Science 10

Tuesday, March 13/18

http://mvhs.nbed.nb.ca/

http://mvhs-sherrard.weebly.com/

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
Travis
Blind

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, [illegible] ıs 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

Tuesday, March 13/18

http://mvhs.nbed.nb.ca/

http://mvhs-sherrard.weebly.com/

---

1. Return -> SA - Basic Skills - Attempt #2
   Return -> Justified FAs - Calculating **R** Analytically

2. Return and Review -> FA - V/T Graph

3. SA - Unit: S1 (Vector Analysis) and S2 (Graphical Analysis)
   - Topics (See Next Page)
   - Thursday, March 15/18.

4. Unit 1 - Section 3: Mathematical Analysis

5. Concept Sheet - U1S3

6. Word Problem Checklist

7. Uniform Motion - Kinematic Equation

8. Uniformly Accelerated Motion (UAM) - Kinematic Equation #1
   To Be Continued Friday

---

9. Example: UAM - Kinematic Equation #1

10. Uniformly Accelerated Motion (UAM) - Kinematic Equation #2

11. Example: UAM - Kinematic Equation #2

12. Uniformly Accelerated Motion (UAM) - Kinematic Equation #3

13. Example: UAM - Kinematic Equation #3

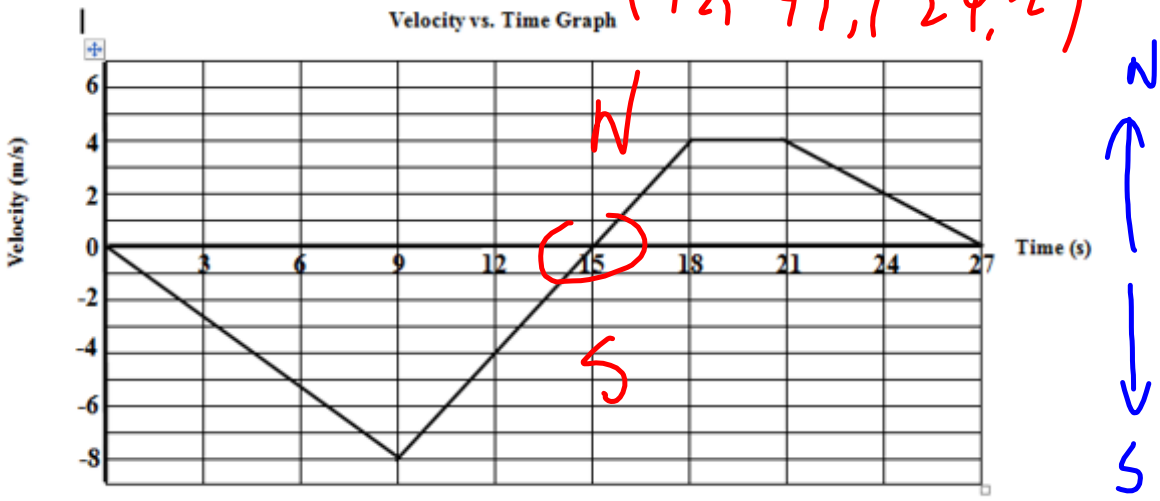
14. Quadratic Formula

15. Uniformly Accelerated Motion (UAM) - Kinematic Equation #4

16. Example: UAM - Kinematic Equation #4

17. Worksheet - Motion Problems

Refer to the following graph to answer the questions below. Assume that the positive direction is north.
Show work when calculations are required on loose leaf. Express all final answers to two significant digits.
Use north and south to describe the directions of vector quantities in your final answers.



a) What was the maximum speed of the object?

Answer: 8.0 m/s

b) What was the acceleration of the object at t = 5.0 s?

Answer: 0.89 m/s², S.

c) What was the displacement of the object between 9.0 s and 27 s?

Answer: 6.0 m, N

d) What was the average velocity of the object between 9.0 s and 27 s?

Answer: 0.33 m/s, N

e) What was the average speed of the object between 9.0 s and 27 s?

Answer: 3.0 m/s

f) What was the average acceleration of the object between t = 12 s and t = 24 s?

Answer: 0.50 m/s², N

g) Did the object change direction? If so, when?

Answer: 15 (s)

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

Tuesday, March 13/18

http://mvhs.nbed.nb.ca/

http://mvhs-sherrard.weebly.com/

---

1. FA - Type I, II and III - Submit/Return

2. Worksheet - Static Torque #1
   Worksheet - Static Torque #2

3. FA - Static Torque #1 (DE2.1)
   FA - Static Torque #2 (DE2.2)

4. 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)

