAREFUL - DUTCH OVEN IS VERY HOT****

1. Remove banneton from fridge
2. Place parchment on counter
3. Flip banneton over onto parchment (dough should release)
4. If stuck, gently work fingers around edge to release

****Score the dough:****

1. Hold lame or knife at 30-45° angle (not straight down)
2. One confident slash, 4-5 inches long
3. About ½ inch deep
4. Don't hesitate - one smooth motion

[PHOTO: Scoring angle and depth]

****Load into Dutch oven:****

1. Carefully remove hot Dutch oven from oven
2. Use parchment as a "sling" to lower bread into pot
3. Put lid on immediately
4. Place back in oven

STEP 9: Bake (Saturday 8-8:45 AM, 0 min active)

****Phase 1 - Covered (20 minutes):****

- Bake with lid ON
- DO NOT open oven
- Steam is trapped, bread is rising

****Phase 2 - Uncovered (20-25 minutes):****

- Remove lid from Dutch oven
- Continue baking until DEEP golden brown
- Not light golden - keep going until rich, dark golden
- Internal temp should reach 200°F+ (if you have thermometer)

****Total bake time: 40-45 minutes****

[PHOTO: Color progression - too pale vs perfect deep golden]

STEP 10: Cool & Slice (Saturday 8:45 AM+)

****Remove from oven:****

1. Turn bread out onto cooling rack
2. Listen for crackles (good sign!)
3. Admire your work

****WAIT BEFORE SLICING:****

- Minimum: 1 hour
- Better: 2 hours
- Best: 3-4 hours for complete set

****Why wait?**** Interior is still cooking. Crumb is setting up. If you cut too soon it will be gummy.

****We know it's hard to wait. Do it anyway.****

[PHOTO: Beautiful finished loaf on cooling rack]

When You Finally Slice

****You did it!**** You made sourdough.

****What to look for:****

- Crust: Crispy, deep golden brown
- Crumb: Open holes of various sizes, light and airy
- Texture: Chewy crust, tender interior
- Smell: Amazing
- Taste: Complex, slightly tangy, delicious

****Not perfect? That's okay.**** See Section 9 (Troubleshooting) and try again. Every loaf teaches you something.

****Congratulations on your first loaf! Now make another one.****

SECTION 4: STARTER BASICS

PAGE 1: Feeding & Maintenance

What Is a Sourdough Starter?

A living culture of wild yeast and bacteria in flour and water. It's what makes your bread rise and gives it that tangy flavor.

****Your starter needs:****

- Regular feeding (food for the microbes)
- Warmth (room temp or fridge)
- Air (cover loosely, not airtight)

****Think of it as a low-maintenance pet that makes you bread.****

Feeding Your Starter

****Basic ratio: 1:1:1****

- 1 part starter
- 1 part flour (by weight)
- 1 part water (by weight)

****Example:****

- 50g starter
- 50g flour
- 50g water (room temp)

****How to feed:****

1. Discard most of your starter, keeping only what you need (usually 50g)
2. Add flour and water in equal amounts
3. Stir until no dry flour remains
4. Cover loosely
5. Wait 4-6 hours at room temp until peaked

****Why discard?**** If you didn't, you'd have gallons of starter within a week. Discarding keeps the ratio balanced.

****What to do with discard:**** Compost, use in pancakes/crackers/waffles, or give to a friend.

Two Ways to Store Your Starter

Option 1: Counter (For frequent bakers)

- Keep at room temp
- Feed once or twice daily
- Always ready to use
- Best if baking 2-3+ times per week

Option 2: Fridge (For occasional bakers) ★ RECOMMENDED FOR BEGINNERS

- Feed starter
- Let sit 1-2 hours
- Put in fridge
- Feed once a week
- Best if baking once a week or less

To use from fridge:

1. Remove night before (12-16 hours before baking)
2. Feed it (1:1:1)
3. Leave at room temp until doubled and bubbly
4. Use what you need
5. Feed remainder and put back in fridge

Is My Starter Ready to Use?

