# Build a Baking Bridge: Home to Career

### **Sharon Davis, Home Baking Association**

Family & Consumer Sciences Education
Director, Program Development







# Today's FCS CTE Baking Bridge Goals

- Bridge: Home-to-careers- develop classroom baking education to career opportunit
   HBA connections, Farm-to-oven- grain, milling & baking industry professions
- 2. Baking and milling workforce scope and needs
- 3. Discuss education strategies and opportunities

**FCS CTE educators** 

**FCS CTE students** 

CEU/Professional development

Students, FCCLA; in classrooms, community, work-sites

Work with HBA, its members

HBA *Baking STEAM* workshops at ACTE VISION, FCCLA, AAFCS, State FCS/CTE. Train, connect home baking interest and skills with lifelong benefits.









### Bridge Begins Where You Learned to Bake



	1st	2nd	3rd	Sum of 1st-2nd-3rd
At home from a parent or relative	61%	18%	14%	92%
Any social media	-	-	-	65%
TV baking/cooking shows	11%	26%	22%	58%
Watching videos online	8%	17%	21%	46%
Home Economics or Family and Consumer Sciences class	8%	19%	12%	39%
Early childhood program	3%	5%	8%	16%
Community program (eg 4-H, Scouts)	2%	4%	7%	14%
After school program	2%	5%	6%	13%
Career/ tech school class	2%	5%	6%	13%
STEM (science, technology, engineering, math) class	2%	3%	3%	8%
	100%	100%	100%	-

Fall 2019 Semester KS State Univ. Baking Science Aaron Clanton, PhD Instructor reports:

Two classes:
7 of 14 mention start
with home baking
28 students, 14 learned
baking from family
--mom/grandma
--FCS, 4-H

Q27: How or where did you first learn to bake? Please select up to three of the first ways you learned to bake. Total of 3,489 "votes" cast.

Mintel Consulting: September 2019



### Who's The Home Baking Association?

Since 1929 – 2023 Baking resources for anyone who teaches baking.



#### **MEMBERS**

**ADM Milling Anchor Hocking Ardent Mills** Baker Bettie Bigger Bolder Baking Canadian National Millers Chelsea Milling Company Colorado Wheat Domino Foods/C&H Sugar **Grain Craft** Hammons Black Walnuts Hopkinsville Milling Company Kansas State U. Baking Science **Kansas Wheat Commission** King Arthur Baking Company Lesaffre Yeast Corporation Nebraska Wheat Board North American Millers' Association North Dakota Mill North Dakota Wheat Commission Northern Crops Institute



Ag commodities
Millers
Ingredients
Baking educators
Packaging
Baking Education

Oklahoma Wheat
Panhandle Milling
Renwood Milling
Share Our Strength/Great American Bake Sale
Shawnee Milling Company
South Dakota Wheat Commission
Stafford County Flour Mills Co.
Stone-Buhr Flour Company
Texas Wheat Board
Thermoworks
The Sugar Association
The Uhlman Company
Washington Grain Foundation

#### **Partners:**

American Assoc of Family & Consumer Sciences (AAFCS)
Family, Career and Community Leaders of America (FCCLA)
Child & Adult Care Food Programs (CACFP)
National Extension Association of Family & Consumer Sciences (NEAFCS)

The Family Dinner Project Wheat Foods Council Whole Grains Council

# How Does Home Baking Association Fit?

### Bake to Build FCS STEAM

- AAFCS, ACTE, FCCLA, NEAFCS and state conferences sessions, webinars
- **Baking STEAM** FCS, CTE teacher professional development Arkansas California Colorado Florida Georgia Iowa Kansas Ohio Oklahoma Missouri Texas Mississippi Montana Nebraska North Carolina North Dakota Tennessee Washington Wisconsin...
- ½- to 2-day professional workshops, institutes, labs
- Home-to-career bridge for baking terms, methods, teaching resources, distance-learning, www.HomeBaking.org
- Youth leader baking STEAM activities for home, community, out-of-school, STEM
- Child and adult care programs, Parents as Teachers
- Build career connections
- Virtual and in-person

More: *FCS, STEM and STEAM.* McGregor, *S* JOURNAL OF FCS, VOL 111, No. 4 2019.

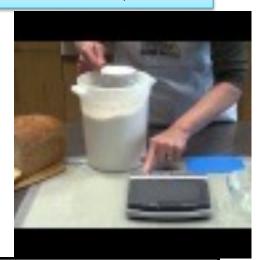


Spokane, WA New Tech Center



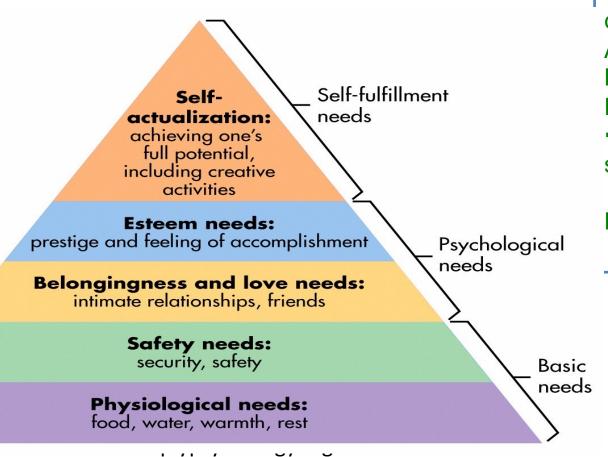


FCS CTE Teachers, Students



Bridge Traditional FCS Kitchens to CTE Labs

# Baking Bridge Spans FCS CTE



→ Baking and cooking skills help Achieve <u>each</u> level of Maslow's Hierarchy of Needs → Achieve meaningful, life supporting work, career

Dual value—not "either or"





# Baking Skills More than Just a Job

Many children have never seen their parents produce a meal speed or scratch."

- Classes to demystify the process
- Emphasize simple, inexpensive, speed scratch
- Children's skills could teach parents, contribute resources, boost self-confidence/esteem
- Teens diets improve when help prepare meals

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"If children are raised to feel uncomfortable in the kitchen, they will be at a disadvantage for life."

