1. What is an atom?
   1. The nucleus of an atom contains what particles? What are their charges?
   2. What particles orbit the outside of the nucleus? What are their charge?
2. Look at the pictures below and include atomic mass, # of protons, # of neutrons, # of electrons for each picture.

|  |  |  |
| --- | --- | --- |
| http://4.bp.blogspot.com/_IoU3bEFUwWc/R_EOCT-38wI/AAAAAAAAAF4/L4unsqZWa3A/s400/BORON.jpg | http://salksperiodictable.wikispaces.com/file/view/Magnesium.001.png/47291905/Magnesium.001.png | [http://t0.gstatic.com/images?q=tbn:ANd9GcSFkYEakxBBCZBm7FFngbH7YRnFrw8VqTA_E655Yjn0VfWSnfGQA7XgVfNb](http://www.google.com/imgres?q=uranium&um=1&hl=en&biw=1024&bih=600&tbm=isch&tbnid=GbzYRE13JCqppM:&imgrefurl=http://www.proactiveinvestors.com/companies/news/19061/pitchstone-options-dome-uranium-property-to-rio-tinto-19061.html&docid=9XzCs7qowH5MGM&w=350&h=244&ei=BW6MTuXxA4K38gOPuf3RBg&zoom=1&iact=rc&dur=1500&page=3&tbnh=105&tbnw=150&start=33&ndsp=15&ved=1t:429,r:1,s:33&tx=121&ty=85) |

1. In a neutral atom, what is the ratio of protons to electrons?
2. What could possibly give an ion a slightly positive charge?
3. What could possibly give an ion a slightly negative charge?
4. In the table below list at least 4 compounds that can be found in everyday life

|  |  |  |  |
| --- | --- | --- | --- |
| Compound #1 | Compound #2 | Compound #3 | Compound #4 |
|  |  |  |  |

1. What is a bond?
2. There are several different types of bonds. What are they?
3. How does an ionic bond work?
4. How does a covalent bond work?
5. Is a mixture between chocolate powder and water a solution? Why?
6. In example 11, define the solvent and the solute.
7. What types of solutions are water based?
8. If I had a solution that registered as a 4 on the pH scale, it would have a lot of \_\_\_\_\_\_\_\_\_\_ ions floating around
9. Soap is pretty basic. It has a pH of around 10. That is because of the large number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions in it.
10. List the formula for water. Why does it relate to acids and bases?
11. Why do chemical reactions happen?
12. Why don’t things like Mr. Owdij’s tie undergo spontaneous chemical reactions?
13. What is the name of the energy is needed to start a chemical reaction?
14. Draw a graph that represents a chemical reaction below.
15. What chemicals can lower the energy needed to start a reaction?
16. Why would we ever use a catalyst?