Science 9

Friday, January 10/20

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

ELPA

STEM Fair - Thursday, February 6/20 (Morning)

1. Activity: Human Genetic Disorders -> Continue
   -> Due: Friday, Dec. 20/19
   -> 4 Days Late
2. Crossword Puzzle - Cellular Processes (Optional) * 5 down.
3. Advantages and Disadvantages of Asexual and Sexual Reproduction
4. SA - Genetic Conditions and Types of Reproduction
   - Topics
   - Date: Wed. Next Week.
5. Get Owing Items In for Assessment

Physics 112

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

Friday, January 10/20

1. Questions?
   Worksheet - Types of Energy and Work-Energy Theorems
   Worksheet - Systems and Conservation of Energy

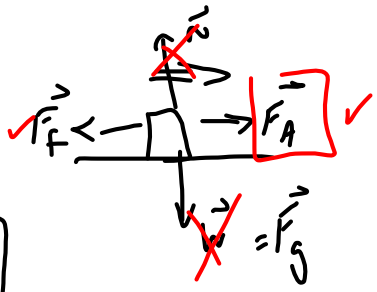
2. FA - Elastic Potential Energy - Due: Wed., Jan. 8/20
   FA - Mechanical Energy - Optional -> No LC Required
   FA - Conservation of Energy - Last One!

3. SA - Work, Types of Energy, W =Δ E, Conservation of Energy
   - Date: Tuesday, Jan 14/20

4. Exam Review - Sample Problems
   - Problem #1 - Started
   - Problem #2
   - Problem #3
   - Problem #4
   - Problem #5
   - Problem #6
   - Problem #7
   - Problem #8
   - Problem #9
   - Problem #10

Work

$W = F_{\parallel} d$



lift/lower const. $\vec{v}$

$\uparrow \vec{F}_A$

$\downarrow \vec{F}_g$

$W = F_A d$

$W = F_g d$

$W = mg d$

W → J

F → N

d → m

acc. horizontal.

$W = Fd$

$W = F_A d$

$W = F_{net} d$

$W = ma d$

$W = 0$ J

$W = Fd$

$W = F(0)$

$W = 0$ J

$W = \vec{F} d$

$W = (0) d$

$W = 0$ J

$W = F_{\parallel} d$

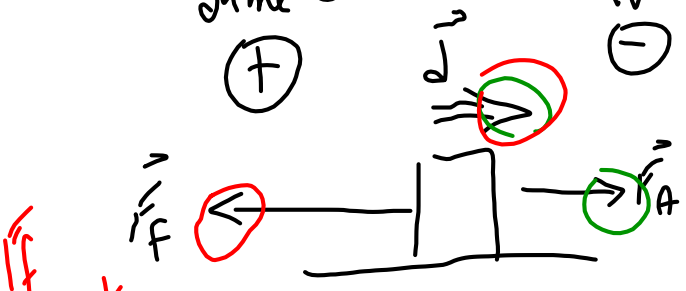
$F \perp d$

$W = 0$ J

Positive / Neg. Work.

$\vec{F}$ and $\vec{d}$ same dir. (+)

$\vec{F}$ and $\vec{d}$ opp. dir. (−)



$\vec{F}_F$ − work.

$\vec{F}_A$ + work.

Types of Energy

Kinetic (due to motion)

$E_K = \frac{1}{2}mv^2$

Potential.

Gravitational (due to position)

* ref. level

$E_g = mgh$

Elastic (due to condition)

$E_e = \frac{1}{2}kx^2$

* Hooke's Law

$F = kx$

$mg = kx$

** [graph: F vs x, elastic limit]

Work-Energy Theorems

$W = Fd = \Delta E_K$

$W = Fd = E_{Kf} - E_{Ki}$

$= \frac{1}{2}mv_f^2 - \frac{1}{2}mv_i^2$

$W = Fd = \Delta E_g$

(* ref. level)

$W = Fd = \Delta E_g$

$W = Fd = E_{gf} - E_{gi}$

$= mgh_f - mgh_i$

Energy Conservation

systems -> more than one object.

-> isolated and closed.

ME -> mechanical energy

-> total energy

$ME = E_K + E_g + E_e$

(1) -> like the sketch outline

✓ (2) -> $E_{Ki} + E_{gi} + E_{ei} = E_{Kf} + E_{gf} + E_{ef}$

v_i h_i (r.l) x_i v_f x_f x_f

Physics 122

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

Friday, January 10/20

1. Worksheet - Electric Charge and Coulomb's Law
2. FA - Coulomb's (Three Charges)
3. Series Circuits
4. Parallel Circuits
5. Worksheet - Electric Circuits

6. Complex/Combination Circuits

Science 10

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1. SA Physics #3 - Date: Monday, Jan. 13/20

2. Practice Exam - Part 2
   - Part 3

Topics - SA: Physics #3

1. definitions: scalar quantity, distance, speed, vector quantity, reference point, position, displacement, constant velocity, resultant displacement, average velocity, acceleration

2. directions: positive (east, north, up , right)
   negative (west, south, down, left)

3. physical quantities: type, symbol and unit

4. determine the slope of a line using:

$$m = \frac{rise}{run} \quad \text{OR} \quad m = \frac{y_2 - y_1}{x_2 - x_1}$$

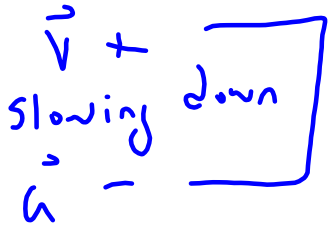
5. identify types of motion:
   1. uniform (constant velocity)
   2. uniformly accelerated motion (changing velocity)
      * acc. is constant

6. answer questions about position vs. time graphs

7. draw a velocity vs. time graph given a position-time graph

8. answer questions about velocity vs. time graphs

9. describe the motion of an object by comparing the directions of the object's velocity and acceleration



10. solve word problems:
    (i) displacement
    (ii) constant velocity
    (iii) average velocity
    (iv) acceleration (including freely falling body)