

## Lesson 18—Noble Gas Envy: Ions

### Cations:

Have a positive charge

Have lost electrons

### Anions:

Have a negative charge

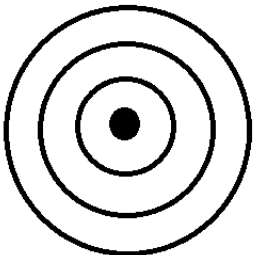
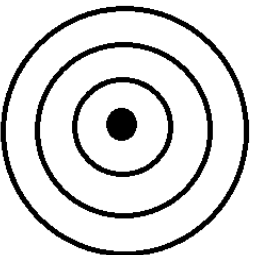
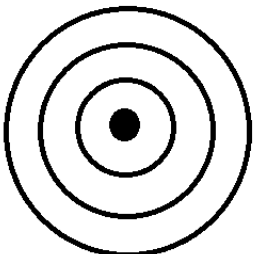
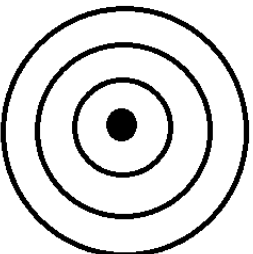
Have gained electrons

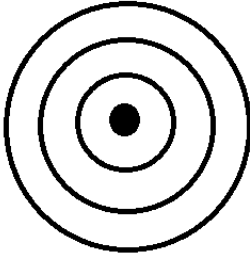
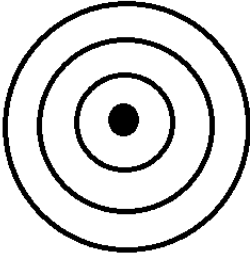
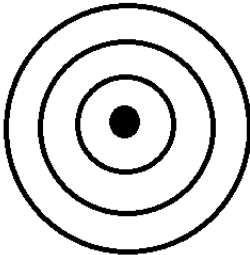
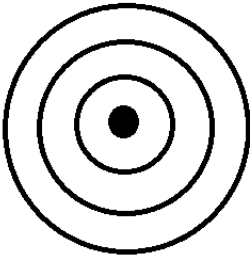
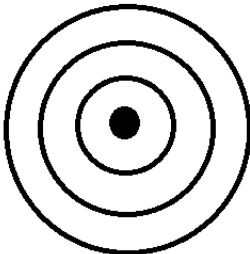
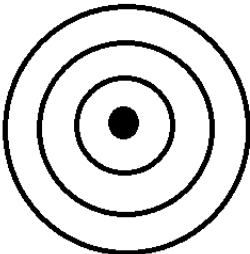
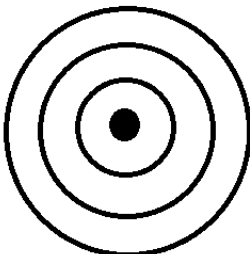
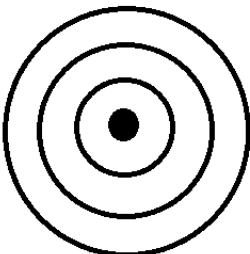
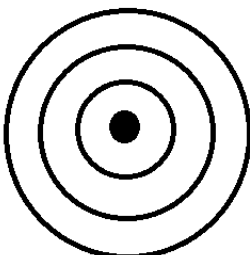
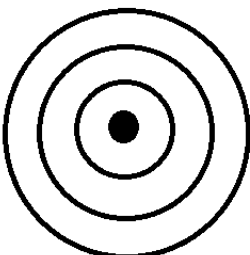
### Ion symbol:

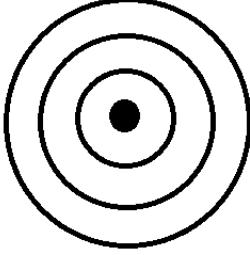
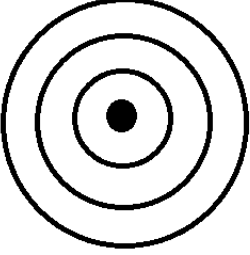
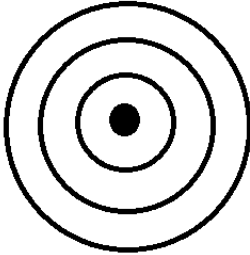
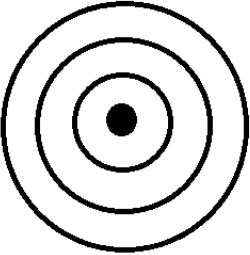
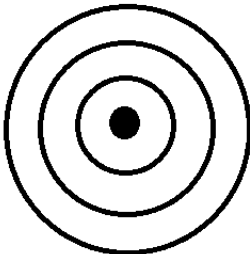
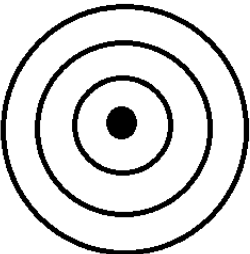
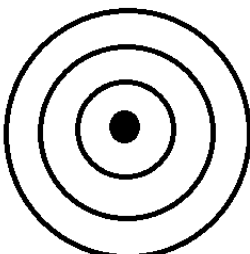
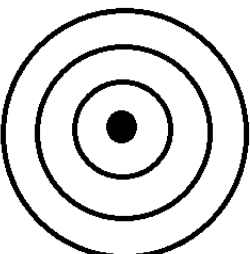
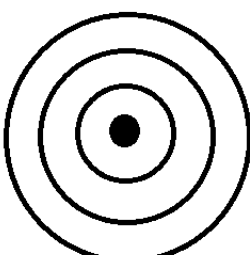
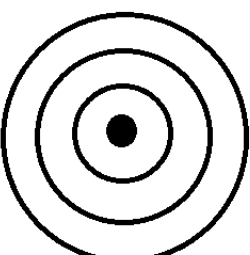
To write the ion symbol, you must write the element symbol with the charge written on the top right.