JOURNAL of the AMERICAN MEDICAL ASSOCIATION. 2010. Lichtenstein, A; Ludwig, D. 303(21):2109

Critical Thinking Q: Doctors seeking food skill education partners. Why not FCS students--Chefs often lead the charge for advancing home food education with children. EX: CookingMatters.org

# DIY \$kills Add Up



An unexpected \$400 bill would cause problems for 40% of U.S. HH and cause them to borrow money or owe on credit cards. Federal Reserve Study

Family of 4, Eats "Ready-To-Eat" 4 times weekly

\$ 36.00+ (drive through/carry out)

-15.00 cost of home meal for 4

21.00 saved per meal

X 208 meals per year eaten out

\$ 4,368 per year

X 18 years

\$78,624

# There are 11 MM children who are food insecure daily in the U.S.

Nokidhungry.org

https://cookingmatters.org/



Critical Thinking Q: How many hours and which food and financial content woul significantly reduce food insecurity and lack of savings if adult skills were require prior to leaving secondary school?



### Baking: 27+ FCS Standards, Career Connections

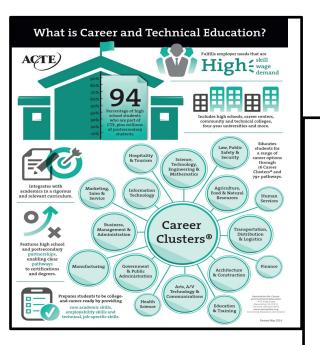


- Consumer sciences critical in social media age
- Life skills for health, wealth 0 to 105
- Relationship builder-Peers, family, community, work
- Calculate, control \$\$\$, resources, sustainability
- Test kitchen science--Substitute ingredients; sensory analysis; R&D new ingredients

↓sodium, sugars, "non-recognizable" additives ↑potassium, magnesium, calcium, iron, protein ↑Whole grains, antioxidants, plant-based, allergen free, fruits, veggies, pulses, seeds, natural preservatives

 Pathways to food sciences, hospitality, human services, consumer sciences NASAFACS.ORG, 2018 National Standards, 3.0







Baking has careers in 14 of the ACTE Career Clusters FCS place= at the Center



HBA **Baking STEAM** workshop





# Baking Career & Tech Skills

Project time management

Problem solving, creativity' R&D

Visualization, communication

Reading, comprehension, application

Team building

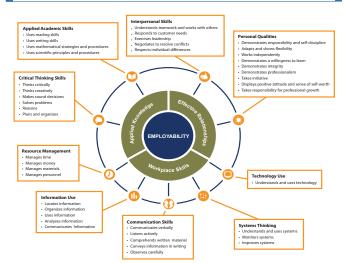
Cultural/social diversity

Tech resources, computers, equipment

Food handling, safety, storage Marketing skills, customer preferences, challenges

#### **EMPLOYABILITY SKILLS FRAMEWORK**

Employability Skills: A Crucial Component of College and Career Readiness iduals require many skills to be college and career ready, including academic knowledge chnical expertise, and a set of general, cross-cutting abilities called "employability skills.

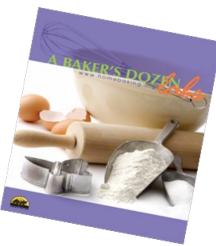


#### **Common Framework for Employability Skills**

The Employability Skills Framework advances a unifying set of skills that cuts across the workforce development and education sectors based on an inventory of existing employability skills standards and assessments

The Employability Skills Framework was developed as part of the Support for States Employability Standards in Career and Technical Education (CTE) and Adult Education project, an initiative of the Office of Career, Technical, and Adult Education, U.S. Department of Education. Framework development was guided by CTE, adult education, workforce development and business organizations, and twelve federal agencies

http://cte.ed.gov/employabilityskills



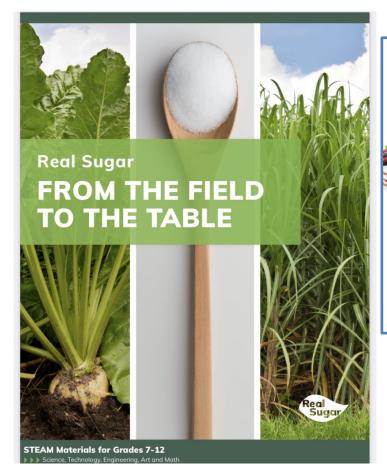
A Baker's Dozen Labs linked to FCS standards, FCCLA Community Connections. CTE Careers and 21st Century Learning.

- Northern Crops Institute webinars- https://www.northern-crops.com/education
- KS State University Baking, Milling, Cereal Science grains@kstate.edu
  The French Baking School; Johnson & Wales: CIA

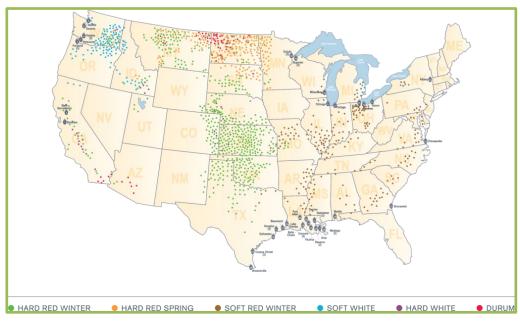


# Baking is Farm to Oven

- Wheat is the World's Number One Crop
- Wheat provides 20% of human calories; for poor countries, up to 50% of their protein needs
- Corn, wheat and sugar- U.S., sustainably produced crops







North American Millers, namamillers.com
Wheat 101 NAWG, <u>www.wheatworld.org</u>
Wheat Foods.org, Kernels e-mag; videos; infographics
The Sugar Association, <u>www.sugar.org</u> **Your** state wheat commission, Dept of Ag, and millsHomeBaking.org



### Wheat and Food Scientists Research Gluten, Wheat, Gut Health

Get the facts. All wheat is non-GMO...modern wheat = heritage and ancient in nutrition...role of gluten

- OSU, KSU, WSU wheat and wheat genome research
- More than 2 million U.S. citizens suffer with celiac
- New genotype of wheat with builtin enzymes to break down proteins causing the reaction
- Barley DNA inserted into wheat
- Research by WSU, Clemson, and researchers in Chile, France, China

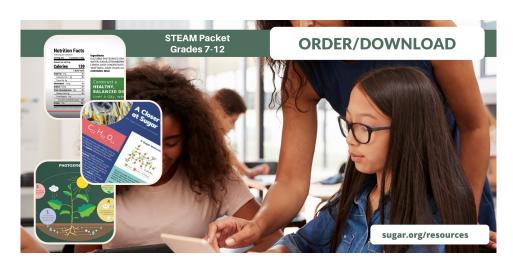
**Functional Integrative Genomics** 

www.news.wsu.edu/2019/02/19/healing-grain-scienctists-develop-wheat-fights-celiac-disease/

www.wheatfoods.org , Access Research studies; video series *Brett Carver Explains*. PhD.



