

REVIEW – Elements and the Periodic Table

Name: _____ Date: _____ Block: _____

Use this Review, as well as reading through your INB notebook, "The Periodic Table and Chemical Properties" Worksheet, and "Applying Knowledge – Bohr Diagrams of Atoms and Ions" Worksheet when studying for your test.

Section 1: Explain the Organization of the Periodic Table of Elements

1. a) What side of the Periodic Table are **metals** located? left
b) What side of the Periodic Table are **non-metals** located? right
c) Where are metalloids located on the Periodic Table? between metals/non-metals
↳ staircase
2. What information is in each box on the periodic table? Symbol,
name, atomic #, atomic mass, ion charge
 - Make sure you know where each piece of information for elements is located in each box.
3. The **atomic number** is equal to the number of p⁺ (protons) found in each element.
4. The **number of protons** is equal to the number of # of e⁻ (electrons) in a neutral atom.
5. What element has 55 electrons? Cs (Cesium)
6. The **atomic mass (or mass number)** = #p⁺ + #n⁰
7. Complete the following table:

Element	Argon	Selenium
Protons	18	34
Neutrons	22	45
Mass Number	40	79

8. A **family** of elements is found vertically on the periodic table and a **period** of elements is found horizontally on the periodic table.
9. What are the **four chemical families** we have discussed about in Science 9?

- Alkali metals
- Alkaline earth metals
- Halogens
- Noble gases

Section 2: Distinguish between Metals, Non-metals, and Metalloids

1. What are the properties of metals and non-metals?

Non-metals	Metals
Dull	Shiny
poor conductors of heat & electricity	Good conductors of heat and electricity
brittle	malleable and ductile

⊖
ion charge

loses e-
gives away e-

⊕
Ion Charge

1. What causes reactions in elements? electrons in outermost shell
2. What are **valence electrons**? e- found in outermost shells
3. Provide two examples of elements that are **metalloids**. B, Al, Si, Ge, As, Sb, Te, Po
4. a) Do metals gain or lose electrons? lose
 b) What charge is on metals when they gain or lose electrons? + (positive)
5. a) Do non-metals gain or lose electrons? gain
 b) What charge is on non-metals when they gain or lose electrons? - (negative)

Section 3: Use the Periodic Table to Predict the Properties of a Family of Elements

1. Which family is unreactive and stable? Why are they that way? Noble gases.
Their outer shells are full of e-.
2. How many valence electrons are in each family?
 - Alkali metals: 1
 - Alkaline Earth metals: 2
 - Halogens: 7 (or missing 1e-)
 - Noble gases: Full outer shells
3. If you lose 2 electrons, what charge will you have on the new ion? What family would you be part of? +2, Alkaline Earth metals
4. a) What is the most reactive metal? What family can it be found in? Francium; alkali metals
 b) What is the most reactive non-metal? What family can it be found in? Fluorine; Halogens

Section 4: Draw Bohr Diagrams

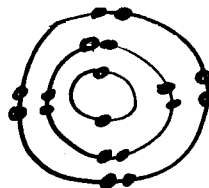
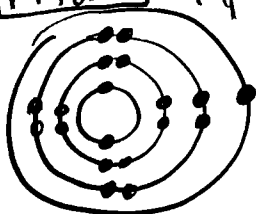
1. What is the difference between the word **atom** and **ion**? Atom is neutral
(#p⁺ = #e⁻); Ion is a charged atom (#p⁺ ≠ #e⁻)
 ↳ +/- charges.

2. Is **Na** an ion or an atom? How do you know? Atom, no charge on
it. * [Na]⁺ would be an ion *

3. Draw the Bohr diagram of an **atom** and an **ion** of potassium.

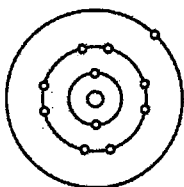
Atomic # = 19 = 19p⁺
Atom 19p⁺ = 19e⁻

Ion 19p⁺ / 18e⁻ lost 1e⁻



4. Looking at the Bohr model below, what element do you have? How do you know?

11e⁻ = 11p⁺ Sodium



The number of e⁻ is 11.

11e⁻ = 11p⁺ ⇒ atomic #

∴ Na

Not an ion because
 no charges on the
 drawing.

5. Fill in the information for atoms and ions in the following table:

	Mg p ⁺ = 12	N p ⁺ = 7
Atom		
Ion	lost 2e ⁻ 2, 8	gain 3e ⁻ 2, 8

Chemistry Unit – Part 2 – Elements and the Periodic Table
Science 9

Here's a space to write down things that you are good at in this part of chemistry and things you struggle with.

Write down hints for the parts you struggle with.