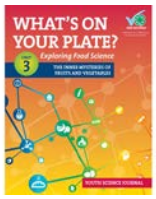
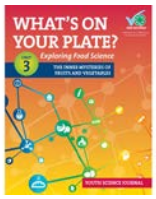


Exploring Food Science – What's On Your Plate? Fruits and Vegetables -- Down with Brown Activity 3.1 Glossary

Anti-browning agents	Ingredients used to prevent the browning of freshly cut fruits and vegetables. Examples include vitamin C (ascorbic acid), lemon juice and orange juice (citric acids), sugar solution, and antioxidants.
Antioxidant	A substance that interacts with oxygen so that oxygen does not oxidize and damage cell compounds. Commonly known antioxidants include vitamins C and E and citrus juices.
Browning	Another way to refer to enzymatic browning.
Enzymatic browning (en-zahy-**mat**-ik)	The process that occurs when some fresh fruits or vegetables are cut and exposed to air; a darkening of color is the result. Enzymes in the fruits and vegetables facilitate the physical and chemical reactions. The process results in unfavorable results such as browned fruit, or in favorable results such as the brown color of raisins, prunes, and tea.
Enzyme (**en**-zahym)	Substance produced by cells such as those in fruits and vegetables that produce a certain chemical reaction. In this Activity enzymes allow phenolic compounds to react to oxygen, leading to browning. This reaction is called oxidation or enzymatic browning.
Fruit	Product of plant growth. Usually the edible body of a plant with seeds.
Lemon Juice	The liquid from the lemon fruit; it is acidic (sour). The primary acid component in lemon juice is 4-6% citric acid.
Melanin	A brown pigment caused by phenolic compounds interacting with enzymes and oxygen. Unappealing, but safe to eat.
Oxidation	Part of the process of enzymatic browning. When fruit is exposed to oxygen, oxidation occurs.
Oxygen	An element necessary for life. It makes up 21% of our atmosphere. It is a tasteless, odorless gas found in water, plants, rocks and minerals, and most organic compounds (compounds containing carbon).
Phenolic compounds (**fee**-nawl-ic)	Substances in the cells of fruit that turn brown when exposed to oxygen and enzymes.



Exploring Food Science – What's On Your Plate? Fruits and Vegetables -- Down with Brown Activity 3.1 Glossary

Pigment	A substance whose presence in the tissues or cells of animals or plants colors them.
Produce	Another way to refer to fresh fruits and vegetables.
Vegetable	A plant gown for edible parts: carrots, potatoes, green beans, cabbage.
Vitamin C (Ascorbic Acid)	A water-soluble vitamin essential to human health. It is often used to prevent oxidation (browning of fruit).

Exploring Food Science – What's on Your Plate?
Heat It and Eat It
The Science of Cooking Vegetables
Activity 3.2 Glossary

Acid — A chemical substance with a pH of less than 7. Acids generally taste sour and include food ingredients such as vinegar and citrus juices.

Alkali/Base — A chemical substance with a pH more than 7. Baking soda is an example of an alkaline food ingredient.

Anthocyanin (an-th*uh*-**sahy**-*uh*-nin) — Highly water soluble pigment that is blue-violet or red depending on pH levels.

Beta-carotene (**bey**-tuh **kar**-uh-teen) — A pigment in orange, red, yellow produce, and in dark green veggies (hidden beneath the green chlorophyll). It is an antioxidant which protects cells. The body turns it into vitamin A.

Blanching — Blanching is a cooking process in which vegetables are placed in boiling water for a short time period and then placed in ice water. This process precedes freezing to maintain color, flavor, and texture.

Carotenes — A natural pigment in vegetables and fruit that is orange to red. It is a plant source of vitamin A for humans.

Chlorophyll — A natural pigment in vegetables and fruit that is green in color. It is this pigment that captures the light energy required for photosynthesis.

Flavonoids (**fley**-vuh-noid) — Any of a large group of water-soluble plant pigments that are beneficial to health. Flavonoids are polyphenols and have antioxidant, anti-inflammatory, and antiviral properties. They also help to maintain the health of small blood vessels and connective tissue, and some are under study as possible treatments of cancer. Also called *bioflavonoid*.

pH — A measurement of acidity or alkalinity. Pure water has a pH of 7 which is considered neutral. Acids have a pH of 1 to 6.9. Bases (alkaline) have pH of 7.1 to 14. Most public water supplies have a slightly alkaline pH.

Phytonutrient (fahy-t*uh*-**noo**-tree-*uh* nt) — Naturally occurring chemical compounds in plants; beneficial to human health. Phytonutrients are pigments.

Pigment — A natural substance in vegetables and fruit; provides color to plants and many are beneficial to human health.

Vitamin A — An essential nutrient for human health. Supports growth, reproduction, healthy skin and mucus membranes. Promotes good vision in low light.

Exploring Food Science – What's on Your Plate?
Heat It and Eat It
The Science of Cooking Vegetables
Activity 3.2 Glossary

Vitamin C A essential nutrient for human health. Vitamin C strengthens tissues, such as bones, tendons and muscles. It helps with wound healing and immune function. It also helps humans absorb iron when eaten with iron-rich foods Vitamin C is abundant in fruits and vegetables, especially citrus fruits and vegetables in the cruciferous (cabbage) family such as cauliflower, broccoli and cabbage.

Sources: Encarta English Dictionary and www.Dictionary.com

Exploring Food Science – What's on Your Plate?
The Science of Cooking Fruit
All about Osmosis and Diffusion
Activity 3.3 Glossary

Cell Membrane — The outside of a cell which protects its contents and separates it from other cells.

Diffusion — The tendency for a solute in a solution to move from a high concentration to a lower concentration.

Equilibrium (ee-kw*uh*-**lib**-ree-*uh*m) — The condition existing when a chemical reaction and its reverse reaction take place at equal rates.

Kinetic Energy (ki-**net**-ik) — The energy of movement.

Osmosis (oz-**moh**-sis) — The movement of a solvent (usually water) through a semi-permeable membrane from a lower solute concentration towards a higher solute concentration. This equalizes the solute concentration on both sides of the membrane.

Osmotic Pressure — The pressure or pull that occurs when two solutions with different solute concentrations are on different sides of a permeable membrane.

Permeable (**pur**-mee-*uh*-b*uh*l) — Capable of being permeated, allowing the passage of particles.

Semi-permeable membrane — A type of membrane that allows the passage of some, but not all particles.

Simmer — To cook food in water just below the boiling point where small bubbles float to the surface.

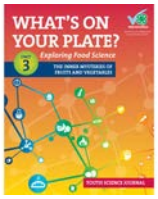
Solute — A substance that is dissolved in another substance.

Solution — A mixture of a substance (usually a solid) dissolved in another substance (usually a liquid).

Sugar — A type of natural or added sweetener of which there are many types. One important type of sugar is table sugar which is also known as sucrose. Another important type of sugar, fructose, is found naturally in fruits and vegetables.

Sources:

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



Exploring Food Science – What's on Your Plate?
The Science of Cooking Fruit
All about Osmosis and Diffusion
Activity 3.3 Glossary

Anatomy & Physiology – 6th Edition. Rod Seeley, Trent Stephens, and Philip Tate. McGraw Hill. New York, NY. 2003.

Lehninger Principles of Biochemistry – 4th Edition. David Nelson and Michael Cox. Freeman. New York, NY. 2005.

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

www.Dictionary.com