

Name :

Date :

Periodic Table Trends Worksheet

Use the periodic table and your knowledge of properties and periodic trends to answer the following questions.

1. Ionization Energy

- a) Define ionization energy.
- b) What is the trend as you move down a group (column)?
- c) What is the trend as you move across a period (row)?
- d) Which family of elements has the highest ionization energies?
- e) Which family of elements has the lowest ionization energies?
- f) Arrange the following atoms in order of increasing ionization energy: lithium, oxygen, magnesium, strontium, and chlorine.

2. Electronegativity

- a) Define electronegativity.
- b) What is the trend as you move down a group (column)?
- c) What is the trend as you move across a period (row)?
- d) Which family of elements has the highest electronegativities?
- e) Arrange the following atoms in order of increasing ionization energy: lithium, oxygen, magnesium, iodine, and boron.

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Answers

1. Ionization Energy

a) Define ionization energy.

It is the energy required to remove an electron from an atom.

b) What is the trend as you move down a group (column)?

It decreases from top to bottom down a group.

c) What is the trend as you move across a period (row)?

It increases from left to right across a period.

d) Which family of elements has the highest ionization energies?

The noble gases have the highest ionization energies.

e) Which family of elements has the lowest ionization energies?

The alkali metals have the lowest ionization energies.

f) Arrange the following atoms in order of increasing ionization energy: lithium, oxygen, magnesium, strontium, and chlorine.

lithium < strontium < magnesium < chlorine < oxygen

2. Electronegativity

a) Define electronegativity.

It is the tendency of an atom to attract a pair of electrons in a chemical bond.

b) What is the trend as you move down a group (column)?

It decreases from top to bottom down a group.

c) What is the trend as you move across a period (row)?

It increases from left to right across a period.

d) Which family of elements has the highest electronegativities?

The halogens have the highest electronegativities.

e) Arrange the following atoms in order of increasing ionization energy: lithium, oxygen, magnesium, iodine, and boron.

lithium < magnesium < boron < iodine < oxygen