Your starter is ready when it has ALL of these:

- ✓ Doubled in size (or close)
- ✓ Domed top (not flat or collapsed)
- ✓ Lots of bubbles throughout
- ✓ Fresh, tangy smell (not harsh)
- ✓ **Passes float test** - drop spoonful in water, it should float

If it sinks → NOT READY → Feed again and wait

[PHOTO: Ready vs not ready starter side-by-side]

[PHOTO: Float test - floating vs sinking]

Feeding Ratios for Different Timings

1:1:1 (Same-day baking)

- Example: 50g starter + 50g flour + 50g water
- Ready in: 4-6 hours
- Use when: Baking same day

1:5:5 (Overnight)

- Example: 20g starter + 100g flour + 100g water
- Ready in: 8-12 hours
- Use when: Want it ready in the morning

More food = slower rise = more flexibility

PAGE 2: Common Starter Problems

Problem 1: Liquid on Top (Hooch)

What you see: Clear, gray, or brown liquid pooling on top

What it means: Your starter is hungry. It's eaten all available food.

What to do:

- Pour off the liquid OR stir it back in (stir = more sour)
- Feed your starter
- Feed more often, or use bigger ratio (1:5:5 instead of 1:1:1)

Is it bad? No, just hungry.

[PHOTO: Hooch on starter]

Problem 2: Won't Rise / Very Sluggish

What you see: Starter barely rises after feeding, few bubbles, inactive

Possible causes:

Water too hot - Killed the yeast. Use room temp water (never over 90°F)

Too cold - Kitchen is very cold. Move to warmer spot, wait longer (8-12 hrs)

****Needs more feedings**** - Been in fridge for weeks. Feed daily for 3-5 days to wake it up.

****Chlorine in water**** - Some tap water has high chlorine. Let water sit out overnight or use filtered.

****What to do:****

- Check water temp
- Move to warm spot (75°F)
- Feed daily for several days
- Be patient - it will revive

[PHOTO: Sluggish starter with few bubbles]

Problem 3: Smells Like Nail Polish Remover (Acetone)

****What you smell:**** Strong acetone or vinegar smell, harsh

****What it means:**** Starter is very hungry and stressed

****What to do:****

1. Feed your starter
2. If on counter: Feed twice daily instead of once
3. If in fridge: Use bigger ratio (1:5:5 or 1:10:10)
4. After feeding, it should smell fresh again

****Will it affect bread?**** If you use it when it smells like this, bread will be very sour. Better to feed it and wait for peak.

Quick Troubleshooting Guide

Problem	Cause	Solution
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Hooch on top	Hungry	Feed it
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Won't rise	Too cold, weak, or water too hot	Warm spot, feed daily, check water temp
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Acetone smell	Very hungry	Feed more often or bigger ratio
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Separated layers	Sitting too long	Stir together, feed it
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Forgot to feed for 2+ weeks	Neglect	Feed daily for 5-7 days to revive
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****Is my starter dead?**** Probably not. If you see ANY bubbles or rise, it's alive. Keep feeding.

****Signs it might be dead:****

- Mold (fuzzy growth, pink/orange/black spots) → Discard, start over
- Zero activity after 5+ feedings → Contact us for new starter
- Putrid smell (rotting) → Discard

****Bottom line: If it bubbles at all, keep feeding it. Starters are resilient.****

Starter Care Summary

****Daily feeding (counter):** 1:1:1, once or twice daily**

****Weekly feeding (fridge):** 1:5:5, once a week**

****Before baking:** Remove 12-16 hrs early, feed, wait for peak**

****When ready:** Doubled, domed, bubbly, passes float test**

****If hungry:** Feed it**

****If sluggish:** Feed daily, warm spot, patience**

****Questions? Contact us - we're here to help.****

SECTION 5: WINDOWPANE TEST & FOLDING

Why Gluten Matters

****Gluten = protein network that traps gas and gives structure****

When you mix flour and water, proteins link together forming gluten. Strong gluten = bread that rises up. Weak gluten = bread that spreads flat.

****You need fully developed gluten for good sourdough.****

The Windowpane Test - Your Best Tool

This test tells you if gluten is ready.