# Fact Check, Bust Myths, Gain Skills



International Food Information Council
 Accurate consumer and food information
 www.foodinsight.org



- The Sugar Association (<u>www.sugar.org</u>)
   Download Sugar Association Farm to Table, Sugar STEAM resources, https://bit.ly/2UvHSkE
- Follow us: @HomeBaking...
  - Twitter @MoreToSugar
  - Facebook @TheSugarAssociation
  - Instagram @MoreToSugar

Access Test Kitchen Guides, Domino and C&H Sugar

- www.HomeBaking.org
- www.chsugar.com and www.dominosugar.com









# MILLERS' North American Millers' Association (NAMA):

### We are advocates for

- Wheat, corn, and oat milling
- Over 95% of total industry's production capacity
- 38 members in 32 states, Puerto Rico, and Canada
- Wholesale vs. retail flour
- Flour food safety
- www.namamillers.org

Congress...administration...public





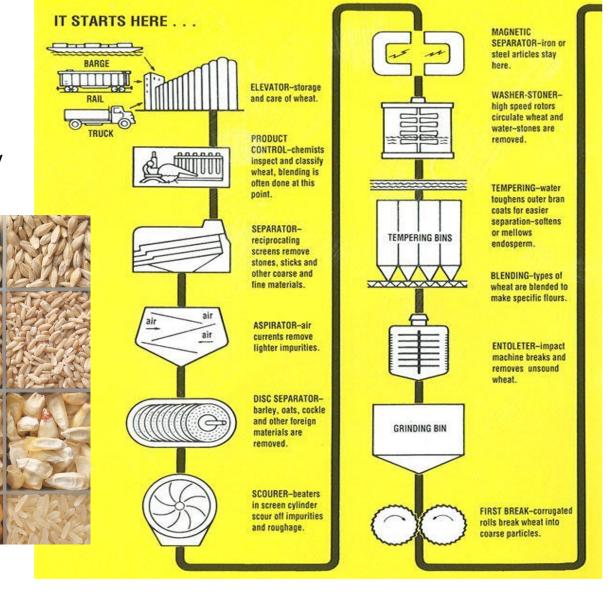




# What is milling?

https://namamillers.org/consumer-resources/what-is-milling/

Milling is the process of grinding, crushing, and sifting raw grain.























# The Milling Workforce

Current shortage of millers

### Jobs in the Mill

- Miller (\$45k-\$65k)
- Maintenance Manager
- Grain Elevator Operator
- Plant Manager
- Safety Manager
- Research & Development
- Quality Control
- Supply Planner



- Kansas State University only milling science degrees in U.S.
- B.S., M.S., PhD.

# International Association of Operative Millers

**Career Tech Education and Resources** 

Milling Technician Certificate Program Correspondence Course in Flour Milling Electrical, Maintenance training Intro, Basic, Advanced Milling courses







- https://www.ardentmillscareers.com/search-apply/
- cowley.edu/milling
- grains.ksu.edu
- GrainMillingCareers.com
- https://www.graincraft.com/careers/
- iaom.org/education

# **American Bakers Association**

### Who We Are

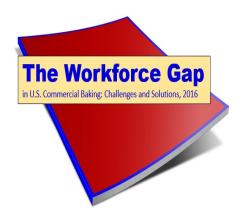
**Christina Donnelly** 



- 123 years old voice of the wholesale baking industry.
- Serves 1000+ commercial baking facilities

www.americanbakers.org/about/member-list/

Baking Alliance
 ABA, ASBE, NAMA...



<u>www.amercianbakers.org/workforce</u> gap

https://asbe.org/workforce-gap-study/

The Workforce Gap in US Commercial Baking: Challenges And Solutions, 2016.

### ON THE RISE

Careers in the Wholesale Baking Industry

The wholesale baking industry mixes tradition and innovation to feed the world and the economygenerating some major dough while providing employment to over 1 million people in the U.S.







#### THERE ARE ENDLESS OPPORTUNITIES FOR YOU IN THE BAKING INDUSTRY

- Positions with baking companies, equipment manufacturers, ingredient suppliers, and milling companies include:
- Accounting/Finance
- Administrative
- Engineer
- · Food Safety Manager
- · Front Line Management
- IT Professional
- · Line Production
- · Maintenance Mechanic
- Miller
- Plant Safety

- Professional Driver
- Quality Assurance Technician
- Shipping/Distribution Professional



CONTACT THE BAKING INDUSTRY ALLIANCE TO LEARN ABOUT POSITIONS IN YOUR AREA cdonnelly@americanbakers.org 202-789-0300 x115

BROUGHT TO YOU BY THE BAKING INDUSTRY ALLIANCE

- How the baking industry impacts your state
  - https://americanbakers.org/industry-impact/economic-impact
- Follow work force needs <a href="https://americanbakers.org/issues/workforce">https://americanbakers.org/issues/workforce</a>
- Since Sliced Bread podcasts





https://podcasts.apple.com/us/podcast/since-sliced-bread/id1493986734



#### **Bakers Enrich America**

The Economic Impact of Baking in the United States

Direct Jobs:

799,549

Wages:

\$44.01 billion

**Economic Impact:** 

\$153.09 billion

Tax Revenues:

\$53.48 billion

The total economic impact of baked goods produced and sold specifically in the United States is

The amount bakers

The amount bakers contributed to the U.S.

\$423.05 billion

2.28%

#### A further 1,365,955 jobs

were indirectly supported by the baking industry through suppliers and the indirect impact of the industry's expenditures.

#### Here's a "Taste" of ABA's Members...

Arnoid's | Bimbo | Blue Bird | Country Hearth | Entenmann's Fiber One | Fieldstone | General Mills | Holsum Krispy Kreme Kroger | La Brea | Martin's | Mi Casa | Mrs Baird's | Mrs. Freshiy'! Nature's Own | Otis Spunkmeyer | Pepperidge Farm | Pillsbury Safeway | Sara Lee | Schwebel's | Stroehmann's | Sunbeam Tastykake | Thomas' | Wonder

#### **Grain Facts**



People who consume a medium-to-high percentage of carbohydrates in the diet have a reduced risk of



Fortification of Enriched Products was one of the CDC's "10 Great Public Health Achievements



The complex carbohydrates in bread and other grain- based foods provide essential fuels the body needs.



guidelines for American recommend six to eigh servings of grains per day.

