Eating Science: Cheese



Cheese is made from milk using the science of proteins and enzymes. When the enzyme rennet is added to milk, it causes the casein proteins to coagulate and bind together forming cheese curd.

Proteins & Enzymes

Eating Science: Bread



Yeast are small, single-celled organisms that feed off of simple sugars. Bread dough rises when yeast feeds on sugar and releases carbon dioxide. The carbon dioxide becomes trapped in the bread dough, causing it to rise.

Fermentation

Eating Science: **Pickles** 



Pickles are made by submerging cucumbers in an acid solution such as vinegar. The pickling process changes the cucumber and preserves it for a long period of time. Microbes that typically cause food to become rotten cannot live in the acidic solution of pickle brine.

#### Eating Science: Sliced Apple Snacks

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#### Eating Science: Pancakes

In physics, matter can be found in different states including a solid, liquid, or gas. Specific conditions cause matter to change states. When pancake batter (a liquid) is exposed to the heat of a skillet, it undergoes a chemical change and turns into a solid (pancake).

States of Matter

# Eating Science: Salad Dressing



No matter how hard you shake or whisk oil and vinegar together, they will eventually separate. Science explains why. Oil and vinegar are made of different types of molecules. Vinegar contains polar molecules. Oils are non-polar. They will always separate eventually.

Molecules & Polarity

Eating Science: Butter

> Butter is made from milk. As you shake or churn the milk, it agitates the fat particles. This causes the fat membranes to break open. The fat molecules are attracted to each other and separate from the liquid in the milk.

Molecules

# Eating Science: Candy Toffee



Heat causes sucrose to melt (liquid) and the molecules to break apart and caramelize in a chemical reaction. Sucrose doesn't like being split, so it tries to reform into sugar crystals (solid). When and how the sugar crystals form determines what kind of candy is made in the process.

Molecules & States of Matter

# Eating Science: Yogurt

Yogurt is made by heating milk to denature whey proteins. Milk is then cooled to around 108° F. Bacterial cultures are added and the milk is incubated allowing fermentation to take place. Lactose in the milk is converted to lactic acid.