****How to do it:****

1. Take small piece of dough (golf ball size)
2. Wet your hands
3. Gently stretch dough between your fingers

4. Keep stretching, making it thinner
5. Hold up to light

****PASS ✓**** - You can stretch it thin enough to see light through it (like a windowpane)

****FAIL ✗**** - It tears before getting translucent

[PHOTO: Three stages - tears immediately (fail), gets somewhat thin (partial), translucent membrane (pass)]

****If it fails:**** Keep folding. Test again in 30 minutes.

****This test never lies.**** Trust it more than time or feel.

Stretch & Fold Method

****Why this works:**** Builds gluten gently over time without continuous kneading.

****How to do it:****

1. Wet your hand (so dough doesn't stick)
2. Grab edge of dough from side of bowl
3. Stretch up gently (6-8 inches)
4. Fold over to center
5. Rotate bowl 90°
6. Repeat - grab, stretch, fold
7. Do 4 times total (once on each "side")
8. Flip dough over (smooth side up)
9. Cover and wait 30 minutes

****Do 3-4 sets total, 30 minutes apart****

[PHOTO: Step-by-step stretch & fold sequence from above angle]

What You'll Notice

****After Fold #1:**** Dough still rough, but slightly smoother

****After Fold #2:**** More cohesive, getting stronger

****After Fold #3:**** Smooth, elastic, holds together well

****After Fold #4:**** Strong, bouncy, should pass windowpane test

Common Mistakes

- ✗ ****Too much flour on counter**** - Dough slides, can't create tension
- ✗ ****Tearing the dough**** - Be gentle, stretch don't rip
- ✗ ****Skipping the rest periods**** - Gluten needs time to relax between folds
- ✗ ****Not doing enough folds**** - If windowpane fails, do another set

✓ ****Light flour, gentle stretching, patient waiting, trust the windowpane test****

****Remember: Mixing ≠ Gluten Development****

Mixing takes 2 minutes. Gluten development takes 2-3 hours with folds. Don't rush it.

SECTION 6: FERMENTATION VISUAL GUIDE

PAGE 1: The Three Stages of Bulk Fermentation

****This is where most beginners struggle. Learn to recognize these stages and you'll nail it every time.****

✗ STAGE 1: UNDERFERMENTED - Not Ready

[LARGE PHOTO: Dough risen only 25-30%, few bubbles, looks dense]

****What you see:****

- Only risen 25-30%
- Few bubbles on surface
- Dense, compact look
- Doesn't jiggle when moved

****Poke test:**** Springs back FAST (1-2 seconds)

****What it means:**** Not enough fermentation. Needs more time.

****What to do:**** Wait 30-60 more minutes. Check again.

****If you bake now:**** Dense, gummy bread with tight crumb. Don't do it.

✓ STAGE 2: PERFECT - Ready to Shape!

[LARGE PHOTO: Dough risen 50-75%, domed top, lots of bubbles visible]

****What you see:****

- Risen 50-75% (NOT doubled)
- Domed surface
- Bubbles all over
- Jiggles like Jell-O when you move bowl

****Poke test:**** Springs back SLOWLY (3-5 seconds), leaves slight indent

****Smell:**** Fresh, tangy, pleasant

****What it means:**** Perfect fermentation. Ready to shape.

****What to do:**** SHAPE IT NOW (or within 1 hour)

****If you bake this:**** Beautiful oven spring, open crumb, great flavor. This is the goal.

✗ STAGE 3: OVERFERMENTED - Too Far

[LARGE PHOTO: Dough collapsed or very flat, giant irregular bubbles, looks wet]

****What you see:****

- May have risen high then collapsed
- Top is flat or sunken
- Very large, irregular bubbles
- Looks broken down or wet

