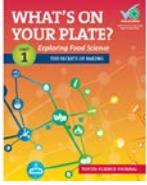


Exploring Food Science – What's On Your Plate?

Flour's Secret Ingredient - Great Globbs of Gluten

Activity 1.1 Glossary

All-purpose Flour	A type of wheat flour that has many uses in baked goods. It is lower in protein than bread flour and higher in protein than cake flour. In the U.S. all-purpose flour is enriched with a few of the nutrients removed during processing: iron and several B vitamins: thiamin, riboflavin, niacin and folic acid; addition of calcium is optional.
Alkaline (al-kuh-lahyn)	A substance having a pH value greater than 7 and capable of neutralizing an acid.
Baking Powder	A leavening agent made of baking soda and an acid-forming substance(s). Baking powder is generally double acting, releasing carbon dioxide (CO ₂) first when mixed with liquid in a recipe and again when baking. The CO ₂ provides leavening in baked goods.
Baking Soda	A compound composed of sodium bicarbonate. When combined with cream of tartar, vinegar or other acids it produces CO ₂ which is useful in leavening.
Bread Flour	A high protein, high gluten wheat flour used for making bread.
Cake Flour	A low protein wheat flour that has a very fine consistency useful for making cakes with a light, airy texture.
Carbon Dioxide (CO₂)	A gas produced by leavening agents. The CO ₂ forms tiny bubbles which stretch dough to leaven baked goods.
Elasticity (ih-la-stis-i-tee)	Having the quality of being stretchy.
Flour	A powder formed from grinding cereal grains that consists mainly of starch and protein.
Gliadin (glahy-uh-din)	One of the proteins found primarily in wheat flour. It is necessary for gluten formation.
Gluten	A protein found primarily in wheat flour with much lower amounts found in rye and barley. When two proteins found in flour, gliadin and glutenin are mixed with water, gluten is formed. Gluten gives baked goods their structure.



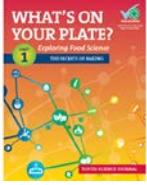
Exploring Food Science – What’s On Your Plate?

Flour’s Secret Ingredient - Great Globbs of Gluten

Activity 1.1 Glossary

Gluten formation/ gluten development	The process of increasing the elasticity of gluten by working it (mixing or kneading).
Gluten Intolerance / celiac disease	A medical condition in which gluten damages the lining of the small intestine, preventing the absorption of nutrients and leading to malnutrition. Symptoms of an intolerance usually come on gradually, may only happen when large amounts of the food are eaten, or may only happen if the food is eaten often. Symptoms include diarrhea, stomach upset, abdominal pain, and bloating.
Glutenin (gloot-n-in)	One of the proteins found primarily in wheat flour. It is necessary for gluten formation.
Knead	To work or manipulate dough by stretching, folding and pressing repeatedly.
Leavening Agents	One or more ingredients that produce CO ₂ which causes baked good to rise. Leavening agents include baking powder, baking soda plus an acid, and yeast.
Maltose	A sugar naturally occurring in flour. Yeast ferments maltose which forms CO ₂ for leavening.
Mixing/Strokes	The act of working a substance by hand or by machine, to combine the ingredients and form it.
Wheat Allergy	A reaction involving the immune system when the immune system considers wheat proteins as foreign invaders. Symptoms of an allergy usually come on suddenly and happen every time the particular food is eaten, even if in small amounts. An allergic response can be life-threatening. An allergy is different from a sensitivity or an intolerance.
Yeast	A microorganism consisting of cells of a fungus. Used as a leavening agent in baked goods, it is sold as “Active Dry Yeast.”

Sources:



Exploring Food Science – What's On Your Plate? Flour's Secret Ingredient - Great Globbs of Gluten Activity 1.1 Glossary

Understanding Food – Principles and Preparation – 2nd Edition. Amy Brown. Wadsworth/Thomson. Belmont, CA. 2004.

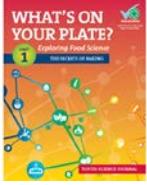
On Food and Cooking. Harold McGee. Scribner. New York, NY. 2004.

