

Science 10

Monday, March 12/18

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1. Submit -> FA - Ionic Compound Maze
 2. Worksheet - Binary Molecular Compounds #1
Worksheet - Binary Molecular Compounds #2
 3. Recap: Types of Compounds
 4. Ionic Compounds vs. Molecular Compounds
 5. Worksheet - Mixed Ionic/Covalent Compounds #1
Worksheet - Mixed Ionic/Covalent Compounds #2
 6. SA - Chem #1 - Topics -> See Next Page
SA - Chem #1 - Review
 7. SA - Chem #1 -> Friday, March 16/18

Wed -> Anna
Sydney
Fais.
Mihnd.

-
8. Counting Atoms
 9. Worksheet: Counting Atoms in Compounds
 10. Chemical Reactions
 11. Evidence of a Chemical Reaction
 12. Law of Conservation of Mass
 13. Chemical Equations
 14. Balancing Chemical Equations
 15. Examples - Balancing Chemical Equations
 16. Worksheet - Balancing Simple Chemical Equations

SA - Chem #1

Topics

1. chemistry
2. matter
3. atoms -> building blocks of matter
 - > names and charges of three subatomic particles: p^+ , n , e^-
 - > locations of three subatomic particles
 - > electrically neutral: $\#p^+ = \#e^-$
4. element
5. chemical symbol
6. periodic table of the elements - periods (rows)
 - groups/families (columns)
 - family and period names
 - location of metals, nonmetals and metalloids
 - location of transition elements
7. atomic number = number of protons
8. 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
9. be able to identify monatomic ions, 1^- and 1^+ is and monatomic ions of multivalent metals
10. ionic bond - created by transfer of valence electrons
11. ionic compounds - electrically neutral
12. be able to write the names of simple binary ionic compounds given their formulas and vice versa
13. be able to write the names of ionic compounds containing polyatomic ions given their formulas and vice versa
14. roman numerals 1-10
15. be able to write the names of ionic compounds containing multivalent metals (metals that can form more than one ion) given their formulas and vice versa
16. be able to write the names of ionic compounds containing multivalent metals and polyatomic ions given their formulas and vice versa
17. covalent bond - created as a result of the sharing of electron pairs
18. molecular compounds = covalent compounds = molecules
19. prefixes 1-10
20. identify 7 homonuclear diatomic molecules: H_2 , N_2 , O_2 , F_2 , Cl_2 , Br_2 , I_2
21. special molecules: P_4 , S_8 , water, ammonia, hydrogen peroxide
22. be able to write the names of binary molecular compounds given their formulas and vice versa
23. identify ionic compounds and molecular compounds

Physics 112

Monday, March 12/18

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1. Return -> SA - Basic Skills - Attempt #2
Return -> Justified FAs - Calculating **R** Analytically
2. Check: V/T Graphs #2-4
3. FA - V/T Graph
4. SA - Unit: S1 (Vector Analysis) and S2 (Graphical Analysis)
- Topics (See Next Page)
- Thursday, March 15/18.
5. Unit1 - Section 3: Mathematical Analysis
6. Concept Sheet - U1S3

7. Word Problem Checklist
8. Uniform Motion - Kinematic Equation
9. Uniformly Accelerated Motion (UAM) - Kinematic Equation #1
10. Example: UAM - Kinematic Equation #1
11. Uniformly Accelerated Motion (UAM) - Kinematic Equation #2
12. Example: UAM - Kinematic Equation #2
13. Uniformly Accelerated Motion (UAM) - Kinematic Equation #3
14. Example: UAM - Kinematic Equation #3
15. Quadratic Formula
16. Uniformly Accelerated Motion (UAM) - Kinematic Equation #4
17. Example: UAM - Kinematic Equation #4
18. Worksheet - Motion Problems

Topics

SA - U1: S1 (Vector Analysis) and S2 (Graphical Analysis)

Mechanics ✓

- define kinematics (how) * Wed/Thurs.
- define dynamics (why)

Types of Physical Quantities ✓

- distinguish between scalar quantities (magnitude only) and vector quantities (magnitude and direction)
- use vector notation when appropriate
- define resultant (Sum of vectors)
- given the magnitudes of two vectors determine the range of the magnitudes of all possible resultants
- determine the resultant of vectors graphically using the tip-to-tail method or the parallelogram method
- calculate the resultant of two perpendicular vectors (10)

Types of Motion ✓

- name and describe three types (no motion, uniform motion and uniformly accelerated motion)
 - ie/ uniform motion - constant velocity
 - constant speed in one direction

Comparing Directions of Velocity and Acceleration ✓

- use directions of velocity and acceleration to describe the motion of an object (ie/ van example)

Position vs. Time Graphs ✓

- describe position, slope, velocity and type of motion
- determine the time at which direction of motion changes

Velocity vs. Time Graphs ✓

- describe velocity, slope, acceleration and type of motion
- determine the time at which direction of motion changes
- answer questions about an object's speed, velocity, acceleration, distance, displacement, average speed, average velocity, type of motion etc. from a velocity-time graph

Physics 122

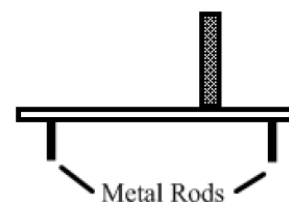
Monday, March 12/18

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1. FA - Type I, II and III - Submit/Return
 2. Worksheet - Static Torque #1
 3. Type II - Static Torque - Some Forces at Angles
 4. Worksheet - Static Torque #2
 5. FA - Static Torque #1 (DE2.1)
FA - Static Torque #2 (DE2.2)
 6. SA - Force and Static Torque Problems
 - After the Break: Friday, Mach 16/18
 - Problems: Calculate **R** Using Perpendicular Components
 - Push/Pull
 - Suspended (Complex)
 - Inclined Plane
 - Static Torque (Vertical Forces)
 - Static Torque (Forces at Angles)
-
7. Unit 1 - Section 3: Relative Velocity
 8. Relative Velocity
 9. Velocities with Parallel Directions
 10. Velocities at Angles
 11. Worksheet - Relative Velocity (Textbook Problems)

