**Element Project Rubric** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Your element project will contain 2 parts:

* Element Research Project
* Build an Atomic Model / Visual Aid

It is important to plan how to manage your time for each portion of the project. Make sure your name is on everything and that these worksheets are turned in with each part of the project

**Part I: Element Research Project**

The following is a rubric for your element research project. It is a list of the items needed for your project and how many points each item is worth. **Please refer to it often when** **completing your project.** The method by which you will relay the information required will vary according to your presentation choice. You will be able to choose any element you wish to research; however you will find that certain elements have more information than others do. **Choose wisely!**

**Project Format Choices: Limit all projects to one sheet of 8 ½ by 11 sheet of paper**

1) Newsletter 2) Flyer 3) Brochure/Pamphlet 4) one-page information sheet

Due Date:

**5/3/2019**

\_\_\_\_\_ **(1 pt)** element name

\_\_\_\_\_ **(1 pt)** atomic number

\_\_\_\_\_ **(1 pt)** atomic symbol

\_\_\_\_\_ **(1 pt)** atomic mass (with units)

\_\_\_\_\_ **(3 pts)** number of protons, number of neutrons, number of electrons

\_\_\_\_\_ **(1 pt)** electron configuration

\_\_\_\_\_ **(1 pts) when** discovered/first produced

\_\_\_\_\_ **(1 pts) who** discovered/who produced

\_\_\_\_\_ **(1 pts)** where it can be currently found/how made

\_\_\_\_\_ **(4 pts)** 4 physical descriptions: metal, non-metal, metalloid, color, texture, state, density, melting point,

boiling point, physical state (S, L, G) at room temperature

\_\_\_\_\_ **(5 pts)** how it is used – **AT LEAST** 5 common uses

\_\_\_\_\_ **(1 pt)** valence electrons (electrons in the outermost shell – available for bonding)

\_\_\_\_\_ **(2 pt)** group, period

\_\_\_\_\_ **(3 pt)** Pictures or drawings of element – visual aids to enhance project (at least 3)

\_\_\_\_\_ **(2 pts)** Neatness/spelling and color/creativity

\_\_\_\_\_ **(2 pts)** List of sources. For example, books, web sites, magazines, etc. (can be on a separate

sheet or incorporated into information sheet). Must also cite sources for all images/pictures. Sources must be specific…google images or Wikipedia.com are NOT specific sources. Copy and paste complete URL’s.

 \_\_\_\_\_ **(2 pts)** **Neatness** - Project is typed with appropriate heading

(Name, class period, date, title that includes the name of the element)

\_\_\_\_\_ **(3 pts)** **Length** - Minimum 2 pages (front and back counts as 2 pages), maximum 4 pages (double spaced, normal margins, 12 pt)

 **Total / 35**

Comments:

**Suggested Resources**

**Resources**

* <http://www.webelements.com/> interactive table
* <http://www.periodictable.com-> interactive table, shows you what the element looks like!
* <http://periodic.lanl.gov/> - interactive table
* <http://www.nrc-cnrc.gc.ca/eng/education/elements/index.html> - interactive table
* <http://www.chemicalelements.com/> - interactive table
* [www.chemicool.com/](http://www.chemicool.com/) - interactive table
* <http://environmentalchemistry.com/yogi/periodic/> - interactive table, very technical
* <http://chemistry.about.com/library/weekly/aa030303a.htm> helps with who is credited with discovering the element, and the date of discovery
* <http://chemistry.about.com/cs/howthingswork/f/blbodyelements.htm> tells elements that are in the body and estimated percentages
* <http://www.anachem.umu.se/cgi-bin/pointer.exe?PeriodicTables> – list of website that have information on elements (check the validity of individual website sources)

The resources above are a *brief* list of places to *start* looking for information regarding your element. Be sure to check the validity and reliability of the authors of different websites. **Check several websites for the same information to compare information for accuracy**. Do not simply trust the first website you check! You should individually search for specific information regarding your element by name after using the general sites listed above.

Ideas for Build an Atom Project: cotton balls, candy, macaroni, straws, ornaments, felt, pipe cleaners, toothpicks, shoebox, beads, paperclips, foam, yarn, cardboard, wood, Styrofoam, coat hangers, coins, army men, figurines, Legos, wire, clay, play-doh, ping-pong balls, construction paper, glitter, embroidery hoops, sticks, leaves, fake flowers, ribbon, aluminum foil and many more. The shape is not as important as size…make sure protons, neutrons are the same size, and electrons are smaller.

**Part II: Build an Atomic Model** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Your final task will be to make a model of an atom. Since atoms are hard to visualize, building a model will help us understand the behavior of atoms. Your model will be based on the Bohr model of the atom. Although the Bohr model of an atom is outdated, it still reinforces the concept that electrons are located on various energy levels. (Modern atomic theory states the electron regions have complex shapes, therefore it is not feasible to build an atom model based on modern atomic theory).

Your atom model should be **3‐Dimensional** and include protons, neutrons, and electrons in the appropriate locations.

Your project does not have to be an expensive one. There should be several building materials you can find for free around you house that can be repurposed for your project. Be creative! You will be surprised what you can find when you look through the various rooms in your house.

* Edible projects are welcome as long as the food is non-perishable; this is not a mold experiment! (marshmallows, gum drops, macaroni, etc).
* Please check with your parents for approval before seizing materials from around your house!
* Maximum dimensions: 3 ft. x 3ft (I must fit all the projects in the room)

Below is the rubric for your model. Refer to it often when building your model:

Due Date: **5/3/2019**

\_\_\_\_\_ **(2 pts)** Correct number of protons

\_\_\_\_\_ **(2 pts)** Correct placement of protons

\_\_\_\_\_ **(2 pts)** Correct number of neutrons

\_\_\_\_\_ **(2 pts)** Correct placement of neutrons

\_\_\_\_\_ **(2 pts)** Correct number of electrons

\_\_\_\_\_ **(5 pts)** Correct placement of electrons

\_\_\_\_\_ **(2 pts)** Relative size of particles (protons and neutrons are the same size and electrons are smaller)

\_\_\_\_\_ **(3 pts)** Key - identifying each particle and number of each particle

\_\_\_\_\_ **(5 pts)** Craftsmanship – project is structurally sound and will not easily fall apart or lose pieces; is

attached to a base/stand or can be hung up

\_\_\_\_\_ **(5 pts)** Creativity – well-chosen materials, color, uniqueness, etc.

**Total / 30** **Comments:**