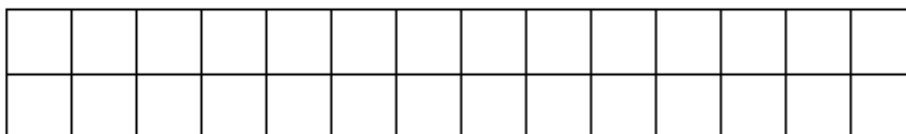
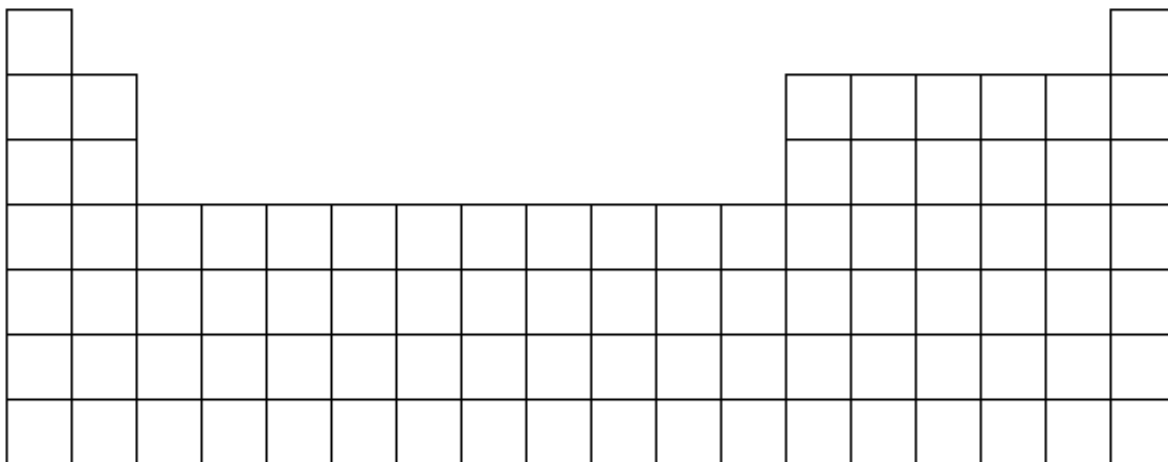


Chemistry 11
Atomic Theory III

Name:
 Date:
 Block:

1. EC Relationship to Periodic Table
2. Electron Configuration Exceptions
3. Electron Configuration of Ions

Electron Configuration Relationship to Periodic Table



Element	Full Electron Configuration	Core Notation
Al		
Tc		
Kr		
Ca		
Zr		
Ga		

Element	Full Electron Configuration	Core Notation
Rh		
Li		
Sn		

Use the periodic table to identify the neutral atoms having the following electron configurations:

Electron Configuration	Element Name
[Ne] 3s ²	
[Ar] 4s ² 3d ⁵	
[Kr] 5s ² 4d ¹⁰ 5p ³	
[Xe] 6s ² 4f ⁷	

Consider the following six ions: N³⁻ O²⁻ F⁻ Na⁺ Mg²⁺ Al³⁺

- How many electrons are present in each ion?
- Write a single electron configuration representing all of the ions.
- Which neutral atom possesses this electron configuration?

Complete the following table for some elements in two families of the periodic table:

Alkali metals	Core Notation	# Outer Electrons	Halogens	Core Notation	# Outer Electrons
Lithium			Fluorine		
Sodium			Chlorine		
Potassium			Bromine		
Rubidium			Iodine		

- Consider the number of outer electrons present and suggest a reason why elements belonging to the same chemical family demonstrate similar chemical behavior.
- What change occurs in the atoms as we move down each chemical family?

Electron Configuration Exceptions

⇒ A _____ or _____ d-subshell is very _____

- Half filled: _____
- Filled: _____

Example:

Chromium:

Copper:

Molybdenum:

Electron Configuration of Ions

Negative Ions:

- Add negative electrons to the _____ unfilled subshell

Example:

Positive Ions:

Two Rules:

1. Electrons in the _____ (largest n-value) are _____ first
2. If there are electrons in the p and s-orbitals, remove the _____ electrons first

Important Note:

- Even though d-orbitals fill after the s-orbital of the next energy level, the s-orbital electrons of the higher energy level get removed first

Write the core notation for the atom, then remove electrons in the order:

Example:

Use the periodic table to complete the following table:

Atom or Ion	Electron Configuration	Core Notation
Zn		
Zn ²⁺		
Br		
Br ⁻		
In		
In ³⁺		

Write the electron configuration of the following ions, using core notation:

1. H⁻

2. Sr²⁺

3. Br⁻

4. N³⁺

5. Ti²⁺

6. N²⁻

7. Mn²⁺

8. Ge⁴⁺

9. Fe³⁺

10. Ge²⁺

11. Ru³⁺

12. Sb³⁺