American Bakers Association | (202) 789-0300 | info@americanbakers.org | www.americanbakers.org

# American Society of Baking



- Baking equipment
- Clean label (like home-baked)
- Health issues require engineered ingredients, (reduced sodium, sweeteners, gluten-free...)
- Improved shelf life
- New packaging, food safety
- Sanitation

American Society of Baking, <u>www.asbe.org</u>
Bakers National Education Foundation, <u>www.futureinbaking.com/</u>
Kansas State U. Baking Science, https://www.grains.k-state.edu/academics/bakesci/









# RBA Certifies, Trains, Mentors Bakers

- 102 year old non-profit
- Provides four levels baker certification; sanitation certification
- On the job professional development
- Supermarket, independent, food service bakers
- Instructors, suppliers, students, equipment, services
- Forum for industry standards, certifications, networking, learning, research
- Title sponsor, with ABA, of International Baking Industry Expo (IBIE)- Sept. 18-22, 2022, Las Vegas



http://www.retailbakersofamerica.org/home.html

### What's a baker?

"Bakers mix ingredients according to recipes in order to make breads, pastries, and other baked goods." U.S. Labor industry's definition

#### **Work locations:**

Commercial, wholesale, community, pop-up, cottage businesses, home Retail stand alone, chain; supermarket, club stores Food services, restaurant, supermarkets
Research and Development (R&D) – ingredients, bakery, mill

**Training, Degrees:** self-taught, on-the-job, apprenticeships, associate degrees, culinary baking schools, community colleges, B.S., M.S., PhD.

HBA members, ingredients to oven- <a href="https://www.homebaking.org/members/">https://www.homebaking.org/members/</a>
On-line Learning Tracks, Baking School, <a href="https://bakerbettie.com/category/baking-school/">https://bakerbettie.com/category/baking-school/</a>
GrainCraft, <a href="https://www.futureinbaking.com/">https://www.futureinbaking.com/</a>
Kanasa State University Paking and Milling Science, <a href="https://www.futureinbaking.com/">https://www.futureinbaking.com/</a>

Kansas State University <u>Baking</u> and Milling Science, <u>https://www.futureinbaking.com/</u> The Bread Lab, WSU, <u>https://breadlab.wsu.edu/</u>



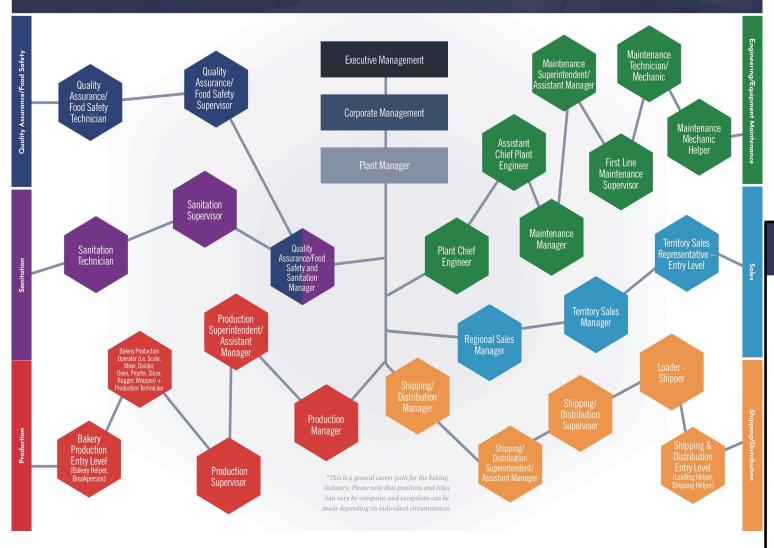
https://www.grains.kstate.edu/academics/bakesci/

K-State

# BAKING WORKS YOUR PATH TO A CAREER IN BAKING

#### Baking industry companies are hiring for thousands of jobs across the country.

Where do you start your wholesale baking career? An individual's skill set, such as relevant manufacturing or baking-specific manufacturing experience, military background, technical training, and education level, may allow an applicant to start higher up the career path. One should consider their relevant skills and qualifications when referencing the baking industry career path.



The Bakers National Education Foundation provides video testimonials and connections to baking professionals https://www.futureinbaking.com/



# The Baking Workforce Gap

"1 in 3 US Employers is seeking entrepreneurial experiences in new hires." TECHNIQUES. Entrepreneuership Education. January 2020, pp 17-21.

- U.S. commercial bakers face a shortage of qualified employees.
- 2.4 MM jobs will go unfilled- 4.6 MM more workers needed up to 2028.



Gap is largest among the following job positions:

- Hourly, skilled production: Maintenance/engineering (78% 'high' or 'severe' shortage)
- Hourly, skilled production Machine operators (40%)
- Salaried engineering/maintenance (59%)

Over 5 years skilled positions grew 60%

Increased automation/robotics opens doors for technology/computer knowledge and skills.

By 2025, anticipated shortages among engineering & maintenance positions – both hourly & salaried – are expected to remain 'high' to 'severe.

Companies anticipate a significant rise in shortages among

- hourly machine operators and unskilled production positions
- salaried scientist
- R&D positions

# **Baker Top Qualities**

Communication skills, team and leadership
Detail oriented
Math skills (basic)
Physical stamina; Physical strength
Problem solving

#### **Top 3 Baking Skill deficiencies:**

Same for bakers, maintenance/engineering and machine operators:

- 1. Specific technical skills
- **2. Leadership** skills
- 3. Problem solving/decision making skills

The Workforce Gap US Commercial Baking. 2016



HBA Ed Award winner: Delaine Stendahl, Baking Science Labs, Whitehall H.S., WI



HBA Baking Immersion Tour,2023

Dave Krishock

#BAkeACareer

#FutureInBaking

https://www.futureinbaking.com/



### Consumers want more from their bakers.

### Social and environmental responsibilities.

- "Sustainable food" up 23% in consumer priorities on social media- "how-to" searches up 4550% during pandemic
- Immunity, diet focus eating (keto, vegan)
- More ingredients in baking— "Ancient, heritage grains- emmer, einkorn, spelt, teff, millet, triticale, purple and black barley;
- Natural sweeteners- cane and beet sugars, stevia; monk fruit

**Define, examine, teach, test bake** to learn the bakers' challenges while meeting these.

**Track consumers**, grain foods, baking ingredients: Insight.org (International Food Info Council)

Food Business News, Sosland.com

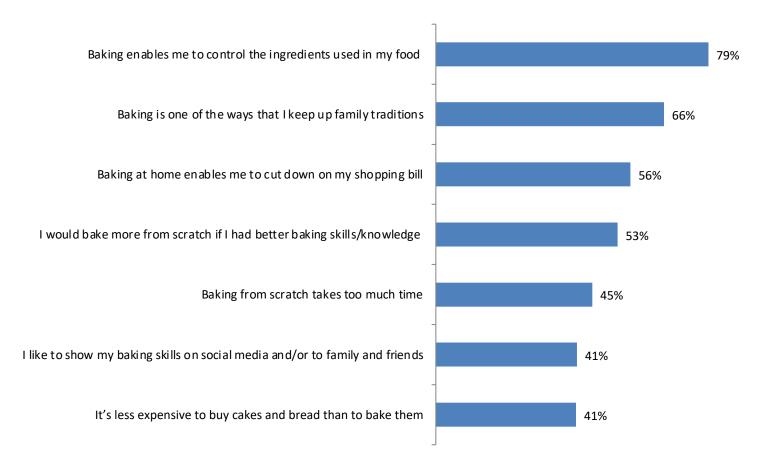
"Add one more whole grain serving." January 2020 Grain Industry recommends to New Dietary Guidelines committee