---

5. Unit 1 - Section 3: Relative Velocity

6. Relative Velocity

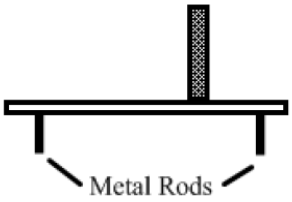
7. Velocities with Parallel Directions

8. Velocities at Angles

9. Worksheet - Relative Velocity (Textbook Problems)

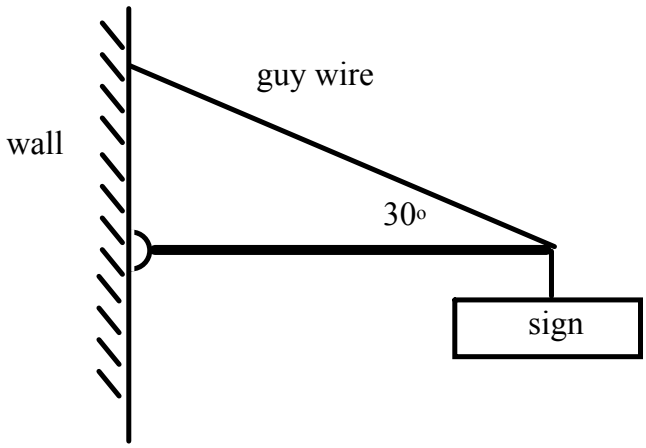
Formative Assessment - Static Torque #1 (DE2.1)

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 onthe hinge.



Science 122

Tuesday, March 13/18

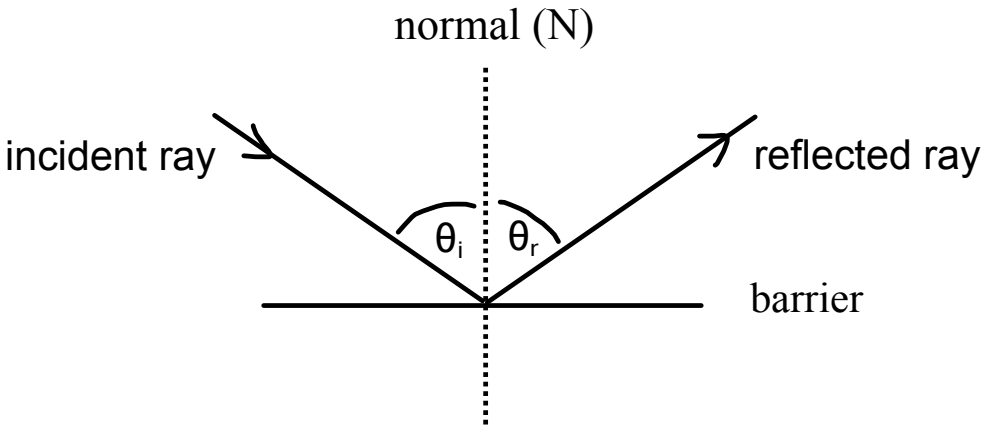
http://mvhs.nbed.nb.ca/

http://mvhs-sherrard.weebly.com/

1. Experiment 37 - Image Formation by a Converging Lens - P167
2. SA: Optics - After the Break: Wed. ? → Thur.
3. Worksheet - Cutnell Problems - Pressure Problems

Optics - Concepts

1. Reflection

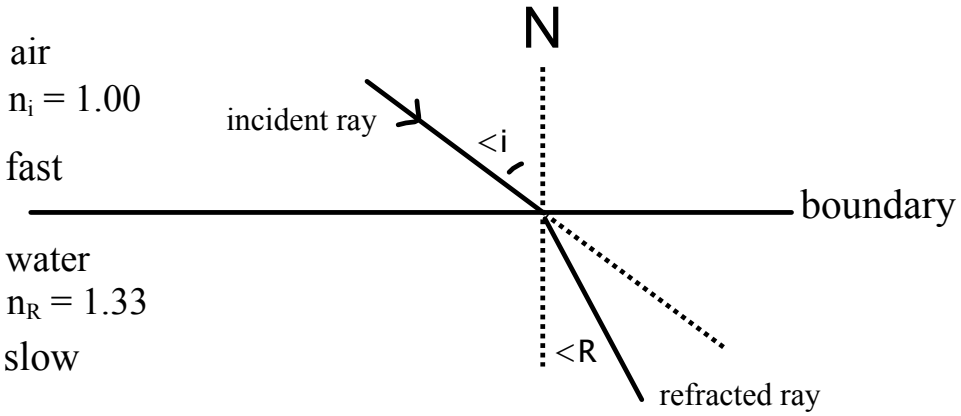


Law of Reflection

$\theta_i = \theta_r$

2. Refraction

$n_i < n_R$



$n = \frac{c}{v}$ $c = 3.00 \times 10^8$ 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

(1) index of ref.
(2) shape of lens

- 2 factors affecting focal length

Convex (Converging)

- 5 labelled ray diagrams and POST

Concave (Diverging)

- 1 labelled ray diagram and POST

6. Equations (Mirror/Lens and Magnification)

$$\frac{1}{f}=\frac{1}{d_i}+\frac{1}{d_o} \qquad m=\frac{h_i}{h_o}=\frac{-d_i}{d_o}$$

$R = 2f$ or $f = \frac{R}{2}$.

* Sign Conventions.