**Chem4Bio Module 2 Worksheet**

1. Circle **all** of the states of matter to which each statement applies:

**Rigid** Solids Liquids Gases

**No fixed shape** Solids Liquids Gases

**Fixed volume** Solids Liquids Gases

1. Match the subatomic particle to its correct charge:

Proton Neutral/no charge

Neutron Negative

Electron Positive

1. **Fill in the table below**, assuming neutral atoms. Complete the entire isotopic symbol, including mass number.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Symbol** | **Atomic number** | **Mass number** | **# of protons** | **# of neutrons** | **# of electrons** | **# of valence electrons** |
| 138Ba |  |  |  |  |  |  |
| Br |  |  |  | 45 |  |  |
|  |  | 114 |  |  | 49 |  |

1. Complete the diagram of the lithium atom by indicating how many electrons are in each shell.

3p

4n

**\_**\_\_ \_\_\_\_

1. Complete the diagram of the fluorine atom by indicating how many electrons are in each shell.

9p

10n

**\_**\_\_ \_\_\_\_

1. How many electron shells will the aluminum atom have?
2. How many electrons will each electron shell of the aluminum atom have? (List by shell)
3. Diagram the complete structure of the argon atom, atomic number 18 and mass number 40. Include the proper number of subatomic particles and correctly assign electrons to their shells.

\_\_p

\_\_n

1. On the planet *Tatooine*, neutral atoms ***D***, ***E***, ***G***, and ***Q*** have the following atomic compositions:

   

1. Which two atoms are isotopes? \_\_\_\_\_\_\_\_\_\_\_
2. Which two atoms have the same mass number? \_\_\_\_\_\_\_\_\_\_
3. Which two atoms have the same number of neutrons? \_\_\_\_\_\_\_\_\_\_\_