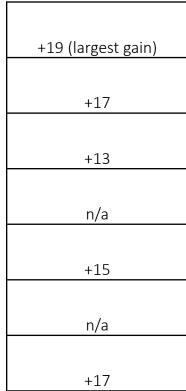




# A lot's About Controlling Ingredients—home or commercial

Controlling ingredients is an even more important motivator than family traditions, and it is the only one where "strongly agree" exceeds "somewhat agree"







# **EXAMPLE** Retail and Commercial Baking R&D

### Key consumer wishes for baked goods

- "Clean label" ingredient panel reads like a home recipe – easyto-understand
- Nutrient-rich, whole grains (80% of consumers view these as healthier)
- Craft breads from ancient and sprouted grains, pulses, seeds
- 6% of consumers need glutenfree; Less than 1% vegan

R&D Bakers essential—Julien Otto, chef instructor, master baker New HBA member, The French Pastry School, Chicago (IBIE)



Access The Butter Book offer, <a href="https://www.homebaking.org/exciting-butter-book-offer-from-hba/www.HomeBaking.org/distance-learning/">https://www.homebaking.org/exciting-butter-book-offer-from-hba/www.HomeBaking.org/distance-learning/</a>

# Meaningful FCS Baking education blends consumer sciences, skills, methods, R&D

Baking methods
Consumer Science
Food Science, chemistry
Sensory Analysis

### Who wants R&D??

- -Milling companies
- -Baking companies
- -Universities
- -Tech level to Ph.D





Plan Baking Labs and Purposeful Baking Projects

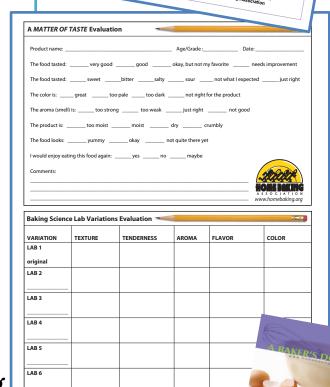
to solve a problem, share experience or expertise, raise awareness change behaviors." Melinda Kolk, Creative Educator

### **Apply Engineering Design Process**

Museum of Science in Boston

- 1. Identify problem--Do background research
- 2. Ideate- Construct a hypothesis how to accomplish
- 3. Plan—What will it take to make idea reality?
- 4. Create, measure results--Am I making progress?
- 5. No? What do I need to improve? Trouble shoot; re-test Yes! Draw conclusions, communicate results Cost, price, market

Entrepreneurship Education... Meaningful Work-based Learning. Techniques, January 2020.



Sensory analysis

A Baker's

Smart Snack Baking Recines



# Apply Test Kitchen R&D Baking Methods

**Equip** FCS Labs...scales, thermometers, scoops



# Baking Labs @ Work



HBA/WA-FACSE Baking STEAM Workshop, 2019 New Tech Center Spokane, WA

#### Pita Pocket Bread

Yield: 8 (2.75 oz/78g) pita

Measurement	Weight
1 ¾ cups	6.25 oz/ 175g
1 cup	8 oz/225 ml
2 ¼ teaspoons	1/4 oz/7g
1 teaspoon	6 g
1 tablespoon	3/8 oz/14g
1 to 1 ¼ cups	4.25-5oz/120-140g
	1 % cups 1 cup 2 % teaspoons 1 teaspoon 1 tablespoon

#### Directions

- Blend the whole wheat flour, water and yeast until well mixed, stirring about 2 minutes.
- 2. Allow to stand, covered, about 5 minutes (until the dough begins to puff a little).
- Stir in the salt, oil and all-purpose flour, ½ cup at a time, until a rough, moist dough ball forms. Turn onto lightly floured counter, knead, adding only small amounts of flour while kneading.
- 4. Knead until the dough is smooth, elastic and no longer needs flour to handle, about 5-7 minutes. NOTE: If too much flour is added and dough becomes too stiff, 1 tablespoon water may be kneaded in, repeating if needed, until the dough is moist and elastic.
- Place dough in a bowl, cover loosely with lid and let rest (ferment) 35-45 minutes in a draft free (78-82° F.) place (unheated oven, cupboard, microwave oven).
- Punch down the dough. Form into a log and divide into 8 equal pieces. Shape these
  pieces into round, smooth balls (like dinner buns, see Lab 12) and cover with oiled or
  sprayed plastic wrap, or turn the bowl over them to prevent drying. Let rest 5-10 minutes
- Place oven racks on bottom placements. Preheat oven to 475° to 500° F. (very hot). (This is not a mistake. In the mid-East, pita bake at 900° F.)
- Roll and flatten each round piece of dough until about 6-8 inches in diameter and ¼-inch thick. Let circles rest and re-roll if they spring back. Place on ungreased baking sheet pans, sprinkled lightly with cornmeal or parchment paper liners. Note: Another excellent option is to bake pita on heated baking stones. (Follow baking stone directions for use and care.)
- Bake very briefly—just until pita puff up, surface begins to brown and "freckle" with color, two to four minutes. They will puff up and form the pocket as they bake.

10. Cool pita on a wire cooling rack.

Source: Ethnic is Now. Sharon P. Davis, kswheat.com

A BAKER'S DOZEN Lab 10 - The Savor of Salt

Baker's Note: Do not open the oven door while baking—heat is lost and pita may not puff and form pockets. DO watch the pita puff with the oven light on through a glass door—it's great! If another pan is to be loaded and baked, be sure to let oven come back up to temperature before loading the next pita to bake.

**Storage Tip:** Pita are fresh only one day because they contain no sugar and little fat. (Wrap and freeze if not eaten the day they are baked.)



Have the class prepare Hummus to spread on their Pita! They may also learn to

make Pita Chips – both at kingarthurflour.com/ recipes/white-beanhummus-recipe



HomeBaking.org

#### **Evaluating Pita**

Have students label their lab's pita as "control," "reduced salt," or "no salt pita."

