Physics 112

Wednesday, March 27/19

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1. Questions?
   Worksheet - Objects in Free Fall
   Worksheet - Extra - Uniformly Accelerated Motion Problems

2. FA - Uniformly Accelerated Motion (K3.14) - Optional

3. SA: U1- S3 -> Mathematical Analysis
   -> Topics (See Next Page)
   -> Format: Problems Only
   -> Date: Friday, March 29/19

4. Unit 2 - Dynamics

5. Section 1 - Types of Forces and FBDs - Concept Sheet

6. Introduction to Forces

7. Applied Force

8. Force of Gravity (Weight)

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9. Worksheet - Page 137: Practice Problems (PP) #1-4

10. Normal Force

11. Tension

12. Force of Friction

13. Handout - Coefficients of Friction

14. Free Body Diagrams

SA: U1- S3 -> Topics

1. types of motion - uniform motion and uniformly accelerated motion
2. use the relationship between the directions of velocity and acceleration to determine the motion of an object
3. word problems - solve using checklist to obtain full value
   - uniform motion - 1 formula
   - uniformly accelerated motion - 4 formulas
   - quadratic formula
4. acceleration due to gravity - influenced by mass of planet and distance from planet
   - symbol -> $\vec{g}$
   - on Earth $\vec{g} = -9.80\ m/s^2$
   - assume no air resistance when working with freely falling bodies

FA Submitted	
LC Submitted	
Deadline	

Physics 112

Name - _____

Formative Assessment – Uniformly Accelerated Motion (K3.14)

A helicopter is ascending vertically with a speed of 5.00 m/s. At a height of 105 m above the ground, a package is dropped from the helicopter. How much time does it take for the package to reach the ground?

Learning Category	NL NH AL AH EL EH
Justification	

Physics 122

Wednesday, March 27/19

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1. Submit FAs and/or Justifications and LCs
   FA - Rel. Velocity (RV3.1) - Parallel Directions

   FA - Rel. Velocity (RV3.2) - Perpendicular Directions: Boat
   FA - Rel. Velocity (RV3.3) - Perpendicular Directions: Intersection
   FA - 1D Explosion
   FA - 1D Collision
   FA - Type of 1D Collision
   FA - 2D Collision
   FA - 2D Explosion } Do at least one.
   FA - Relative Velocity and Collisions/Explosions - Optional

2. SA - U1: S3&4 (Relative Velocity and Collisions/explosions)
   - Date: Thursday, March 28/19
   - Format: Problems Only
     - Relative Velocity (// Velocities)
     - Relative Velocity (Perp. Velocities: Boat or Plane)
     - Relative Velocity (Perp. Velocities: Intersection)
     - 1D Collision and Type
     - 2D Collision
     - 2D Explosion

3. Electrostatic Force

4. Coulomb's Law

5. Worksheet: Charge and Coulomb's Law
   Textbook: Page 638, #1-5

Science 122

Wednesday, March 27/19

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1. Return: SA - Hydrostatics

2. Questions?
   Worksheet - Equation of Continuity and Bernoulli's Principle
   (Problems #50-55, #56-59)
   Worksheet: Problems - Continuity and Bernoulli's Equation
   Worksheet: Fluids - Continuity and Bernoulli: Extra Practice #2

3. Next Topic - Nuclear Physics

4. Review - Atoms

5. Isotopes

6. Hydrogen Isotopes

7. Radioactive Decay

8. Radioactive Isotopes and Uses

9. Alpha Decay

10. Beta Decay

11. Gamma Decay

12. Penetration Power

13. Decay Series

14. Half-Life

15. Activity and Decay Constants

Science 10

Wednesday, March 27/19

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1. SA - Chemistry #2 (Atomes, Ions and Compounds)
   - Topics (See Next Page)
   - Earliest Date: Thursday, March 28/19
2. Review: SA Chemistry #2 - To Be Continued
3. Counting Atoms

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4. Worksheet: Counting Atoms in Compounds
5. Chemical Reactions
6. Word Equations
7. Chemical Equations
8. Law of Conservation of Mass
9. Examples - Balancing Chemical Equations

