SC10F **Chemistry Mid-Unit Review** **Name:** Key

1. Define the following terms. Give examples wherever possible.

a. Matter
Anything made of mass.

b. Atom
Smallest part of an element.

c. Element
pure substance that can't be broken down into other substances

d. Valence Shell
outermost shell (orbit) in an atom.

e. Valence Electron
outermost electrons.

f. Sub-Atomic Particle
part of an atom (proton, electron, neutron)

2. Who came up with the "Four Element Theory"? What are the four elements?

Empedocles - earth - water
- air - fire.

3. Use the Four Element Theory to explain what makes substances different from one-another. (ie. What makes wood different from say, gold.)

different amounts of the four elements.

4. Who was the first person (hint: he's a Greek Philosopher) to come up with the idea of the atom? Why was his idea not accepted?

Democritus – Aristotle & Socrates didn't believe it.

5. How are the Greek Philosophers and modern scientists different in the way they studied matter?

Greeks didn't do experiments, modern scientists do.

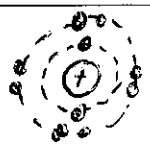
6. The alchemists were looking for 3 things. What were they?

- Universal Solvent.
- Substance for eternal life.
- how to turn lead into gold.

7. We often think the Alchemists had crazy goals. So why are they important?

- they did experiments
- developed lab tools
- discovered elements.

8. Fill in the table with respect to the models of the atom.

Model	Scientist	Main Points	Diagram
Billiard Ball	DALTON		
Blueberry Muffin	Thomson	See Notes	
Nuclear	Rutherford		
Planetary	Bohr		

9. Rows on the periodic table are called periods. The row number tells us the number of orbits. Columns on the periodic table are called groups/families. The column number tells us the number of valence e⁻.

10. What is a sub-atomic particle?
part of an atom.

11. Fill in the table:

	Proton	Electron	Neutron
Charge ((+, -, 0)	+	−	Ø
Mass (heavy or light)	heavy	light	heavy
Location	nucleus	orbits	heavy -

12. Fill in the table with respect to the different families on the periodic table.

Column Number	Family Name	Number of Valence Electrons	Reactivity? (Very, Fairly, Not at all)
I (1)	Alkali Metals	1	Very
II (2)	Alkaline Earth Metals	2	fairly
VI (6)	Chalcogens	6	fairly
VII (7)	Halogens	7	Very
VIII (8)	Noble Gases	full (2 or 8)	NOT AT ALL

13. Which element is in a family of its own? Why do you think this is?

Hydrogen → can actually gain or lose an electron to become stable.

14. Fill in the table for the following elements:

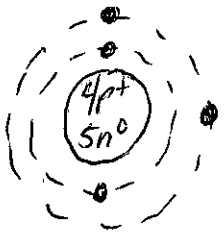
Element	Number of Protons	Number of Electrons	Number of Neutrons
Cobalt (Co)	27	27	32
Arsenic (As)	33	33	42
Einsteinium (Es)	99	99	155
Krypton (Kr)	36	36	48

15. Draw Bohr diagrams for each of the following elements:

a. Boron

b. Aluminum

c. Beryllium



d. Sulphur