****Poke test:**** Doesn't spring back AT ALL. Hole stays.

****Smell:**** Very sour, harsh, maybe alcoholic

****What it means:**** Went too far. Gluten broke down.

****What to do:**** Shape immediately. Don't wait longer.

****If you bake this:**** Flat loaf, gummy crumb with giant holes, very sour. Not ideal but still edible.

PAGE 2: Poke Test, Temperature & Using the Fridge

The Poke Test - Master This

****How to do it:****

1. Flour your finger
2. Poke dough about ½ inch deep
3. Remove finger and watch

****Three outcomes:****

****Springs back FAST (1-2 sec)**** → Underfermented, wait longer

****Springs back SLOWLY (3-5 sec), slight indent remains**** → PERFECT ✓

****Doesn't spring back, hole stays**** → Overfermented, shape now

[PHOTO: Three poke test results side-by-side]

****Use this for both bulk fermentation AND final proof.****

Temperature Controls Everything

Warmer = Faster | Cooler = Slower

****Bulk fermentation times:****

| Kitchen Temp | Typical Time |

|-----|-----|

| 80°F+ | 3-4 hours |

| 75-79°F | 4-5 hours ★ |

| 70-74°F | 5-6 hours |

| 65-69°F | 6-8 hours |

| 60-64°F | 8-10 hours |

****These are guidelines.** Always trust visual/poke test over clock.**

Finding Warm Spots

****Warmest spots in your kitchen:****

- Top of refrigerator
- Inside turned-off oven with light on
- Inside microwave with mug of hot water
- Near (not on) radiator or heat vent

****Coolest spots:****

- Counter away from heat
- Basement
- Cooler room

****Aim for 70-75°F for most predictable results.****

The Fridge = Your Pause Button

****Use refrigeration strategically:****

****During bulk:**** Need to leave? Put dough in fridge. Fermentation slows to crawl. Resume when back.

****After shaping:**** Cold proof 12-48 hours gives you flexibility on when to bake.

****Too fast?**** Put in fridge for 30-60 min to slow it down.

****The fridge is your best friend for fitting sourdough into your life.****

Key Takeaways

- ✓ Watch for 50-75% rise (NOT doubled)
- ✓ Trust the poke test more than time
- ✓ Jiggle test - dough should wobble like Jell-O
- ✓ Temperature affects timing dramatically
- ✓ Better slightly early than late

✓ Use fridge for flexibility

****Visual and tactile cues > clock time****

SECTION 7: SHAPING A BOULE

PAGE 1: Why Shaping Matters

What Shaping Does

****Creates surface tension**** → Dough rises UP not OUT → Better oven spring

****Think of it like this:**** You're organizing all those gas bubbles and wrapping them in a tight skin so they push upward in the oven.

****Good shaping = tall loaf****

****Poor shaping = flat pancake****

The Two-Step Process

****Step 1: Pre-shape****

- Organize the dough
- Create initial structure
- Takes 1-2 minutes

****Then: Bench Rest (15-20 min)****

- Gluten relaxes
- Makes final shaping easier
- DON'T SKIP THIS

****Step 2: Final Shape****

- Create maximum surface tension
- Give final form
- Takes 2-3 minutes

Pre-Shape

[PHOTO: Dough on counter with light flour]

1. Lightly flour counter (not too much)
2. Turn dough out of bowl
3. Fold edges to center 6-8 times, working in a circle
4. Flip over (smooth side up)
5. Cover with towel
6. ****REST 15-20 MINUTES****

****This rest is critical.**** Dough will fight you without it.

[PHOTO: Pre-shape folding sequence]

PAGE 2: Final Shape & Into Banneton

Final Shape - Creating Tension

****After 15-20 min rest:****

1. Lightly flour top of dough
2. Flip over (smooth side down, seam side up)
3. Letter fold:
 - Fold far edge to center
 - Fold right side to center
 - Fold left side to center
 - Fold near edge up and over (like envelope)
4. Flip over (smooth side up)
5. ****Drag and rotate.****
 - Cup hands around dough
 - Drag toward you in small motions
 - Dough grips counter, surface tightens
 - Rotate 30-45°
 - Repeat 6-8 times

[PHOTO: Letter folding sequence from above]

[PHOTO: Hand position for drag-and-rotate motion]

****What you should see:**** Surface getting tighter, dough becoming more round, standing taller

****What you should feel:**** Resistance as you drag, structure building

Into the Banneton

****CRITICAL:** Flour your banneton HEAVILY**

Not a light dusting. HEAVY coating. Like snow. This is where beginners mess up.

