

# Chapter 1

Water & Measurement

States of water

Solid

Liquid

gas

Physical Change

Chemical Change

Classification

Pure Substance

Element

Compound

~~E~~

Mixture

Homogeneous

Heterogeneous

Measurement

Value

Unit

Metric System

length

Mass

Volume

Time

# Significant figures

Exact

Definitions

Counted

Inexact

Measured

## Significant figure rules

- ① All non-zero
- ② Any zero between two non-zero
- ③ Any zero to right of decimal and to right of non-zero values
- ④ Any zero to right of decimal and to left of non-zero values
- ⑤ Any zero to left of decimal and to the right of non-zero

Addition Rules

Multiplication Rules

Scientific notation

Calculators

## Problem Solving Factor-Label Method

Given / Desired Units

Conversion factor

Temperature

Celsius

Fahrenheit

Kelvin

Density  
Specific Gravity

## Homework

37, ~~38~~, 39, 42, 44, 45, 46, 47, 50, 51, 52,

55, 57, 59, 61, 62, 65, ~~68~~, 71, 73, 74,

77, 79, ~~80~~, 81, 83, 84, ~~86~~, 87,

93, 96, 97, 100, 103, 105, 106, 107

Activity 1 Math and the Calculator

Activity 2 Dimensional Analysis

# Chapter 2

## Atoms & Periodic Table

### Elements

Metals

Non-metals

Metalloids

Book has some  
compound stuff Basic

### Structure of Atom

Proton

Electron

Neutron

Size, charge, mass

Z

# protons = # e<sup>-</sup>

Isotopes

atomic #

Mass #

Atomic Weight

Calculation as weighted average

## Periodic Table

Period

Group

Main Group

Transition

Inner Transition

Alkali Metals

Alkaline Earth Metals

Halogens

Noble Gas

Electronic Structure

Shell (Principal Energy Level)

Subshell

Orbital

Spin

Shapes of Orbitals

Electronic Configuration

Ground State

Notation

Filling Order

Short hand Notation

Orbital diagram

Correlation with Periodic Table

Valence  $e^-$

Core  $e^-$

# Electron Dot Symbols

## Periodic Trends

Atomic Size

Ionization Energy

Electronegativity ← not in chapter

## Homework

### Activity 26 - Electron Configuration Worksheet

(32), 33, (34), 37, 45, 47, 51, 53, (54), (56), 57, 59,  
63, (64), 65, (68), 69, 71, 73, (76), 79, 85, (86), 91, 93,  
(96), 99, 101, (106)

### Activity 3 Atoms and Elements Worksheet

# Chapter 3

## Ionic Compounds

### Bonding

Ionic

Covalent

Stability driven  $\rightarrow$  Noble Gas

### Ions

Cations

Anions

Electron Configuration

Group Number trends

Transition Metals w/ Mult. Charge States

## Ionic Compounds

Writing ionic formulas

Nomenclature

Systematic

Common

Main Group metals

Metals w/ mult. Charge States

Polyatomic Ions

$\Rightarrow$  Hand Out

# Homework

29, (30), 31, 33, 35, (36), 37, 41, (42), 43, 49, 51,  
53, (54), 56, 59, 61, 63, 65, 67, 71, (74), (78), 79, (82),  
87, (88), 89, (90), 101

Activity 4 - Writing Formulas and Names

Activity 5 - Compounds and their Formulas

Nomenclature Worksheet

Activity 8 - Chemical Names and Formulas