Webster's New World Dictionary and Thesaurus – 2nd Edition. Michael Agnes Ed. Hungry Minds. New York, NY. 2002.

Merriam-Webster On-Line Dictionary: <http://www.merriam-webster.com/dictionary/>

www.WebMD.com

www.Dictionary.com

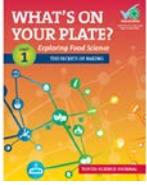


Exploring Food Science – What's On Your Plate?

Baking the Best Bread - Leavening Agents in Action

Activity 1.2 Glossary

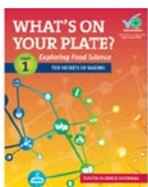
Baking Powder	A leavening agent made of baking soda and an acid-forming substance(s). Baking powder is generally double acting, releasing carbon dioxide (CO ₂) first when mixed with liquid in a recipe and again when baking. The CO ₂ provides leavening in baked goods.
Baking Soda	The common name for sodium bicarbonate. When combined with cream of tartar, vinegar or other acids it produces CO ₂ which is useful in leavening.
Carbon Dioxide (CO₂)	A gas produced by leavening agents. The CO ₂ forms tiny bubbles which stretch dough to leaven baked goods.
Cream of Tartar	An acidic ingredient that when combined with baking soda, produces CO ₂ for leavening.
Fermentation	A process in which microorganisms (yeast) consume carbohydrates (sugars) and produce carbon dioxide as a by-product. The CO ₂ serves as a leavening agent.
Leavening Agent	One or more ingredients that produce CO ₂ which causes baked good to rise. Leavening agents include baking powder, baking soda plus an acid, and yeast.
Maltose	A sugar naturally occurring in flour. Yeast ferments maltose which forms CO ₂ for leavening.
Proofing	A term used by food scientists and professional bakers. When making a yeast dough, it is the resting phase when fermentation occurs and the dough rises.
Recipe Formulation	A term used by food scientists and professional bakers. It is a list of ingredients developed based on the function of ingredients to produce a desired product. The term “recipe” can also be used.
Sucrose	A sugar found in sugar beets and sugar cane, comprised of fructose and glucose. After processing it is often called granulated sugar.
Yeast	A microorganism consisting of cells of a fungus. Used as a leavening agent in baked goods, it is sold as “Active Dry Yeast.”



Exploring Food Science – What's On Your Plate? Baking the Best Bread - Leavening Agents in Action Activity 1.2 Glossary

Sources:

Merriam-Webster On-Line Dictionary: <http://www.merriam-webster.com/dictionary/>



Exploring Food Science – What's On Your Plate?

Batters that Matter

Ingredients and Mixing Methods

Activity 1.3 Glossary

Drop batter	A thick batter that cannot be poured due to the ratio of liquid to flour (typically $\frac{1}{2}$ to $\frac{3}{4}$ cup of liquid per cup of flour) which makes it very stiff.
Function of Ingredients	The action of various components in recipes, e.g. structure, texture, flavor, leavening, and tenderizing.
Gluten	A protein found primarily in wheat flour with much lower amounts found in rye and barley. When two proteins found in flour, gliadin and glutenin are mixed with water, gluten is formed. Gluten gives baked goods their structure.
Mixing/Strokes	The act of working a substance by hand or by machine, to combine the ingredients and form it.
Ratio of ingredients	The proportion of one ingredient to another. In food science, ratio of ingredients often refers to the proportion of liquid and dry ingredients.
Sucrose	A sugar found in sugar beets and sugar cane, comprised of fructose and glucose. After processing it is often called granulated sugar.

Sources:

Understanding Food – Principles and Preparation – 2nd Edition. Amy Brown. Wadsworth/Thomson. Belmont, CA. 2004.

On Food and Cooking. Harold McGee. Scribner. New York, NY. 2004.

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Merriam-Webster On-Line Dictionary: <http://www.merriam-webster.com/dictionary/>