1. Flour banneton generously (rice flour works best, or regular flour)
2. Use bench scraper to lift dough
3. Quickly flip into banneton
4. ****Seam side goes UP**** (will be bottom when you flip out to bake)
5. Pinch seam closed if loose
6. Cover with plastic bag or shower cap
7. Into fridge

[PHOTO: Heavily floured banneton - it should look white]

[PHOTO: Dough being placed seam-up in banneton]

Common Shaping Problems

****Dough spreads out:**** Not enough surface tension. Do more drag-and-rotate motions.

****Dough tears:**** Too aggressive. Be gentler. Or dough too cold.

****Sticks to banneton:**** NOT ENOUGH FLOUR. Use 3x more than you think.

****Seam opens during proof:**** Didn't pinch it closed. Pinch seam firmly.

What Good Shaping Looks Like

After shaping, your boule should:

- Hold its shape (not immediately spreading)
- Have smooth, taut surface
- Feel slightly firm when touched
- Be round (ish - doesn't need to be perfect)

****Don't expect perfection on loaf #1.**** This is a physical skill. Your hands need practice.

****By loaf #5, it will feel natural.****

SECTION 8: WEEKEND BAKING SCHEDULE

Fresh Bread Saturday Morning at 9 AM

This schedule worked in Section 3. Use it as your template.

FRIDAY

****9:00 AM**** - Feed Starter

- 30g starter + 135g flour + 135g water
- Cover, room temp

****3:00 PM**** - Mix Dough

- Check starter (doubled, domed, float test)
- 300g starter + 350g water + 500g flour + 10g salt
- Mix until no dry flour

****3:30-5:00 PM**** - Folds

- 4 sets of stretch & fold, 30 min apart
- Windowpane test after fold #4

****5:00-8:00 PM**** - Bulk Fermentation

- Cover, warm spot, don't touch
- Check at 8 PM: 50-75% rise, poke test

****8:00 PM**** - Shape

- Pre-shape, rest 15 min, final shape
- Into heavily floured banneton

****8:15 PM**** - Into Fridge

- Cover banneton, refrigerate overnight

SATURDAY

****7:00 AM**** - Preheat

- Dutch oven in oven, 450°F, full 1 hour

****8:00 AM**** - Score & Load

- Flip onto parchment, score, into Dutch oven

- Lid on

****8:00-8:20 AM**** - Bake Covered (20 min)

****8:20-8:45 AM**** - Bake Uncovered (20-25 min)

- Until deep golden brown

****8:45 AM**** - Cool (1+ hours)

****10:00 AM+**** - SLICE & ENJOY

Adjusting for Your Kitchen

****Kitchen warmer (75-80°F)?****

- Start earlier: Feed starter 10 AM instead of 9 AM
- Bulk will finish around 7 PM instead of 8 PM

****Kitchen cooler (65-70°F)?****

- Start earlier: Feed starter 8 AM instead of 9 AM
- Bulk might take until 9 PM

****Want to bake Sunday instead?****

- Follow same schedule Friday
- Leave in fridge until Sunday morning (38 hours cold proof)
- More sour flavor, still great

****Want weekday bread?****

- Shift entire schedule to different days
- The timing stays the same, just move the calendar

Blank Schedule Template

****Work backwards from when you want fresh bread:****

Fresh bread at: _____

Bake starts: _____ (subtract 45 min)

Preheat: _____ (subtract 1 hour)

Shape & fridge: _____ (subtract 12-24 hours)

Mix: _____ (subtract 5 hours from shaping)

Feed starter: _____ (subtract 6 hours from mixing)

****Fill this out and you have your custom schedule.****

SECTION 9: TOP 6 PROBLEMS

PAGE 1: Dense Crumb & Flat Loaves

Problem 1: Dense, Gummy Crumb

[PHOTO: Cross-section showing very tight crumb, few holes]

****What you see:****

- Tight, dense texture
- Few small holes
- Gummy or dough-like when pressed
- Heavy

