

Part II: Making Ions

Not all atoms are neutral. Many have a charge. Some are more positive and some are more negative. We call the charge on such an atom the "net charge", or "total charge".

1. Make a neutral Beryllium atom. What would you do to make a beryllium atom with a *negative* charge?

We added more electrons than protons

2. Make the neutral Beryllium atom again. What would you do to make a beryllium atom with a *positive* charge?

Having more protons than electrons makes it positive

3. Pick an element, and make two examples with different charges in the table below. Include what the charge is (sign and number), and how many protons and electrons are in the atom.

Name of element: Helium Symbol: He

Diagram 1	Diagram 2
Charge: <u>+1</u> Electrons: <u>1</u> Protons: <u>2</u>	Charge: <u>-1</u> Electrons: <u>3</u> Protons: <u>2</u>

4. What did you do to change "Diagram 1" to "Diagram 2"?

We added electrons

5. Repeat the last process for a *different* element. Make two examples with different charges.

Name of element: Hydrogen Symbol: H

Diagram 1	Diagram 2
Charge: <u>+1</u> Electrons: <u>0</u> Protons: <u>1</u>	Charge: <u>0</u> Electrons: <u>1</u> Protons: <u>1</u>

6. Based on your observations, make a rule or formula to predict the charge of the atom if you are given the number of protons and electrons.

Now you will practice building some specific elements. In the table below, some of the information is filled out about a particular atom. Complete the table below by filling in the blanks and drawing the picture of that atom.

Electrons: 10 Protons: <u>8</u> Charge: <u>-2</u>	Picture of Atom	Name: <u>Oxygen</u> Symbol: <u>O</u> Neutral Atom or Ion? <u>ion</u>
Electrons: 2 Protons: 3 Charge: <u>+1</u>		Name: <u>Lithium</u> Symbol: <u>Li</u> Neutral Atom or Ion? <u>ion</u>
Electrons: <u>10</u> Protons: <u>9</u> Charge: <u>-1</u>		Name: <u>Fluorine</u> Symbol: <u>F</u> Neutral Atom or Ion? <u>ion</u>
Electrons: <u>0</u> Protons: 1 Charge: +1		Name: <u>Hydrogen</u> Symbol: <u>H</u> Neutral Atom or Ion? <u>ion</u>
Electrons: 2 Protons: <u>5</u> Charge: <u>+3</u>		Name: <u>Boron</u> Symbol: <u>B</u> Neutral Atom or Ion? <u>ion</u>