



PERIODIC TABLE UNIT PROJECT

You will be given a periodic table with which you will be creating a map of the elements. The purpose of this project is to understand how the periodic table is organized, what information can be obtained from the table about elements, and to become familiar with the characteristics of the various families of elements.

This is a significant project, which requires that you do some independent research to produce a quality product. You will be assessed on the completeness of your project as well as the detail and creativity with which your project is produced. **Your main goal is to produce a MAP of the elements on the periodic table that visually communicates as much information as possible to the traveler.** Be creative!! You are the cartographer (map maker)!

DUE DATE: _____

PRIMARY REQUIREMENTS:

1. Label the atomic numbers on your periodic table map.
2. Label the element names on your periodic table map.
3. Label the group numbers on your periodic table map for groups IA-VIIIA.
4. Label the period numbers on your periodic table map.
5. For the primary families, group A elements, indicate the valence number.
6. For Groups IA-VIIA, indicate the possible ionic charge.
7. Indicate which elements are found as solids, liquids, and gases at standard temperature and pressure. (*Creativity hint: what do solids, liquids, and gases look like?*)
8. Indicate which element is the most reactive element. (*Creativity hint: how could you visually represent reactivity?*)
9. Indicate which element is the most abundant metal on Earth.
10. Indicate the first, second, and third most abundant elements found in the Earth's crust. (*Creativity hint: how can you visually represent the crust?*)
11. Indicate at least five elements that are named after people. You must include the person's name. (*Creativity hint: what do these people look like?*)
12. Indicate at least five elements that are named after places. You must include the place name. (*Creativity hint: what do these places look like?*)
13. Indicate at least ten elements' chemical symbols that are represented by the elements' original Latin name. (*Creativity hint: how could you represent a Latin name?*)
14. Indicate which elements have metallic properties. (*On the back of the map discuss the characteristics of metals*)
15. Indicate which elements are metalloids. (*On the back of the map discuss the characteristics of metalloids*)
16. Indicate which elements are nonmetals. (*On the back of the map discuss the characteristics of nonmetals*)
17. Indicate the alkali metals. (*On the back of the map discuss the characteristics of alkali metals*)
18. Indicate the alkaline earth metals. (*On the back of the map discuss the characteristics of alkaline earth metals*)
19. Indicate the transition metals. (*On the back of the map discuss the characteristics of transition metals*)
20. Indicate the rare earth metals. (*On the back of the map discuss the characteristics of rare earth metals and just how "rare" they are*)
21. Indicate the Lanthanoid series of elements. (*On the back of the map discuss the characteristics of these metals*)

22. Indicate the Actinoid series of elements. (*On the back of the map discuss the characteristics of these metals*)
23. Indicate the halogens. (*On the back of the map discuss the characteristics of halogens*)
24. Indicate the noble gases. (*On the back of the map discuss the characteristics of noble gases*)
25. On your map of elements, visually indicate the change in atomic size (radius) that occurs as one moves from left to right and from top to bottom along the periodic table.
26. Make sure you have provided a complete key to any colors or symbols you used.
27. **FOR EXTRA CREDIT:** Incorporate any of the other periodic patterns we discussed in class (density, melting point, etc.) or add to any of the above guidelines in an extraordinary way.

CREATIVITY HINTS:

- How can you make your periodic table look like a map?
- How can you use color, symbols, and other strategies to portray as much information as possible visually and creatively?
- How can you insert pictures of individuals to represent the history of the periodic table?
- Keep in mind that more does not always mean better! Strike a balance between creativity and quantity.

FORMATTING GUIDELINES:

- You can only use the blank periodic table provided. No posterboard or extra sized paper allowed. You cannot include extra paper taped on in order to extend the size of your periodic table map.
- The descriptions of the different groups of elements must be typed and taped to the back of your periodic table map.
- Your periodic table map must be easily interpreted, which is why creativity is key!

PERIODIC TABLE PROJECT EVALUATION

| | | | |
|--------|----------------------------------|---------------|-------------------------------|
| ____/5 | Elements labeled (full names) | ____/4 | Alkaline earth metals: |
| ____/5 | Atomic numbers | ____/1 | On map |
| ____/3 | Groups IA-VIIIA labeled | ____/3 | Description |
| ____/3 | Periods labeled | ____/4 | Transition metals: |
| ____/3 | Valence numbers labeled | ____/1 | On map |
| ____/3 | Ionic charges labeled | ____/3 | Description |
| ____/3 | Solids, liquids, gases | ____/4 | Rare earth metals |
| ____/2 | Most reactive element | ____/1 | On map |
| ____/2 | Most abundant elements in crust | ____/3 | Description |
| ____/5 | Five elements named after people | ____/4 | Lanthanoid series: |
| ____/5 | Five elements named after places | ____/1 | On map |
| ____/4 | Ten elements with Latin names | ____/3 | Description |
| ____/4 | Metals: | ____/4 | Actinoid series: |
| ____/1 | On map | ____/1 | On map |
| ____/3 | Description | ____/3 | Description |
| ____/4 | Metalloids: | ____/4 | Halogens: |
| ____/1 | On map | ____/1 | On map |
| ____/3 | Description | ____/3 | Description |
| ____/4 | Nonmetals: | ____/4 | Noble gases: |
| ____/1 | On map | ____/1 | On map |
| ____/3 | Description | ____/3 | Description |
| ____/4 | Alkali metals: | ____/3 | Atomic size changes indicated |
| ____/1 | On map | ____/5 | Key to symbols |
| ____/3 | Description | ____/5 | Aesthetics and creativity |
| | | TOTAL: | ____/100 |