#### Pita Lab Rubric

	Very acceptable	Okay	Improvement needed
Top and bottom crust	Evenly golden Not burned or pale	Edges browned	Very pale Greasy or doughy appearance Brown on only top OR bottom
Volume	Doubled in height	Raised somewhat	Baked height same as dough
Interior crumb	Tender	Moist and not too dry to eat	Dense, wet, crumbly or doughy Oily or greasy
Flavor	Rich, a little sweet Wheaty, pleasant	Pleasant flavor	Too much oil or fat flavor Coats mouth; unpleasant
Keeping quality after 1 day	Still flavorful Good aroma/moist	Edible but not best	Stale (dry; firm) Off flavor

#### Critical Thinking:

Shape, bake and sample pita, using rubric to evaluate. Apply Baker's percentage knowledge to answer questions 1-3:

- The range of salt level in yeast bread dough that is recommended is between 1% and 1.5% of the flour weight. (See Bakers percentage). What is the Bakers percent of salt in this pita dough? (A: 6g salt divided by 335g flour = 1.8%)
- Did the lab using less salt succeed? (A: If so, the sodium could be reduced in this product if flavor is okay.)
- In baking tests to reduce sodium in breads, untrained taste testers could not notice a flavor change between 1.7% and 2.1% salt (Bakers %).
   Does this seem true based on this lab? (A: Students should answer based on their evaluations.)

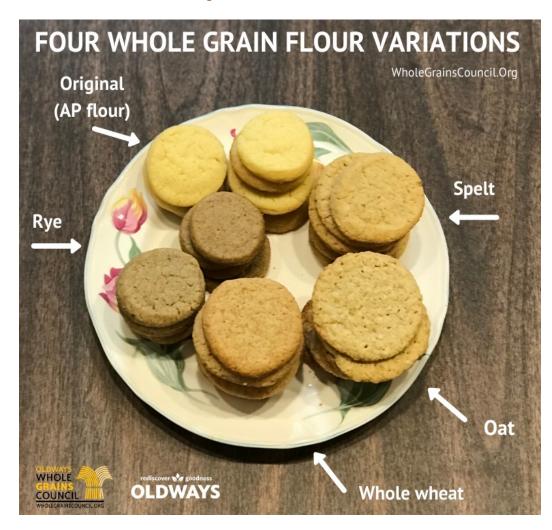
Consumer sciences critical thinking:

 In many countries, pita are eaten as a daily bread, even used instead of utensils. 8 or more pita may be consumed! How many grams of protein would 8 pita provide? (A: 60g – enough for an adult!)

- How many grain servings is one of the pita prepared in this lab? (A: 2.5.) How many grams whole grain? (A: Whole grain per pita=28 q.)
- Why is pita a great staple (look this word up if students don't know it) food? (A: Low in fat/no saturated fat; high in complex carbohydrates, low in sugar, not too high in sodium.)
- 4. How does the product you made in lab compare to the store-bought pita? Compare Cost: \$\_\_\_\_\_ at store. Homemade cost ~ \$ 0.80-\$1.00 for eight pita.
- Nutrition Facts label/ingredients: Commercially made pita are usually higher in sodium. Which is higher—the store purchased or made-by-you pita? (Be sure to compare an equal per serving weight.)
- Are the pita you made whole grain? (A: Yes, if recipe followed). Are the store-bought pita enriched or whole grain? (A: Answers vary.)
- Quality: Store bought are often stale or firm because pita have a very short shelf life. Do freshly made pita have more flavor? \_\_\_\_\_ yes \_\_\_\_\_ no
- Create a menu with pita. What would you serve inside, wrapped in or with your pita? (A: Consider preparing hummus or falafel to serve with the pita!)

HomeBaking.org A BAKER'S DOZEN Lab 10 - The Savor of Salt

# Develop Essential Baking Test Kitchen R&D Skills



Taste of Home Blog, 12/2019 www.WholeGrainsCouncil.org



Learn new methods...tangzhong.

Baker's Spotlight, Soft Flatbread, www.HomeBaking.org

www.redstaryeast.com Milk Bread

# Conduct Consumer/Client/Test Market Sensory Analysis



Form, p. 4, <u>Kitchen Science: Baking for Special Needs</u>

# Keep up with Food, Ingredient, Consumer Trends, Costs



- www.bakingbusiness.com
- www.foodinsight.org

### Sosland Publishing

- Baking and Snack
- Food Business News
- Milling & Baking News



replacement made with erythritol, prebiotic fiber and citrus. Grainfree, keto-friendly, non-GMO mix made with blanched almond flour, cocoa, organic coconut flour, tapioca starch, organic coconut flour, sea salt and baking soda

### **WANTED:**

# 21st-Century *Flour* Food Safety Education

Pathogenic bacteria can occur on wheat and other grain kernels, and can survive the milling process at a rate of approximately 1%.

A small amount of bacteria can make a person sick or cause death.



# 2016:

The #1 retail
Flour brand in
the U.S.
experienced a recall
due to pathogenic
bacteria in flour.



2017:

The #1 retail flour brand in Canada also experienced recall due to pathogenic bacteria in flour.



The #1 retail
Flour brand in the U.S.
experienced a recall due to pathogenic bacteria in flour.





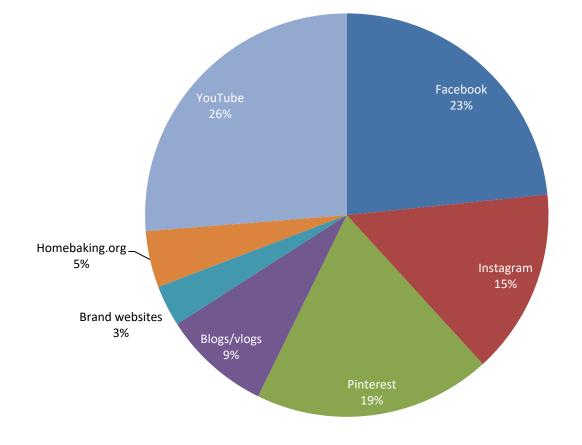


## Will we leave it to the internet to be food skills and safety teacher?

Leading online sources mentioned by name: Food Network, allrecipes.com, Taste of Home, google.com, recipes.com, America's Test Kitchen, Yummly, Epicurious

Q29: What online sources do you get baking inspiration from? Please select all that apply. N=1,830

NC State Extension
Research
indicates how many
poor food safety
practices
demonstrated on line
or food shows









