Elements Matching Game Cards

Instructions: A full set includes the first 20 elements of the periodic table. Print, cut apart on lines and shuffle.

B **METALLIOD: Boron** Boron is a blackish-brown element that is never found alone in nature and always found as a compound. It is a plant nutrient that helps build cell wall structure. Boric acid is used to kill insects. Have you ever heard of Borax? It is a form of Boron found in laundry detergent. Engineers use Boron compounds to help fight cancer and in nuclear reactors.	**Li** **ALKALI METAL: Lithium** Lithium is a soft, silvery-white metal. It is one of the only four elements created in the first three minutes of the universe. This element is used in many ways, including the treatment of some mental disorders. Engineers incorporate lithium in cell phone and camera batteries, aircraft parts, some ceramics and glass, and telecommunication products.
C **NON-METAL: Carbon** Carbon is the "building block of life," and combines with oxygen to form plant food. Forming different bonds with itself, results in substances such as graphite (pencil lead), coal, diamonds. It's a key ingredient in CO_2 , which contributes to global warming. Combined with H, it makes flammable fuel compounds (hydrocarbons). Engineers use carbon in fuel technologies, plastics and many electronics applications. Carbon is also used in medicines.	**He** **NOBLE GAS: Helium** Helium is the second lightest and second most abundant element in the universe. It is used as a deep sea breathing gas and to inflate balloons and airships. Inhaling helium makes your voice sound higher. Engineers use helium to develop rocket fuel, detect leaks in high-vacuum equipment and high-pressure containers, and develop some optics and telescopes.
H **NON-METAL: Hydrogen** This colorless gas is the most abundant element in the universe, making 75% of all matter. Hydrogen is found is stars and planets. In fact, our Sun is made entirely of hydrogen and some helium. Water is also made of hydrogen — two hydrogen atoms and one oxygen atom (H_2O). Petroleum and chemical engineers use hydrogen to develop fuels. Hydrogen is also used by engineers in the electrical generators in power stations and to inflate weather balloons.	**Mg** **ALKALINE EARTH METAL: Magnesium** Magnesium is found in the Earth's crust. When it burns in the air, it produces a brilliant white light. Magnesium powder is used to make fireworks and marine flares. Magnesium is also very good for the body and is found in foods like cashews and almonds. Magnesium is used in agricultural, chemical and construction engineering. Engineers also use magnesium for the manufacturing of mobile phones, laptop computers, cameras, and other electronic devices.

P **NON-METAL: Phosphorus** In Greek, phosphorus translates to “light bearer.” This element is very reactive and is never found as a free element in nature. It is a component of your genetic material (DNA and RNA) and an essential element for all living cells. Phosphorus is used widely in explosives, matches, pesticides, and as treatment for some mental disorders. Chemical engineers use phosphates in the development of food applications and toothpaste.	**Be** **ALKALINE EARTH METAL: Beryllium** Beryllium is used as a hardening agent. It has excellent conductivity, which means that sound and electricity can move through it very quickly. In fact, the speed of sound through beryllium is 12,500 meters per second. Beryllium is lightweight and engineers use it to build high-speed aircraft missiles and satellites. Engineers also use beryllium in x-ray detection devices, communication satellites, and some computer equipment.
N **NON-METAL: Nitrogen** Nitrogen is a colorless gas that makes up 78% of the Earth’s atmosphere. That’s a lot! Nitrogen is found in your living tissues and amino acids. When nitrogen exists as a gas, it causes frostbite on human skin; it can be used to remove warts and moles. Engineers use nitrogen to develop packaging that preserves the freshness of foods, produce electronic parts, and manufacture stainless steel.	**O** **NON-METAL: Oxygen** Oxygen is a colorless gas and is one of the two major components of air. It is produced by plants during photosynthesis, which is one reason plants are so important for life on Earth, since animals and humans need oxygen to breathe! When three oxygen atoms combine, they form a molecule called ozone. Our atmospheric ozone layer protects us from harmful ultraviolet rays. Engineers use oxygen in medical and space applications.
F **HALOGEN GAS: Fluorine** Fluorine is the most chemically reactive of all elements. It causes severe burns on the skin. Fluorine is used to make toothpaste. Some dentists believe that rinsing with fluoride can prevent cavities. Fluorine can combine with another element, uranium, to create atomic bombs, which were used in World War II. Engineers use fluorine in air conditioning and refrigeration and in the production of plastics, such as Teflon.	**N** **NOBLE GAS: Neon** Even though neon is very scarce on Earth, it is abundant in the rest of the universe. This element has the most intense light discharge of all gases, which means that it lets off a lot of light when it is charged. It is popularly used to make advertising signs by running electricity through tubes of neon gas. Engineers use neon to make television tubes, lasers, and high-voltage indicators.

