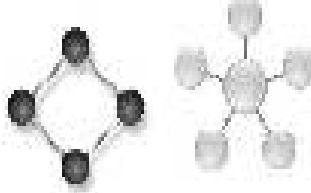


It's Elemental

Cross-Curricular Focus:
Physical Science



All of the "stuff" around us that takes up space is called **matter**. Matter is made out of **elements**. An element cannot be taken apart chemically to make any other substances. Elements are made up of microscopic parts called **atoms**. These atoms have all the **properties** of the element. A property is a characteristic. How is the element experienced with the senses? What does it look like, feel like, taste like, sound like, or smell like? How does it act under certain conditions? How does it act when it is mixed with other elements? When you answer these questions, you are describing an element's properties. Atoms join together to make elements. Then those elements join together to make matter. The kind of atoms that connect, and the way they join, determines the properties of each element. The whole process is like building something out of blocks that connect together.

In the early days of scientific study, scientists started writing down what they were observing about elements. There were probably as many different ways to write it all down as there were people. Just think about the differences between the way you and your friends take notes in class! It was hard for scientists to share information and build on each other's studies. Information had to be organized in a standard way that scientists could all use. Of course there were changes and adjustments along the way, but we finally ended up with a chart called the **periodic table**. In 1869, a Russian chemist named Dmitri Mendeleev arranged all the known elements based on their properties and the number of **protons** (positively charged particles) found in one atom of each element. Mendeleev noticed a pattern in these numbers, and was even able to use the pattern to predict future elements before scientists discovered them!

Today, we know of about 100 different elements. There are 18 elements that are found in the largest amounts on Earth. You have probably heard the names of these 18 before: Hydrogen, Helium, Lithium, Beryllium, Boron, Carbon, Nitrogen, Oxygen, Fluorine, Neon, Sodium, Magnesium, Aluminum, Silicon, Phosphorus, Sulfur, Chlorine, and Argon. When it comes down to the building blocks of matter, it's elemental!

Name _____

Answer the following questions based on the reading passage. Don't forget to go back to the passage whenever necessary to find or confirm your answers.

1. What is the main idea of this reading passage?

2. If you discovered a new element, how would you know where it should go on the periodic table of elements?

3. Do you think it is a good idea for all scientists to use the same periodic table of elements? Why or why not?

4. State the definition of an element in your own words.

5. Explain how atoms and elements differ from one another.