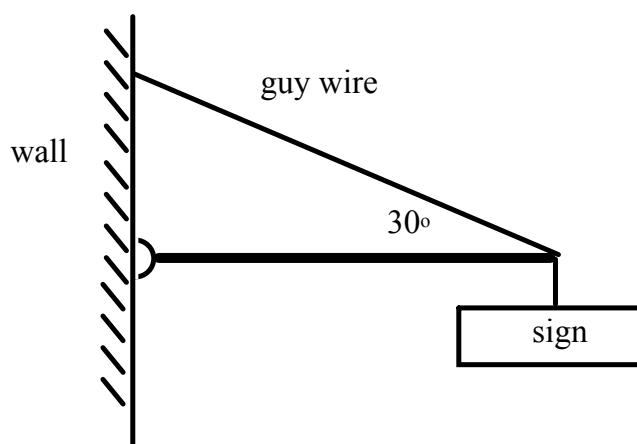
Formative Assessment - Static Torque #1 (DE2.1)

A bookshelf made of a uniform wooden board 1.5 m long weighs 20.0 N and is supported by two thin metal rods each 5.0 cm from its end as shown in the diagram. A book weighing 16.0 N is placed upright on the shelf at a distance of 0.400 m from the right metal rod. Calculate the force on each rod must exert on the board to maintain static equilibrium.



Formative Assessment - Static Torque #2 (DE2.2)

A uniform rod of length 2.0 m and mass 4.0 kg is hinged at the left end. A 25.0 kg sign is suspended from the right end. A guy wire is connected to the end of the rod and is fastened to the wall. Determine the magnitude the vertical component of the force acting on the hinge.



Science 122

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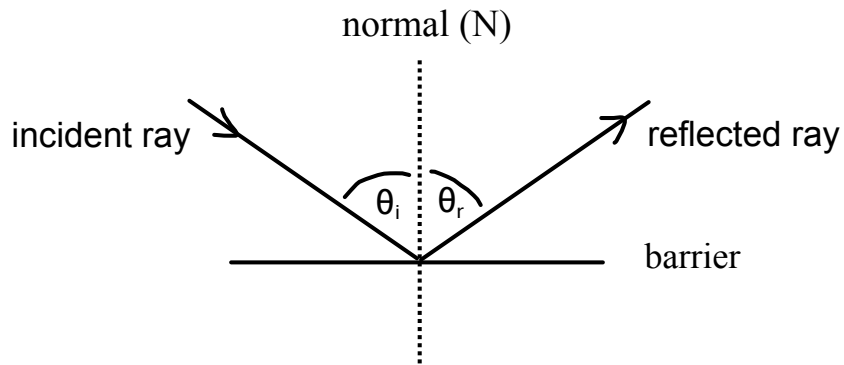
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1. Experiment 37 - Image Formation by a Converging Lens - P167
2. SA: Optics - After the Break: Wed. [?] → Thur. [?] → Frid
3. Pressure - Balloon Demo
4. Pressure and Depth in a Static Fluid
5. Worksheet - Cutnell Problems

Optics - Concepts

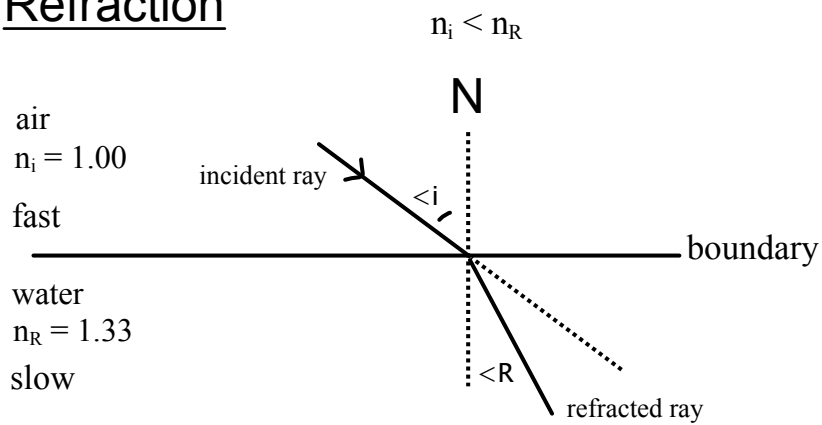
1. Reflection



Law of Reflection

$$\theta_i = \theta_r$$

2. Refraction



$$n = \frac{c}{v}$$

$$c = 3.00 \times 10^8 \text{ m/s}$$

Snell's Law

$$n_i \sin i = n_R \sin R$$

3. Plane (Flat) Mirrors

- labelled ray diagrams and POST

4. Spherical (Curved) Mirrors

Concave (Converging)

- 5 labelled ray diagrams and POST

Convex (Diverging)

- 1 labelled ray diagram and POST

5. Lenses

- 2 factors affecting focal length

① index of ref.
② shape of lens

Convex (Converging)

- 5 labelled ray diagrams and POST

Concave (Diverging)

- 1 labelled ray diagram and POST

6. Equations (Mirror/Lens and Magnification)

$$\frac{1}{f} = \frac{1}{d_i} + \frac{1}{d_o}$$

$$m = \frac{h_i}{h_o} = \frac{-d_i}{d_o}$$

$$R = 2f \quad \text{or} \quad f = \frac{R}{2}$$

* Sign Conventions