

## Science 122

Tuesday, January 10/17

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### Progress Reports

1. Check -> Worksheet - Thermal Expansion  
Worksheet - Gas Laws  
Worksheet - Heat Engines and Carnot's Engine

2. SA - Thermodynamics

Friday, Jan. 13/17

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3. Topic - Electrochemistry

4. Electrochemistry - Reduction Reactions and Reducing Agents  
Oxidation Reactions and Oxidizing Agents  
Generalizations

5. Single Replacement Reaction in Solution

6. Spontaneous Reactions

7. Table of Redox Half Reactions

8. Redox Spontaneity Rule

9. Five Steps for Predicting Redox Reactions

# Physics 112

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1. Progress Reports
2. Optional SA - Collect
3. Return -> SA - U3 S3&S4
4. Concept Sheet - U4 S1 - Waves
5. Introduction to Waves
6. Mechanical Waves
7. Electromagnetic Waves - To Be Continued

8. Parts/Regions of Waves
9. Amplitude
10. Wavelength
11. Frequency and Period
12. Wave Speed
13. Summary: Measures of a Wave

Optional #2.

→ power.

$$P = \frac{W}{t}$$

$$P = \frac{\Delta E}{t}$$

$$P = \frac{F \cdot d}{t}$$

$$P = \frac{\Delta E_e}{t}$$

$$W = F \cdot d$$

↑  
constant

$$P = \frac{E_{ef} - E_{ei}}{t}$$

5. distance = 4.9m

$$SA - U3 \quad S3 + S4.$$

# 3.  $m = 2.66 \times 10^4 \text{ kg}$     a)  $P = \frac{W}{t}$   
 $t = ? \text{ (h)}$   
 $P = 3.75 \times 10^3 \text{ W}$   
Constant speed     $\times$      $P = \frac{Fd}{t}$   
 $d = 2.00 \times 10^3 \text{ m}$      $P = \frac{mgd}{t}$   
 $t = 1.79 \times 10^5 \text{ s}$   
 $t = 38.6 \text{ h}$

$hf = 2.00 \times 10^3 \text{ m}$      $P = \frac{\Delta E_g}{t}$   
ref. level  $h_i = 0 \text{ m}$      $P = \frac{K_{gf} - E_{gi}}{t}$   
 $P = \frac{mgh_f}{t}$

b)  $\frac{3.75 \times 10^3 \text{ W}}{0.5 \text{ hp}} \times \frac{1 \text{ hp}}{746 \text{ W}} = \underline{5.03 \text{ hp}}$   
 $3 \text{ hp}$

c) constant     $v = \frac{d}{t}$   
 $v = \frac{2.00 \times 10^3}{1.79 \times 10^5}$   
 $v = 0.0112 \text{ m/s}$

<del><math>P = \frac{\Delta E_k}{t}</math></del> <del><math>P = \frac{Fv}{t}</math></del>	$P = \frac{Fd}{t}$ $P = Fv$ $v = \frac{P}{F} = \frac{P}{mg}$
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### Progress Reports

1. Return - SA - Circular Motion and Universal Gravitation  
- Exp. Kepler's Laws
  2. Progress Reports
  3. Unit 3 - Section 1 - Electrical Fields and Coulomb's Law
  4. Electrostatics
  5. Law of Conservation of Electric Charge
  6. Electrostatic Force - To Be Continued
- 
7. Coulomb's Law
  8. Worksheet: Charge and Coulomb's Law  
Textbook - Page 638, #4-5

$\rho_{1,22}$   
 $u_{2-53T+}$

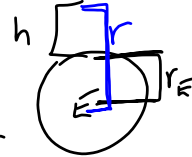
# 2.  $m_s = 95 \text{ kg}$

(E)

$M = 5.98 \times 10^{24} \text{ kg}$

$T = 1.472 \text{ h} \rightarrow 5299.2 \text{ s}$

$r_E = 6.371 \times 10^6 \text{ m}$



$T = 2\pi \sqrt{\frac{r^3}{GM}}$

$r = 6.571 \times 10^6 \text{ m}$

height =  $6.571 \times 10^6 - 6.371 \times 10^6$   
 $= 2.00 \times 10^5 \text{ m}$

b)  $v = \sqrt{\frac{GM}{r}}$

$v = \sqrt{\frac{(6.67 \times 10^{-11})(5.98 \times 10^{24})}{6.571 \times 10^6}}$

$v = 7.79 \times 10^3 \frac{\text{m}}{\text{s}}$

c)  $F = \frac{GMm}{r^2}$        $F = \text{Weight}$

$F = \frac{GMm_s}{r^2}$

$F = 4.4 \times 10^3 \text{ N}$

$W = mg$

$W = m_s(g)$

$g = ?$

$g = \frac{GM}{r^2}$

$g =$

Science 10  
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## Progress Reports

1. Roller Coasters - 1 Day Late
  2. Unit 3 - Life Science: Sustainability of Ecosystems
  3. Ecology and Ecological Levels
  4. Classifying Organisms
  5. Food Chains
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6. Food Webs
  7. Energy Movement in Ecosystems
  8. Trophic Levels
  9. Indicator Species
  10. Article Review - Indicator Species  
- \_\_\_\_\_
  11. Factors Affecting Ecosystems
  12. Worksheet - Abiotic and Biotic Factors
  13. Quiz - Ecology to Factors