****Most common cause: UNDERFERMENTED BULK****

- Didn't let it rise enough (stopped at 30-40% instead of 50-75%)
- Poke test sprang back too fast
- Rushed it

****Other causes:****

- Gluten not fully developed (failed windowpane test)
- Underbaked (pulled too early)
- Weak starter

****Fix for next time:****

- ✓ Let bulk go longer - wait for 50-75% rise
- ✓ Trust poke test (slow spring-back)
- ✓ Ensure windowpane test passes
- ✓ Bake until deep golden, 200°F+ internal temp

****Is it still good?** YES. Makes excellent toast and croutons.**

Problem 2: Flat Loaf, No Oven Spring

[PHOTO: Very flat, wide loaf from side view]

****What you see:****

- Loaf spread out instead of rising up
- Flat, pancake-like (2-3 inches tall instead of 4-5)
- Little oven spring

****Most common cause: OVERFERMENTED****

- Bulk went too long (over 75-100% rise)
- Gluten broke down
- Lost structure

****Other causes:****

- Poor shaping (no surface tension)
- Dough too wet for flour type
- Scored too deep

****Fix for next time:****

- ✓ Stop bulk at 50-75% rise (poke test: slow spring, not no spring)
- ✓ Create strong surface tension when shaping
- ✓ Score only ½ inch deep
- ✓ Consider reducing hydration slightly

PAGE 2: Crust Problems

Problem 3: Pale, Soft Crust

[PHOTO: Loaf with blonde, undercooked-looking crust]

****What you see:****

- Pale blonde or tan crust
- Soft, not crispy
- Looks undercooked

****Most common cause: OVEN NOT HOT ENOUGH****

- Didn't preheat full hour
- Temperature too low
- Pulled too early

****Other causes:****

- No steam (didn't bake covered first)
- Overfermented (no sugars left for browning)

****Fix for next time:****

- ✓ Full 1-hour preheat at 450°F
- ✓ Bake covered 20 min first
- ✓ Keep going until DEEP golden brown (not light golden)
- ✓ Don't stop bulk too late

Problem 4: Stuck to Banneton, Torn Surface

[PHOTO: Loaf with ripped, messy top where it stuck]

****What you see:****

- Surface torn when removed from banneton
- Bits of dough stuck in basket
- Messy, irregular surface

****Cause: NOT ENOUGH FLOUR IN BANNETON****

- This is the #1 beginner mistake
- You need WAY more flour than you think

****Fix for next time:****

- ✓ FLOUR BANNETON HEAVILY
- ✓ It should look white/coated, not just dusted
- ✓ Use rice flour (less sticky) or regular flour
- ✓ Rub flour into every crevice of liner
- ✓ Dust seam side of dough before placing in banneton

****If it happens:**** Score over the tears, bake anyway. Crust will cover most damage.

PAGE 3: Flavor Problems

Problem 5: Way Too Sour

****What you taste:****

- Extremely sour, almost vinegary
- Harsh tang
- Too acidic
- Maybe alcoholic flavor

****Most common cause: OVERFERMENTED****

- Bulk went too long
- Cold proof beyond 48 hours
- Starter was very acidic

****Other causes:****

- Very warm fermentation (80°F+)
- Starter hadn't been fed in a while

****Fix for next time:****

- ✓ Shorten bulk (stop at 50-60% instead of 75%)
- ✓ Cold proof 12-18 hours instead of 36-48
- ✓ Feed starter regularly
- ✓ Ferment in cooler spot (70-75°F)
- ✓ Use cooler water when mixing

Problem 6: Not Sour at All

****What you taste:****

- Tastes like white bread
- No tang
- Missing sourdough flavor

****Most common cause: UNDERFERMENTED****

- Rushed through bulk
- Short cold proof (under 12 hours)
- Didn't give time for acid to develop

****Other causes:****

- Very young starter (under 2 weeks old)
- Too cold during fermentation

****Fix for next time:****

- ✓ Let bulk go to 75% rise
- ✓ Cold proof 24-36 hours instead of 12
- ✓ Let starter mature (gets more flavor after 2-3 months)
- ✓ Ferment at 72-75°F
- ✓ Consider adding 10-15% rye flour for more tang

Remember

****Every "failed" loaf teaches you something.**** Take notes, adjust one thing next time, keep baking.

****Most problems come from:****

1. Underfermented or overfermented bulk (80% of issues)
2. Weak or inactive starter
3. Poor shaping
4. Not enough flour in banneton

****Master fermentation timing and you'll solve most problems.****

SECTION 10: TRACKING YOUR BAKES

Why Track?

