

Glossary

absorb To take something in. Energy from sunlight is absorbed by objects on Earth and changed to heat energy. Dark colors absorb more solar energy than light colors. That's why they get hotter.

atom The smallest piece of an element that still has all the properties of that element. An atom is made up of protons, neutrons, and electrons. The protons and neutrons are found in the nucleus. The electrons move around the nucleus.

chemical energy A form of energy stored in plants, batteries, wax, and oil. Humans and animals get the energy they need to move from food, a form of chemical energy.

chemical reaction The change that happens when two or more substances combine and produce a new substance. Heat energy is often released or absorbed during a chemical reaction. Sometimes, gas bubbles are produced.

chemistry The study of matter and how it can change or be changed. Chemistry is the study of how atoms of different elements interact with each other. Everything you see, including yourself, is made from elements. Scientists combine chemicals in the laboratory to make many kinds of useful products.

condensation When a gas becomes a liquid. Condensation happens when water vapor touches a colder surface and drops start to collect on the surface. You can see condensation on the outside of a cold can of juice.

contract To become smaller; to shrink or take up less space. When something contracts, it becomes smaller because the particles that it is made of come closer together. When a gas cools, it contracts.

crystal A 3-dimensional solid with straight edges and flat sides. Ordinary table salt is in the form of a cube-shaped crystal. Minerals are often identified by the kind of crystal they form.

dissolve To form a solution with another substance. Some solids dissolve easily in water. Some do not. Powdered lemonade dissolves easily. Sand does not.

electron A particle with a negative charge. Electrons circle the nucleus of an atom.

element A substance that is made up of all the same kind of atom. Hydrogen, oxygen, and neon are some of the over 100 elements on Earth. Most elements are found combined with other elements in nature. Water is made of one oxygen atom and two hydrogen atoms joined together.

energy The ability to do work. There are many forms of energy, such as heat, light, electrical, and nuclear energy. Energy can be converted from one form to another.

evaporation When a liquid becomes a gas. Evaporation happens when a puddle dries up. The particles of liquid water have enough heat energy to break from the surface and change into water vapor.

expand To become larger; to spread out or take up more space. When something expands, it becomes larger because the particles that it is made of spread out more. When a gas is heated, it expands.

freezing When a liquid becomes a solid. When a liquid freezes, it changes from liquid to solid. Different substances have different freezing points. Water freezes at 0°C (32°F).

gas A state of matter where particles are spaced far apart and fill the container they are in. Air is a mixture of gases.

Glossary (continued)

heat energy The energy of moving particles. The faster the particles of a substance move, the more heat energy the substance has.

insulator Something that slows the movement of heat energy from one place to another. Coolers, refrigerators, and some clothing act as insulators. They are used to keep objects cool.

liquid A state of matter that doesn't have a shape of its own but takes the shape of the container it is in. Particles in a liquid state can move around more than they can in a solid state. Water, orange juice, and milk are all examples of liquids.

light energy The energy of light waves. Light energy can come from the Sun. It can also come from other places. For example, chemical energy in a battery can be converted to light energy in a flashlight bulb.

matter The material or "stuff" of which everything is made. Everything around us is made up of matter. Matter is found in different forms: solid, liquid, and gas. Matter can be measured.

mechanical energy The energy of motion. The body converts the chemical energy in food to mechanical energy when muscles move.

melting When a solid becomes a liquid. When a solid absorbs heat energy, it can melt. When ice melts it becomes liquid water. Different substances melt at different temperatures.

mixture A combination of two or more substances that can be easily separated. The individual parts are still visible in a mixture and can be separated again. Pebbles and sand are a mixture. They can be easily separated. Salt water is also a kind of mixture. You can separate the salt by boiling off the water.

molecule Two or more atoms joined together. Water is a small molecule made up of two hydrogen atoms and one oxygen atom. Soap is a very long molecule made up of many carbon, hydrogen, and oxygen atoms.

neutron A particle with no charge. Neutrons are found in the nucleus of an atom.

nucleus The center of an atom. An atom's protons and neutrons are located in the nucleus.

Periodic Table A chart of all the elements known on Earth. The elements are arranged in the table according to their properties.

physical change A change that makes something different in size, shape, or state of matter. If you cut an apple in half, you still have two parts of an apple. Its shape has changed but it is still an apple. When water freezes, it is still water. When an ice cube melts, it is still water. Melting and freezing are physical changes.

pressure The amount of force pressing on something. Air is made of particles that have mass. As air particles strike objects, they exert pressure. The faster the particles move, the more pressure they exert. Also, the more particles there are in a certain area, the greater the pressure will be in that area.

product What is produced or left at the end of a chemical reaction. A product can be a solid, liquid, or gas. Carbon dioxide is the product of a reaction between baking soda and vinegar.

proton A particle with a positive charge. Protons are found in the nucleus of an atom. The "atomic number" of an element tells how many protons it has in the nucleus of its atoms.

reactant A substance that reacts in a chemical reaction. Vinegar and baking soda are the reactants that undergo a chemical reaction when they are mixed together.

Glossary (continued)

reflect To turn something back. Light colors reflect more solar energy than dark colors. That's why they don't get as hot. In a solar cooker, light from the Sun can be reflected into the cooker by a shiny surface. The more light that enters the cooker, the hotter it will get.

solar cooker A container that absorbs solar energy and uses it to cook food. Most solar cookers are made up of a box, something to reflect solar into the box, something to absorb the solar energy, and something to trap the heat energy.

solar energy Energy from the Sun. Energy comes from the Sun to Earth in the form of sunlight. Solar energy is changed to heat energy when it is absorbed by objects on Earth.

solid A state of matter that has a fixed shape. Particles in solids are not totally still, but they cannot move around each other. Metal, wood, clay, glass, and plastic are all examples of solids.

solution A mixture in which one substance is dissolved in another. You cannot see the one substance that is dissolved in another. But you can taste it. Cola drinks have sugar and syrup dissolved in carbonated water. You can't see the sugar but you can taste it.

sound energy The energy of sound waves.

Sound is made when an object vibrates. The vibrations of the object make the air particles around it vibrate. The air particles move out from the object as sound waves.

surface area A measure of the total area of all the surfaces of an object. A crushed ice cube has more surface area than a whole ice cube.

surface tension The "elastic skin" that forms on top of some liquids. Water forms a rounded drop on many surfaces instead of spreading out because the molecules in the drop are very attracted to one another.

temperature A measure of the heat energy in a substance. Temperature is measured using a thermometer. The Fahrenheit and Celsius scales are both used to measure temperature.