### Commercial Ready-to-Eat Flours Ardent

SafeGuard® Ready-To-Eat Flour

**Legacy** Ardent Created Safeguard Flour in 2010

### **Proprietary, Validated Process**

Reduces the pathogen risk up to 4 logs, or 99.99%

Functional Flour Maintains all gluten functionality, absorption, starch quality and enzyme activity

### **Ready-to-Eat Applications**

Targeted for use in commonly "mishandled" products e.g., refrigerated cookie dough, cake/brownie mixes, frozen pizzas

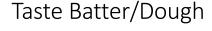
→ Not currently available to school food service or "family flour"

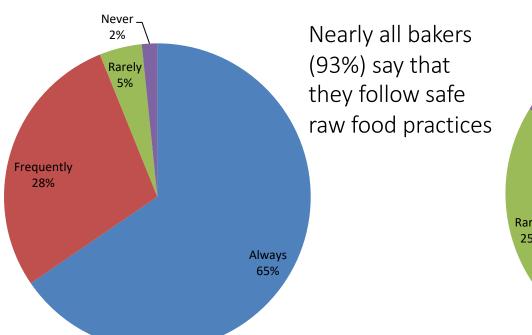


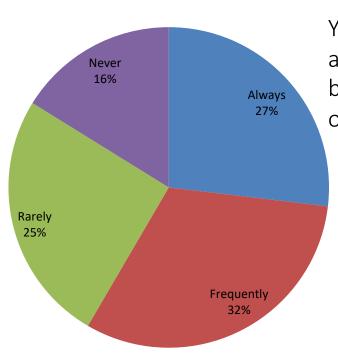


# Key TOPIC: We Need Baking Food Safety Education

Follow Safe Raw Food Practices







Yet, 59% say that they always or frequently taste batter/dough or give to others to taste

Who is most likely to "always" taste batter and dough?

Daily bakers! At 62%, compared to 27% of weekly bakers, and 20% for all other groups.

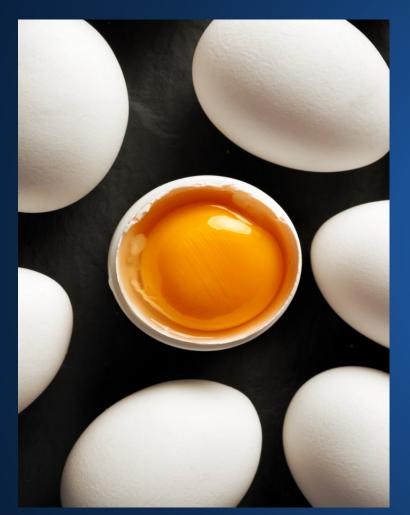
Since there are only 217 daily bakers, totals always or frequently tasting is about equally spread across all types of bakers.

Q9: How often do you follow safe raw food practices when handling uncooked/unbaked flour (eg cleaning spills from surfaces before other foods are placed there, etc)? N=1,783

Q10: When preparing dough or batter, how often do you taste it or give it to others to taste? N=1,830



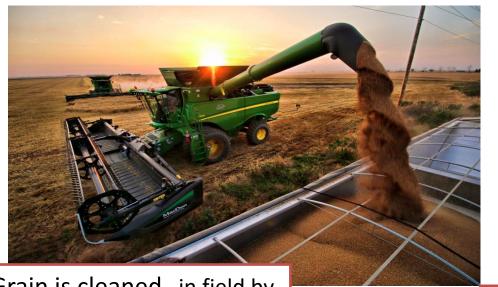
### Flour is a raw, agricultural commodity until it is cooked or baked.











Grain is cleaned...in field by how the combine cuts and winnows it.



At the flour mill, in storage, and before the milling begins, grain is thoroughly cleaned.

# Flour is cleaned, *NOT* cooked or baked.

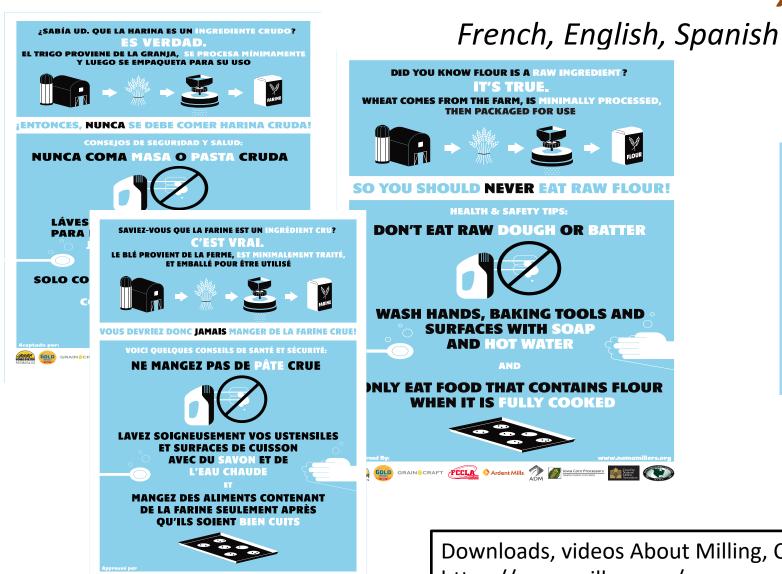


FDA's 2018
Food Safety
Modernization
Act = food safety
checks and
balances for
mills.

 See How Flour is Milled, KidsZone Namamillers.org



# Did You Know Posters, Video

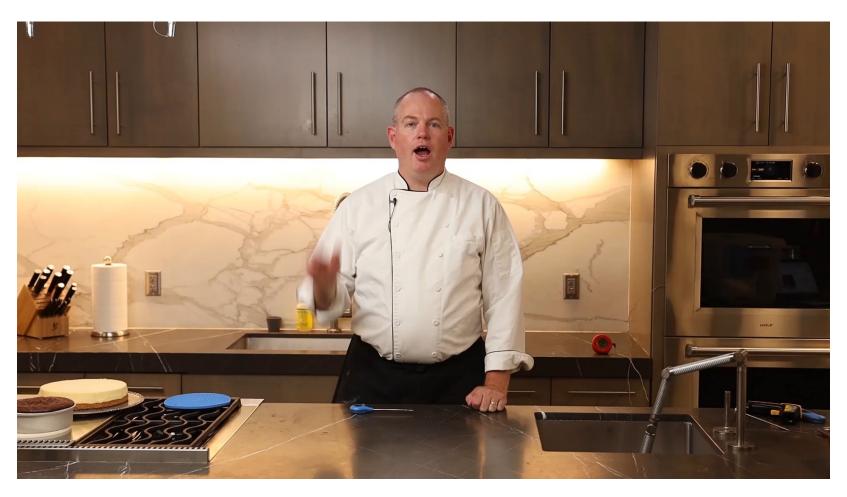


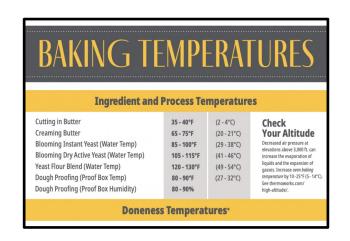
GOLD GRAIN & CRAFT FUCLE Ardent Mills.