After 10 logged bakes, you'll know:

- Your kitchen's actual fermentation time
- Your ideal cold proof window
- How different flours perform
- Seasonal adjustments needed

****This knowledge is gold.**** It's personalized to YOU.

What to Track (Minimum)

- ☐ Date & kitchen temperature
- ☐ Bulk fermentation duration
- ☐ Cold proof duration
- ☐ Final result (photo if possible)
- ☐ What went well
- ☐ What to change next time

****That's 2 minutes of writing. Worth it.****

Two Templates Provided

****Template 1: Detailed Bake Log** (next page)**

- Comprehensive tracking
- Every detail
- Use when learning

****Template 2: Quick Checklist** (page after)**

- Simple, fast
- Just the essentials
- Use when experienced

****Choose what works for you. Make copies.****

Tips for Success

- ✓ Fill out right after baking (while fresh)
- ✓ Be honest - note failures
- ✓ Take crumb shot photos
- ✓ Review every 5-10 loaves to spot patterns
- ✓ Bring log to class for troubleshooting

****See template pages that follow. Make copies and use them!****

[END OF CORE CONTENT - 20 PAGES]

TEMPLATES (Make copies of these)

Template 1: Detailed Bake Log

****Loaf #:** _____ ****Date:**** _____ ****Kitchen Temp:**** _____ °F**

STARTER

Fed at: _____ | Ratio: ☐ 1:1:1 ☐ 1:5:5 | Condition: ☐ Great ☐ OK ☐ Weak

MIX

Time: _____ | Flour brand: _____ | Hydration: _____%

GLUTEN DEVELOPMENT

Method: ☐ Stretch & fold ☐ Other | Folds: _____ | Windowpane: ☐ Pass ☐ Fail

BULK

Start: _____ | End: _____ | Duration: _____ hrs | Rise: ☐ 50% ☐ 75% ☐ 100%+

Poke test: ☐ Fast spring ☐ Slow spring ☐ No spring

SHAPE

Time: _____ | Bench rest: _____ min | Tension: ☐ Good ☐ OK ☐ Poor

PROOF

Cold: _____ hrs | OR Room temp: _____ hrs

BAKE

Preheat: _____ min | Covered: _____ min | Uncovered: _____ min | Temp: _____ °F

RESULTS

Oven spring: ☐ Great ☐ Good ☐ Poor

Crumb: ☐ Open ☐ Tight ☐ Uneven ☐ Gummy

Crust: ☐ Perfect ☐ Pale ☐ Too dark

Flavor: ☐ Perfect ☐ Not sour enough ☐ Too sour

Rating: ☐ ★ ☐ ★★ ☐ ★★★ ☐ ★★★★ ☐ ★★★★★

Photo attached? ☐ Yes ☐ No

What went well:

Change next time:

Notes:

Template 2: Quick Checklist

Loaf #: _____ **Date:** _____

☐ Starter doubled and passed float test

☐ Mixed until no dry flour

- ☐ Passed windowpane test
- ☐ Bulk rose 50-75%
- ☐ Poke test showed slow spring-back
- ☐ Shaped with good tension
- ☐ Banneton heavily floured
- ☐ Cold proofed _____ hours
- ☐ Preheated full hour
- ☐ Scored at 30-45° angle
- ☐ Baked covered 20 min
- ☐ Baked uncovered 20-25 min until deep golden
- ☐ Cooled 1+ hours before slicing

****Result:**** ☐ Success! ☐ OK ☐ Try again

****One thing to change:****

Blank Notes

****Date:**** _____

[END OF BINDER]