Example:  $\text{Ca}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Ag}^{1+}$

**Directions:** Use your periodic table to fill in the information and complete a shell model for each atom & ion.

		<b>Lithium atom</b>	<b>Lithium ion</b>
		Atomic number:	Atomic number:
		Mass number:	Mass number:
		Protons:	Protons:
		Neutrons:	Neutrons:
		Electrons:	Electrons:
<b>Lithium atom</b>	<b>Lithium ion</b>	Cation/Anion:	Ion symbol:
		<b>Beryllium atom</b>	<b>Beryllium ion</b>
		Atomic number:	Atomic number:
		Mass number:	Mass number:
		Protons:	Protons:
		Neutrons:	Neutrons:
		Electrons:	Electrons:
<b>Beryllium atom</b>	<b>Beryllium ion</b>	Cation/Anion:	Ion symbol:

		<b>Boron atom</b>	<b>Boron ion</b>
		Atomic number:	Atomic number:
		Mass number:	Mass number:
		Protons:	Protons:
		Neutrons:	Neutrons:
		Electrons:	Electrons:
<b>Boron atom</b>	<b>Boron ion</b>	Cation/Anion:	Ion symbol:
		<b>Nitrogen atom</b>	<b>Nitrogen ion</b>
		Atomic number:	Atomic number:
		Mass number:	Mass number:
		Protons:	Protons:
		Neutrons:	Neutrons:
		Electrons:	Electrons:
<b>Nitrogen atom</b>	<b>Nitrogen ion</b>	Cation/Anion:	Ion symbol:
		<b>Oxygen atom</b>	<b>Oxygen ion</b>
		Atomic number:	Atomic number:
		Mass number:	Mass number:
		Protons:	Protons:
		Neutrons:	Neutrons:
		Electrons:	Electrons:
<b>Oxygen atom</b>	<b>Oxygen ion</b>	Cation/Anion:	Ion symbol:
		<b>Fluorine atom</b>	<b>Fluorine ion</b>
		Atomic number:	Atomic number:
		Mass number:	Mass number:
		Protons:	Protons:
		Neutrons:	Neutrons:
		Electrons:	Electrons:
<b>Fluorine atom</b>	<b>Fluorine ion</b>	Cation/Anion:	Ion symbol:
		<b>Sodium atom</b>	<b>Sodium ion</b>
		Atomic number:	Atomic number:
		Mass number:	Mass number:
		Protons:	Protons:
		Neutrons:	Neutrons:
		Electrons:	Electrons:
<b>Sodium atom</b>	<b>Sodium ion</b>	Cation/Anion:	Ion symbol:

		<b>Magnesium atom</b>	<b>Magnesium ion</b>
		Atomic number:	Atomic number:
		Mass number:	Mass number:
		Protons:	Protons:
		Neutrons:	Neutrons:
		Electrons:	Electrons:
<b>Magnesium atom</b>	<b>Magnesium ion</b>	Cation/Anion:	Ion symbol:
		<b>Aluminum atom</b>	<b>Aluminum ion</b>
		Atomic number:	Atomic number:
		Mass number:	Mass number:
		Protons:	Protons:
		Neutrons:	Neutrons:
		Electrons:	Electrons:
<b>Aluminum atom</b>	<b>Aluminum ion</b>	Cation/Anion:	Ion symbol:
		<b>Phosphorus atom</b>	<b>Phosphorus ion</b>
		Atomic number:	Atomic number:
		Mass number:	Mass number:
		Protons:	Protons:
		Neutrons:	Neutrons:
		Electrons:	Electrons:
<b>Phosphorus atom</b>	<b>Phosphorus ion</b>	Cation/Anion:	Ion symbol:
		<b>Sulfur atom</b>	<b>Sulfur ion</b>
		Atomic number:	Atomic number:
		Mass number:	Mass number:
		Protons:	Protons:
		Neutrons:	Neutrons:
		Electrons:	Electrons:
<b>Sulfur atom</b>	<b>Sulfur ion</b>	Cation/Anion:	Ion symbol:
		<b>Chlorine atom</b>	<b>Chlorine ion</b>
		Atomic number:	Atomic number:
		Mass number:	Mass number:
		Protons:	Protons:
		Neutrons:	Neutrons:
		Electrons:	Electrons:
<b>Chlorine atom</b>	<b>Chlorine ion</b>	Cation/Anion:	Ion symbol:

## **Lesson 19 Notes**

**Essential Question:** How is chemical stability related to the arrangements of electrons in atoms?

**Homework DUE next block: Read pages 96-100 and DO exercises #3,7,8,11,13 and 15.**