CLAIM 🡪 Baking soda is one of the most important ingredients in baking.

EVIDENCE 🡪 Baking soda is probably in your kitchen or refrigerator right now. A white, chalky powder, baking soda is the common name for the chemical sodium bicarbonate, NaHCO3.

SOURCE 🡪

“Baking Soda.” *American Heritage Student Science Dictionary*. N.p.: n.p., 2009. 32-32. *Marshall Cavendish Science Reference Center*. Web. 03 Sept. 2012.

EVIDENCE 🡪 A small amount of baking soda, about a half teaspoon, can even be mixed with water and swallowed to neutralize the acid that may cause indigestion.

SOURCE 🡪

“Baking Soda.” *American Heritage Student Science Dictionary*. N.p.: n.p., 2009. 32-32. *Marshall Cavendish Science Reference Center*. Web. 03 Sept. 2012.

EVIDENCE 🡪 Neutralization with baking soda usually produces carbon dioxide gas, which you can observe bubbling forth if you mix vinegar (an acid) and baking soda. Such reactions are used in cooking to take advantage of the gas, as in getting a cake to rise. Cakes, muffins, and so on will not rise without the addition of baking soda.

SOURCE 🡪

“Baking Soda.” *American Heritage Student Science Dictionary*. N.p.: n.p., 2009. 32-32. *Marshall Cavendish Science Reference Center*. Web. 03 Sept. 2012.

CLAIM 🡪 If dough is going to rise in baking, there has to be an acid and a base; therefore, baking powder can be an easier ingredient to use than baking soda.

EVIDENCE 🡪 Baking powder is a mix of an acid, baking soda, and a base, cream of tartar. When water is added these two react leading to the bubbles that will make dough rise. Without both the acid and base, there is no neutralization which leads to those biscuit rising bubbles!

SOURCE 🡪

McNulty, Karen. “Biscuit Blues.” *Science World* 50.11 (1994): 18. *Science Reference Center*. Web. 3 Sept. 2012.

EVIDENCE 🡪 The author states that she made bitter tasting biscuits because she used baking soda instead of baking powder. There was no base to neutralize the acid (baking soda). This led to very bitter tasting biscuits.

SOURCE 🡪

McNulty, Karen. “Biscuit Blues.” *Science World* 50.11 (1994): 18. *Science Reference Center*. Web. 3 Sept. 2012.

EVIDENCE 🡪 The science and chemistry of baking has been written about for years. The importance of baking powder was written about as early as 1860: “Within the past 10 years there has been a revolution in making bread. The ancient leaven bread was made by the dough being left in a warm place till it began to ferment. The chemical progress is the starch into sugar, then carbonic acid and alcohol, which forms between the particles of flour and swells them up. But great care was required in the operation lest it be decomposed, and therefore the modern process by yeast is much more preferable. Within the past 10 years, besides yeast in making bread, we have had 'baking powders' and 'self-raising flour,' and such, and 99 families in 100 use some of these."

SOURCE 🡪

“50,100 & 150 Years Ago.” *Scientific American* 302.2 (2010): 12. *Science Reference Center*. Web. 3 Sept. 2012.

CLAIM 🡪 Yeast must be living in order to help bread rise.

EVIDENCE 🡪 Baker's yeast is added to a dough made from the starchy portion of flour. The yeast break down some of the starch and sugar present in the mixture, producing carbon dioxide. The carbon dioxide bubbles through the dough, forming many tiny bubbles and causing the bread to rise.

SOURCE 🡪

“50,100 & 150 Years Ago.” *Scientific American* 302.2 (2010): 12. *Science Reference Center*. Web. 3 Sept. 2012.

EVIDENCE 🡪 Yeast are microscopic, single-celled organisms that cells multiply rapidly by the process of budding. In the presence of an abundant food source, huge populations of yeast cells accumulate. Yeast are among the few living organisms that do not need oxygen in order to produce energy. This oxygen-independent state is called anaerobic. During such anaerobic conditions, yeast convert carbohydrates--starches and sugars--to alcohol and carbon dioxide gas. This process is known as fermentation.

SOURCE 🡪

“Yeast.” *U\*X\*L Encyclopedia of Science*. U\*X\*L, 2007. *Gale Student Resources*

*In Context*. Web. 3 Sep. 2012.

EVIDENCE 🡪 The fermentation yeast is caused by enzymes, catalysts in chemical reactions similar to the digestive enzymes in the human body. Certain enzymes in yeast act on starch to break down the long chainlike molecules into smaller units of sugar. Then other yeast enzymes convert one kind of sugar molecule to another. Still other enzyme reactions break apart the sugar molecule into ethyl alcohol and carbon dioxide.

SOURCE 🡪

“Yeast.” *U\*X\*L Encyclopedia of Science*. U\*X\*L, 2007. *Gale Student Resources In Context*. Web. 3 Sep. 2012.