

Name:

Key

Date:

18-19

Pd:

AM

# ATOMIC BASICS PRACTICE

## Parts of the Atom:

| SUBATOMIC PARTICLE | ELECTRIC CHARGE | LOCATION IN ATOM |
|--------------------|-----------------|------------------|
| Proton             | +               | Nuc.             |
| Neutron            | 0               | Nuc.             |
| Electron           | -               | Elec. Cloud      |

## Complete the table for the elements:

| ELEMENT NAME | ATOMIC NUMBER | AVERAGE ATOMIC MASS | PROTONS | NEUTRONS | ELECTRONS |
|--------------|---------------|---------------------|---------|----------|-----------|
| Hydrogen     | 1             | 1.008               | 1       | 0        | 1         |
| Boron        | 5             | 10.81               | 5       | 5-6      | 5         |
| Nitrogen     | 7             | 14.007              | 7       | 7        | 7         |
| Oxygen       | 8             | 16.00<br>15.99      | 8       | 8        | 8         |
| Neon         | 10            | 20.179              | 10      | 10       | 10        |

## For each of the following ions, indicate the total number of protons and electrons in the ion:

| Ion              | Number of Protons | Number of Electrons |
|------------------|-------------------|---------------------|
| Cl <sup>-1</sup> | 17                | 18                  |
| K <sup>+1</sup>  | 19                | 18                  |
| S <sup>-2</sup>  | 16                | 18                  |
| Sr <sup>+2</sup> | 38                | 36                  |
| Al <sup>+3</sup> | 13                | 10                  |
| P <sup>-3</sup>  | 15                | 18                  |

Name:

Date:

Pd:

Here are three isotopes of an element:



- a. The element is: Carbon
- b. The number 6 refers to the atomic # / # protons
- c. The numbers 12, 13, and 14 refer to the mass numbers
- d. How many protons and neutrons are in the first isotope? 6 6
- e. How many protons and neutrons are in the second isotope? 6 7
- f. How many protons and neutrons are in the third isotope? 6 8

**Complete the following chart:**

| Isotope name | atomic # | mass # | # of protons | # of neutrons | # of electrons | Isotopic Symbol         |
|--------------|----------|--------|--------------|---------------|----------------|-------------------------|
| uranium-235  | 92       | 235    | 92           | 143           | 92             | ${}^{235}_{92}\text{U}$ |
| uranium-238  | 92       | 238    | 92           | 146           | 92             | ${}^{238}_{92}\text{U}$ |
| boron-10     | 5        | 10     | 5            | 5             | 5              | ${}^{10}_5\text{B}$     |
| boron-11     | 5        | 11     | 5            | 6             | 5              | ${}^{11}_5\text{B}$     |

**Fill in the following chart:**

| Element/Ion                  | Atomic Number | Number of Protons | Number of Neutrons | Number of Electrons | Mass Number |
|------------------------------|---------------|-------------------|--------------------|---------------------|-------------|
| ${}^1_1\text{H}$             | 1             | 1                 | 0                  | 1                   | 1           |
| ${}^1_1\text{H}^-$           | 1             | 1                 | 0                  | 2                   | 1           |
| ${}^7_3\text{Li}$            | 3             | 3                 | 4                  | 3                   | 7           |
| ${}^{35}_{17}\text{Cl}^-$    | 17            | 17                | 18                 | 18                  | 35          |
| ${}^{24}_{12}\text{Mg}^{2+}$ | 12            | 12                | 12                 | 10                  | 24          |
| ${}^{75}_{33}\text{As}$      | 33            | 33                | 42                 | 33                  | 75          |
| ${}^{108}_{47}\text{Ag}^+$   | 47            | 47                | 61                 | 46                  | 108         |
| ${}^{32}_{16}\text{S}^{2-}$  | 16            | 16                | 16                 | 18                  | 32          |
| ${}^{66}_{30}\text{Zn}^{2+}$ | 30            | 30                | 36                 | 28                  | 66          |
| ${}^{190}_{76}\text{Os}$     | 76            | 76                | 114                | 76                  | 190         |

Name:

Date:

Pd:

Complete the following diagram:

### Atomic Changes

What happens to an atom if we lose or gain protons, neutrons, or electrons? Use the words in the word bank to complete this worksheet.

Anion (-)  
Boron  
Carbon-11  
Carbon-13

Cation (+)  
Ions  
Isotopes  
Nitrogen

