

Name _____ Date: _____

Periodic Table Family Gallery Walk Questions

Directions: Use the posters created about each family and your periodic table to answer the following question. If all else fails – use Google!

1. What family has the most reactive metals? Give an example (symbol and name).
2. Which group of elements would most likely be used for electrical wires? Why? Give an example (symbol and name).
3. Which element is probably most like Carbon? Why might you guess this?
4. Which element is probably most like Oxygen? Why do you think so?
5. Which two families of elements often combine to form “salts”?

6. What makes the elements in the halogen group is reactive? Give an example of a halogen. What form do they usually come in? (hint: name means 2 *atoms*)

7. Why are the noble gases so unreactive?

8. List five properties of most transition metals

9. What makes metalloids different from the transition metals? What is their primary use?

10. Compare and contrast the **lanthanides** and the **actinides**.

11. What does it mean for an element to be “synthetic”?

12. What does it mean for an element to be radioactive?

FACTS ABOUT THE PERIODIC TABLE

-Highlight the facts you find on each poster!!

GROUP 1 – ALKALI METALS

Alkali metals are very reactive because they have only one electron in the outer level and can combine with almost any other element. They are especially reactive with WATER. They are very soft (can be cut with a knife), soluble in water, and can neutralize acids. They melt at low temperatures. The name comes from an Arabic word meaning “plant ash”. The ashes of plants contain large amounts of sodium carbonate and potassium carbonate.

GROUP 2 – ALKALINE EARTH METALS

Alkaline earth metals are reactive, but not as much as Group IA. The elements in this group have two valence electrons. The oxides of these metals yield an alkaline, or basic, solution when dissolved in water.

TRANSITION METALS (Groups 3-12) Transition metals are hard and shiny, have a high melting point, and are good conductors of heat and electricity. All are solids (except Mercury). They are malleable (easily hammered into sheets) and ductile (easily formed into wire) They are much less reactive than Groups IA and IIA.

GROUP 13– BORON GROUP Boron is the only non-metal found in this group and is used to make boric acid and borax laundry powder. The most abundant element in the earth’s crust is found in this group— aluminum.

GROUP 14 - CARBON GROUP All life on Earth is carbon-based; the tissue of all living things is made of carbon compounds.

GROUP 15 – NITROGEN GROUP 78% of air is nitrogen; it is the most abundant gas on the planet. Nitrogen compounds are essential to all living things.

GROUP 16– OXYGEN GROUP 21% of air is oxygen. Oxygen is essential for respiration and combustion.

GROUP 17 – HALOGENS The term halogen is Greek for “salt-formers.” This group is a very active non-metal group, which combines with metals to form salts. The most reactive of all non-metals is in this group—fluorine. They all have 7 valence electrons, which is what makes them very reactive. When alone, they exist as *diatomic* molecules so that they satisfy the octet rule.

GROUP 18 – NOBLE GASES The noble gases rarely combine with other elements. They all exist in the earth’s atmosphere. Their outer electron levels are full, so they tend to not be very reactive. They used to be called inert (inactive) because it was believed that they did not react at all with other elements. It has since been found that krypton, xenon and radon react with fluorine to some extent, and thus are not inert. They are all gases at room temperature, and they have very low melting and boiling points.

LANTHANIDE SERIES / ACTINIDE SERIES – These are listed separately because all of the elements in each row have nearly identical properties. Both are silver, white, or gray metals that have a high conductivity. **Lanthanides** are relatively soft, have high melting and boiling points, are very reactive, and widely used in lasers. (Elements 57-71) **Actinides** are very dense radioactive metals which combine directly with most non metals. (Elements 89-103)

METALLOIDS The metalloids are found on either side of the “staircase.” They are semi-conductors, which means they are poor conductors of electricity, but their conductivity increases as the temperature increases. These semi-conductors are very important to high-technology industries.

SYNTHETIC ELEMENTS – Technetium (Tc), Promethium (Pm), and all the elements that follow Uranium (U) are synthetic (man-made, not found in nature).

RADIOACTIVE ELEMENTS – Radioactive means: emitting radiation (in the form of alpha or beta particles, or gamma rays) by unstable atomic nuclei undergoing radioactive decay.