

Objective	Learn Names and Symbols of Common Elements.
Pre-test	H ₂ O is water. What do the H and the O stand for? What elements make sodium chloride (Table salt)?
Set-Up	Arrange students in groups of 4, facing each other. Give one deck to each set of students. Have a periodic table handy for reference.
Concept	There are 109 known elements that make up all of the matter on earth. These each have their own names. Each name has an abbreviation – one or two letters – that make it faster to write chemical formulas.
Activity	Have the students divide the deck evenly. Have the students locate the name and symbol in the upper right corner of the card. Note that most symbols use the first letter of the English name, but some use the Latin name (Na for sodium). Identify these elements. How many name and symbol pairs can you memorize in 5 minutes?
Utility	Using the chemical symbols rather than the names make formulas shorter and easier to write. H ₂ O is water. What do the H and the O stand for? Find two H and one O. together they make H ₂ O, which is water. What elements make sodium chloride (Table salt)? Find one Na and one Cl. The chemical formula for sodium chloride is NaCl. Methane – also known as natural gas – is CH ₄ . Find one C and four H. Carbon dioxide is CO ₂ . Find one C and two O. Calcium chloride, CaCl ₂ , is used in the winter for road salt. Find one Ca and two Cl.
Post-Test	Ask the students the symbols of the elements carbon, hydrogen, oxygen, nitrogen, phosphorus, chlorine, sodium, lead, iron, and calcium.

Objective	Identify metals, non-metals and metalloids.
Pre-test	What is a metal? What is a non-metal? What is a metalloid?
Set-Up	Arrange students in groups of 4, facing each other. Give one deck to each set of students. Have a periodic table handy for reference. It should have the non-metals, metalloids and metals marked on it.
Concept	Metals are elements that conduct electricity and heat well. Many of them are easily formed in a variety of shapes. Most elements are metals. Non-metals do not conduct electricity or heat well. Metalloids have intermediate properties, and are used to make semi-conductors for electronic applications.
Activity	Have the students divide the deck evenly. Have the students locate the symbol for metal, non-metal or metalloid in the upper right corner of the card, under the name.
Utility	Common metals are aluminum and iron, which are used to make the bodies and axles of cars. A common metalloid is silicon, which is used in electronic applications. Air is made of mostly nitrogen and oxygen, two common non-metals.
Post-Test	Ask the students the names of 3 metals, 3 non-metals and 3 metalloids.

Objective	Identify the noble gases and the diatomic gases
Pre-test	What is a noble gas? Name a few gases that you know.
Set-Up	Arrange students in groups of 4, facing each other. Give one deck to each set of students. Have a periodic table handy for reference. It should have the noble gases labeled.
Concept	Metals are elements that conduct electricity and heat well. Many of them are easily formed in a variety of shapes. Most elements are metals. Non-metals do not conduct electricity or heat well. Metalloids have intermediate properties, and are used to make semi-conductors for electronic applications.
Activity	Have the students divide the deck evenly. Have the students locate the symbol for metal, non-metal or metalloid in the upper right corner of the card, under the name.
Utility	Common metals are aluminum and iron, which are used to make the bodies and axles of cars. A common metalloid is silicon, which is used in electronic applications. Air is made of mostly nitrogen and oxygen, two common non-metals.
Post-Test	Ask the students the names of 3 metals, 3 non-metals and 3 metalloids.