Topics: SA - Chem #2

H

1. atoms -> electrically neutral: $\#p^+ = \#e^-$ atomic #
2. chemical names and symbols: elements and ions
3. periodic table of the elements: location of metals, nonmetals and metalloids
4. atomic number = number of protons
5. draw a Bohr-Rutherford diagram for an atom of an element
6. ions - atoms that have gained or lost electrons
   - cations/positive ions/metallic ions
   - anions/negative ions/nonmetallic ions
   - be able to state number of protons, number of electrons and ion charges
7. draw a Bohr-Rutherford diagram for an ion of an element
8. ionic bond - created by transfer of electrons
9. be able to identify monatomic ions, polyatomic ions and ions of multivalent metals
10. ionic compounds - electrically neutral
11. be able to write the names of simple binary ionic compounds given their formulas and vice versa
12. be able to write the names of ionic compounds containing polyatomic ions given their formulas and vice versa
13. know roman numerals 1-10
14. be able to write the names of ionic compounds containing multivalent metals given their formulas and vice versa
15. be able to write the names of ionic compounds containing multivalent metals and polyatomic ions given their formulas and vice versa
16. covalent bond - created as a result of the sharing of electron pairs
17. molecular compounds = covalent compounds = molecules
18. prefixes 1-10
19. homonuclear molecules: H_2, N_2, O_2, F_2, Cl_2, Br_2, I_2 (7)
20. special molecules: P_4, S_8, water, ammonia, hydrogen peroxide
21. be able to write the names of binary molecular compounds given their formulas and vice versa
22. identify ionic compounds and molecular compounds

Science 10

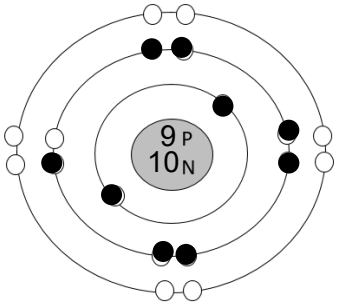
Review for SA: Chem #2 - Atoms to Compounds

1. Complete the table below. Read the headers carefully.

Element Name	Element Symbol	Atomic Number	Number of Protons	Number of Electrons in the Atom	Ion Name	Ion Symbol	Number of Electrons in the Ion
neon	Ne	10	10	10			
cadmium	Cd	48	48	48	cadmium ion	Cd^{2+}	46
phosphorus	P	15	15	15	phosphide ion	P^{3-}	18

2. a) Is fluorine a metal, nonmetal or metalloid? nonmetal

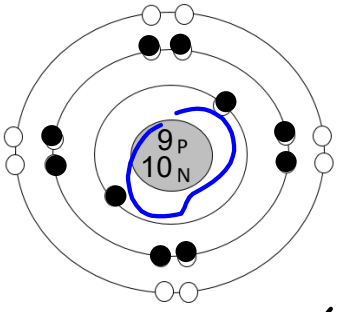
b) Draw the Bohr-Rutherford diagram for an atom of fluorine. The mass number of fluorine is 19.



19 F
9 = at #
= p #
= e #

c) Draw the Bohr-Rutherford diagram for an ion of fluorine. (pink)

ion
cation (+)
anion (−)



F (−1)
10 e⁻

d) Is the ion of fluorine a cation or anion? anion ✓

3. Identify each of the following as a monatomic ion (MI), a polyatomic ion (PI), or the ion of a multivalent metal (IMM), by printing MI, PI or IMM on the line provided.

a) NH_4^{+} PI
b) Ge^{4+} MI
c) Br^{1-} MI
d) cyanate ion PI
e) Bi^{3+} IMM
f) Ca^{2+} MI
g) iron (II) ion IMM
h) arsenide ion MI
i) peroxide ion PI O_2^{2-}

-ate, -ite

Na^+ monatomic MI

SO_4^{2-} polyatomic PI

Cu^{2+} / Cu^+ multivalent IMM

4. Identify each compound as ionic or molecular.

a) P_2O_5 molecular
b) barium nitride ionic
c) ammonium fluoride ionic
d) sulfur trioxide molecular
e) $Ca_3(PO_4)_2$ ionic.

ionic compound. → ion of metal → NH_4^+ or ammonium

5. State the name of each compound. This list includes ionic and molecular compounds.

a) P_4H_{10} tetraphosphorus decahydride
b) Ag_2S (pink) silver sulfide
c) TiN titanium ( ) nitride
d) Br_3O_8 tribromine octaoxide / octoxide
e) $Al(CN)_3$ aluminum cyanide
f) $Sn_3(AsO_3)_2$ tin (II) arsenite
g) S_8 molecular sulfur (*P_4 molecular phosphorus)

6. Write the formula for each chemical compound. This list includes ionic and molecular compounds.

a) sulfur oxide
b) iodine heptafluoride IF_7
c) aluminum thiosulfate
d) chlorine Cl_2 molecular Chlorine
e) antimony (V) phosphide
f) pentaboron nonahydride B_5H_9
g) europium (III) orthosilicate

7. Covalent bonds are formed when electron pairs are shared. Ionic bonds are formed when electrons are transferred from neutral charged

8. Atoms and ionic compounds are electrically neutral. Ions are electrically charged.