Downloads, videos About Milling, Consumer Food Safety <a href="https://namamillers.org/consumer-resources/consumer-food-safety/">https://namamillers.org/consumer-resources/consumer-food-safety/</a>

# Baking Temperatures Critical for Quality, Safety





### Heat is An Ingredient



























#### Flour Food Safety

Brian Smith, Grain Craft-Manager of Regulatory Compliance & Documents

Family & Consumer Sciences Education, HomeBaking.org





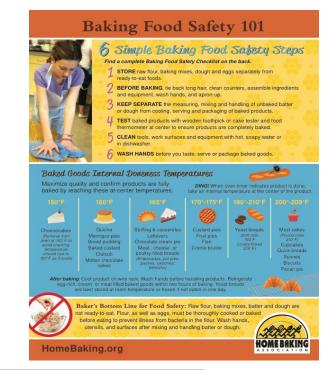
### HomeBaking.org/baking-food-safety/



Blueberry Mug Muffin









6 Simple Steps https://youtu .be/0PxHk4x y6cc





Mozzarella Mash Carla Shaer, Illinois

The Power Of Eggs *Ingredient Super Heroes* Delaine Stendahl, FCS, Whitehall H.S., WI

The Muffin Man and the Healthy Kids Act Katie Brouwer, FCS, H.S., Story City, IA

Baking Clubs @ Work, Cheryl Doyle & Louann Moos, Pennbrook M.S., PA

Pastry Pizzazz

Marla Prusa, FCS, H.S., Howells, NE

Sugar Detectives!

Elizabeth Hagan, FCS, Bayard, IA



Promote, enter on-line, May 31, 2023

# Thank you!

Sharon Davis, hbadavis@gmail.com



nication,

ving, and

n baking products of quality.

oung children.

(gingerbread cookies).

pplying math skills and scale use to replace

asuring cups, spoons for consistent cookie

elopmental reading and kitchen skills

ommunication, problem solving, and

ans to work with young children in baking

9.0 Food Science, Dietetics & Nutrition

food testing, and sanitation

**Sugar Detectives: Examining How Sugar Transforms Baked Goods** 

Elizabeth Hagan • Family & Consumer Sciences Teacher • Bayard, IA

Students work as detectives to identify sugar types and functions in baked goods through sugar research and preparing four recipes. Students then persuade the "sugar thieves" of the importance of sugar.

Lesson Introduction: The sugar thieves have wreaked havoc in your kitchen! They don't think that sugar is important to baked goods. Could the thieves be right? You have 3 days to determine what functions sugar serve in the recipe and identify the sugar sources in your kitchen. If you can't convince them it is an important ingredient, then they will steal all your sugar!

Lesson Summary: Many people assume sugar simply adds sweetness, but sugar functions in sneaky ways to make our baked goods more than just

For this lesson, the students will determine how sugar is produced from sugar beets and cane and solve the mystery, "Why is sugar an essential ingredi goods?" Each group will prepare 4 different baked goods that use sugar in different ways. Students must detect what type of sugar was used and what purpose the sugar served in the recipe to change the physical properties of

- . Identify and describe the functions of different types of sugars
- 2. Prepare recipes using different types of sugars and using sugar functions in a different way
- 3. Evaluate each baked good and identify what type and function sugar serves in the recipe

#### 8.0 Food Production and Services



www.HomeBaking.org

FREE Downloadables,

Pennbrook Middle School Family & Consumer Sciences (FCS) teachers Cheryl Doyle and Louann Moos bega

with a student's request for a baking club. Together they created the club and "baked to build STEAM (Bake to Build STEAM www.homebaking.org/visuals/)

ny student may apply, be interviewed and work, as lab space allows

Baking Clubs @ Work!

each baking fundamentals, ingredient functions; mise en place; demontrate measu daking Substitution Science: www.homebaking.org/wp:content/uploads/2019/07/bak Baking Food Safety 101: www.homebaking.org/baking-food-safety/ Baker's Dozen Labs & Baking Glossary: www.homebaking.org/glossary Students research recipes they are interested in. These are an cost, skill level required, product shelf life and handling requi

and market appeal for where they will be sold.

www.homebaking.org/wp-content/uploads/2019/05/final\_kitchenscience.pdf Sake sale options and sites are determined based on local events. Products meetin

the requirements for the bake sales planned are selected, costed and price set.

Teams develop ads for the school or local TV, social media and sign po

/HAT TO BAKE Everybody shares ideas, and the club decides based on: Who would love t

Try test kitchen recipes/formula first homebaking.org/hbamembers/
Apply accurate measurement methods or scale ingredients kingarthurflour.com/learn/

/ideos and Baking Glossary homebaking.org/glossary/ Apply portion control with scales and uniform scoops; note a serving's baked net weigh

Products costed-on-line cost calculators pricingbakedgoods.com/recipe

ecipes.sparkpeople.com/recipe-calculator.asp

HERE AND HOW WE SELL Club con rimary goal: to produce consistent, appealing baked products for local sales.

hoose products to be sold for specific evelop "signature" or local specialties. tools and techniques. (2.1; 8.5)

reate labels with product name, date,

qualify: www.homebaking.org/skill-

Identify and apply home and culinary baking

Demonstrate safe and correct use of large ar small appliances. (8.3.1; 8.3.2; 8.3.5) 3. Demonstrate knowledge of baking inc

 Apply food safety practices in the preparati 5. Utilize scales and portioning techniques

sales plans. (1.2: 3.5: 8.5.12: 9.5.6)

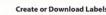
cookie batter by placing large spoonfuls for cookie batter over the hot brownie. Carefully spread the cookie layer to cover. Work quickly and carefully so cookie layer does not melt! Return to oven: bake another 20 minutes. Cool completely before cutting.

The profits will be donated locally plus

lease note any special needs or dietar

Rookie / Somewhat / Expert

Wash pans, preparation surfaces and hands. Put out wire cooling rack. Assemble knife food handling gloves and Brookie packaging to use once they are cooled. Calculate cost per serving, write the food label contents: ingredient list, net weight, dat





#### 1001 Cookie Starter Mix