Ar **NOBLE GAS: Argon** Argon makes up less than 1% of the Earth's atmosphere and about 70% of Mercury's atmosphere. Since argon is a stable element, it is used to protect old materials and documents. Winemakers use argon in wine barrels to prevent wine from turning into vinegar during the fermentation process. Engineers use argon in incandescent lighting, energy-efficient windows, and sometimes as lasers for surgery.	**Cl** **HALOGEN: Chlorine** Chlorine combines readily with nearly all other elements, although it is not as extremely reactive as fluorine. It has a suffocating odor that is easily detectable. Chlorine is commonly used in bleaching and disinfectants and in swimming pools to keep them clean. Engineers use chlorine to help purify drinking water.
S **NON-METAL: Sulfur** Sulfur can be different colors: In its natural state, it is lemon yellow. When it melts, it turns blood red. When it burns, it emits a blue flame. Sulfur found near hot springs is often described as smelling like rotten eggs. This element is emitted when we burn coal and petroleum. It reacts with water and oxygen in the atmosphere to produce sulfuric acid, or acid rain, which is destructive to the environment. Engineers use sulfur in batteries, detergents, oil refining, wastewater processing, and chemical synthesis.	**Na** **ALKALI METAL: Sodium** Sodium is a highly-reactive element, meaning that it likes to combine with many other elements. It can be found in great quantities in the Earth's oceans as sodium chloride, or salt. When we sweat, we release sodium from our bodies. Chemical engineers use sodium in the development of soaps. Sodium is also used by engineers in the creation of sodium vapor lamps, used to light city streets.
Al **POOR METAL: Aluminum** Aluminum is light-weight and resists corrosion, thus it is used to manufacture a wide variety of products, and it is important to world economy. It is used in modern aircraft because of its high strength-to-weight ratio. Engineers use aluminum in the design of many structures and transportation vehicles — even bicycles. Aluminum is also used by engineers in packaging, water treatment and telescope mirrors.	**Si** **METALLOID: Silicon** A lot of silicon is found the Earth's crust. Silicon is what makes up sand; it is also used to create glass and ceramic materials. Pure silicon can be mixed with other elements to create materials that carry electrical current. Engineers use silicon to make electronic equipment such as solar cells, transistors, and computer chips.

K **ALKALI METAL: Potassium** Potassium is a silvery-white metal that can be cut with a knife and has a density less than water. It is an essential element for all living creatures. However, when potassium combines with chlorine, it is used to stop the heart during surgery and in lethal injections. Potassium emits a purple flame when burned. Engineers use potassium in the development of fertilizers, glass, ceramics, and detergents.	**Ca** **ALKALINE EARTH METAL: Calcium** Calcium is found in rocks and minerals and in the Earth's crust. It is an essential component of leaves, bones, teeth and shells. Food sources that contain calcium include dairy, nuts, seeds, beans, molasses and oranges. Engineers use calcium to make cements and mortars used in construction. Engineers also use calcium compounds in liquid rocket propellant, textile production, and as a water sterilizing agent.