

Name _____

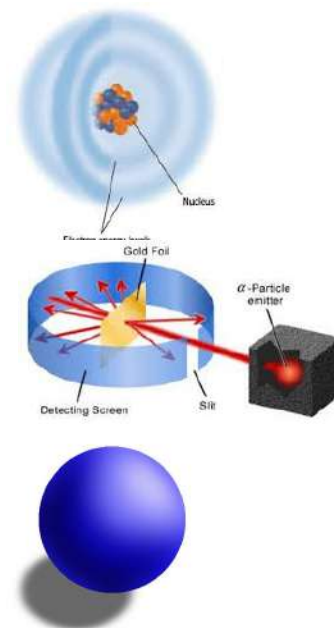
Ch 3 Lessons 1-4 Assessment Atoms and Periodic Table

1. Match the following images to the correct atomic model. (3 points)

Rutherford

Dalton

Modern Cloud "Quantum" Model



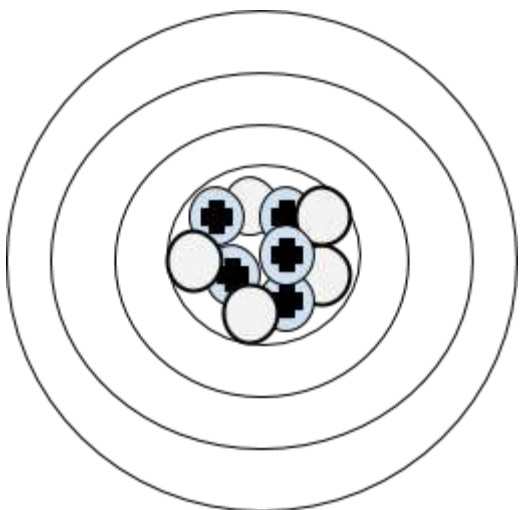
2. What caused the atomic theory to change over time? (3 points)
3. What did Rutherford predict would happen in his foil experiment? What actually happened? (8 points)
4. How did Rutherford's experimental evidence lead to the development of a new atomic model? (4 points)
5. Describe the modern atomic model. (4 points)

6. In the diagram, determine the amount of **missing electrons** and place them in the cloud. Then, **label** the nucleus, protons, neutrons, and electrons. What is the atomic number of this element? _____

Which element does this atom represent? _____

What would cause an atom to be an isotope? _____

(9 points)



7. Label the following diagram of an atom from the periodic table. Write the label on the line.(4 points)

A.	→	8
B.	→	O
C.	→	Oxygen
D.	→	15.999

8. Fill in any blanks with the values for the following atoms, (12 points)

19
K
39.098

#of protons = ____
#of neutrons=____

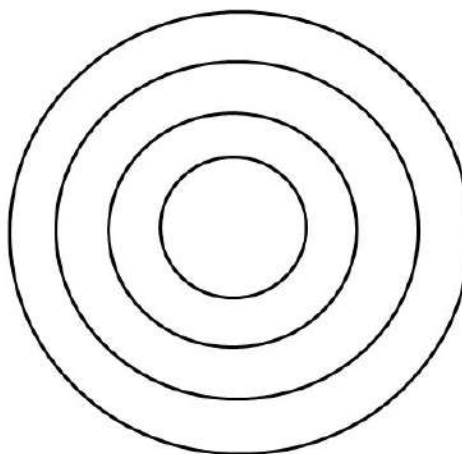
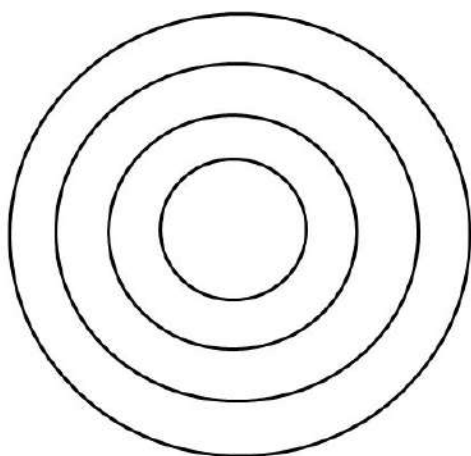
—
Be
9.012

of protons =____
of neutrons=____

—
Arsenic
—

of protons = ____
of neutrons=____

9. DRAW ATOMIC DIAGRAMS FOR THE ATOMS WITH THE FOLLOWING SYMBOLS: **He** and **N** (6 points)



10. If you needed to know what other elements have similar characteristics as Rutherfordium, where should you look on the Periodic Table? (1 point)

11. On the attached Periodic Table of Elements: (13 points)

- ☐ Make a key for the three main categories of elements. Provide the name and color as indicated below.
- ☐ Color the largest category **yellow**.
- ☐ Color the category that shares characteristics of the other two categories **purple**.
- ☐ Color the category that contains solids, liquids and gases **red**.
- ☐ Identify the Periods
- ☐ Identify the Groups
- ☐ Label the following groups: Transition Metals, Nobel Gases, Alkali Metals, Alkaline Earth Metals, Halogens

12. Complete the table of properties: (8 points)(1 point bonus for additional properties)

Metals (at least 3)	Metalloids (at least 2)	Nonmetals (at least 3)

13. Why are elements, such as Silicon and Germanium, often used to make computer chips and other electronic components? (2 points)

14. You will use the materials contained in the baggie to make your modern atomic model. Use the slip of paper contained in the baggie to determine which atom you will build. You must write your name on the slip of paper and return it to the baggie along with your model when you are finished.

- Your model will be evaluated for: (3 points each)
 - a key to indicate the particles;
 - the correct placement of protons, neutrons, and electrons;
 - identifying your atom as neutral or an isotope;
 - your use of the materials provided; and
 - completion of the charts on the next page.

