

April 13 - Report Cards Go Home (Wednesday)

April 14 - Parent-Teacher (Thursday - after school)

April 29 - Professional Learning Day (Friday)

May 5 - NBTA Meetings (Thursday)

May 6 - NBTA Council Day (Friday)

May 23 - Victoria Day (Monday)

May 27 - Professional Learning Day (Friday)

Physics 112

Tuesday, April 5/16

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Explain That Stuff - April 8/16

Midterm - April 21/16 (Thursday)

1. Test - Unit 1 -> **Wednesday, April 6/16**
See the outline on the next two pages.
MC and Problems
 2. Check -> Worksheet - Practice Problems (PP) - C4 - Page 137: 1-4
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3. Four More Forces
 4. Types of Forces
 5. Free Body Diagrams (FBDs)
 6. Assignment: U2-S1

Topics: Test Unit 1

1. kinematics
 2. two types of physical quantities:
 - (i) scalar quantity - has magnitude only
 - examples of scalar quantities
 - (ii) vector quantity - has magnitude and direction
 - examples of vector quantities
 - know which directions are positive and which are negative by convention
 3. arrows are used to represent vector quantities
 4. definition of resultant
 5. two methods used to add vector quantities:
 - (i) tip-to-tail method
 - (ii) parallelogram method
 6. ~~use rubric to determine a resultant graphically~~
 7. use rubric to determine a resultant analytically
 8. two types of frames of reference:
 - (i) stationary/fixed
 - (ii) moving
 9. motion vocabulary and definitions
 10. use signs of velocity and acceleration to describe an object's motion, etc
 11. two types of motion
 - (i) uniform
 - (ii) uniformly accelerated motion
-

 \vec{R} v/t

freely falling
body

2 problems

Topics: Test Unit 1 (Continued)

12. position-time graphs - interpret graphs
 - identify type of motion
 - slope = velocity
 - determine if/when an object changes direction
13. velocity-time graphs - interpret graphs
 - identify type of motion
 - slope = acceleration
 - area -> distance and displacement
 - be able to calculate average speed, average velocity and average acceleration
 - identify if/when an object changes direction
14. word problems - follow checklist to obtain full value
 - uniform motion - 1 formula
 - uniformly accelerated motion - 4 formulas
 - quadratic formula
15. acceleration due to gravity - influenced by mass of planet and distance from planet
 - symbol -> \vec{g}
 - on Earth $\vec{g} = -9.80 \text{ m/s}^2$
 - assuming no air resistance when working with freely falling bodies
 - interpret ball toss graphs



Science 122

Tuesday, April 5/16

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Midterm - April 28/16 (Thursday)

1. Quiz -> Ray Diagrams for Spherical Mirrors
2. Check -> Worksheet: Red Text - Spherical Mirrors
3. Lenses
4. Convex Lens
5. Images Formed by Convex Lenses
6. [Worksheet: Convex Lens - Ray Diagrams - HW](#)

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7. Concave Lenses and The Images They Form
 8. Lens Equation, Magnification and Sign Conventions
 9. Red Text -> C18 - Page 381 - PP #14-16
Page 383 - PP #17-19

Page 387 - Review #1, 6, 9, 10, 12, 13
Applying Concepts #3-8
Problems #2, 4, 5, 7, 8, 9, 10, 13, 14

Science 10

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Tuesday, April 5/16

1. Lab - Types of Reactions, Gas Collection and More
 - 4 Days Late
 2. Check -> Rearranging Equations -> Worksheet - 1st Column
Metric Conversions -> Worksheet - 1st Column
 3. Experiment: Measurement and Significant Digits
 - Each person submits a lab sheet for marking.
 - Due -> Today, April 5/16
 4. Quiz - Start of Physics to the End of Metric Conversions
Topics
Tentatively Thursday
 5. Physical Quantities: Distance, Time, Speed
 6. Uniform Motion
-
7. Graphing Basics
 8. Worksheet - Finding Slope From a Graph
 9. Distance vs Time Graph
 10. Slope and Speed
 11. Activity - Tumble Buggies

$$a) p = mv \quad [m]$$

$$m = \frac{p}{v}$$

$$b) J = Ft \quad [t]$$

$$t = \frac{J}{F}$$

$$c) d = vt \quad [v]$$

$$v = \frac{d}{t}$$

$$d) E = mc^2 \quad [m]$$

$$m = \frac{E}{c^2}$$

$$e) v = f\lambda \quad [f]$$

$$\lambda = \frac{v}{f}$$

$$f) E = mc^2 \quad [c]$$

$$\frac{E}{m} = c^2$$

$$\sqrt{\frac{E}{m}} = c$$

$$g) E_k = \frac{1}{2}mv^2 \quad [m]$$

$$2 \cdot E_k = \frac{m \cdot v^2}{2}$$

$$\frac{2E_k}{v^2} = m$$

$$h) E_s = \frac{1}{2}kx^2 \quad [x]$$

$$2 E_s = \frac{kx^2}{2}$$

$$\frac{2E_s}{k} = \frac{kx^2}{k}$$

$$\sqrt{\frac{2E_s}{k}} = \frac{kx^2}{k}$$

$$\sqrt{\frac{2E_s}{k}} = x$$

$$i) v_f = v_i + at \quad [v_i]$$

$$v_f - at = v_i + at - at$$

$$v_f - at = v_i$$

$$k) Ft = mv_f - mv_i \quad [v_f]$$

$$Ft + mv_i = mv_f - mv_i + mv_i$$

$$\frac{Ft + mv_i}{m} = \frac{mv_f}{m}$$

$$\frac{Ft + mv_i}{m} = v_f \leftarrow$$

$$l) v_f^2 = v_i^2 + 2ad \quad [v_i]$$

$$\sqrt{v_f^2 - 2ad} = \sqrt{v_i^2}$$

$$\sqrt{v_f^2 - 2ad} = v_i$$

$$m) v_f^2 = v_i^2 + 2ad \quad [a]$$

$$v_f^2 - v_i^2 = v_i^2 - v_i^2 + 2ad$$

$$\frac{v_f^2 - v_i^2}{2d} = \frac{2ad}{2d}$$

$$\frac{v_f^2 - v_i^2}{2d} = a$$

Conversions

1.000g	2.500 km	260.00m
0.50m	0.027 Kg	*0.0565 km
0.250 km	1.60 x 10 ³ mm	
1.4 x 10 ⁴ m	1.48 x 10 ⁵ g	
1.0 x 10 ⁴ mL	0.076 L	

Quiz Topics

1. definitions: physics, kinematics, linear motion, physical quantity
defining equation
2. SI System - International System of Units
 - know the SI base units for length, time and mass
 m s kg
3. certainty - identify certain and uncertain digits in a measurement
 - determine the certainty of a measurement by stating its number of significant digits
4. rules - Certainty Rule (multiply and divide)
 - Precision Rule (add and subtract)
 - round answers to appropriate number of SDs
5. rearrange an equation for a specified variable
6. perform metric conversions using conversion factors

Physical Quantities

Distance

(Page 340)

Distance is the amount of space between two objects or points.

symbol: d unit: m, km, cm

SI base unit

Time

Time is the duration between two events.

symbol: t unit: s, min, h

SI base units

Speed

(Page 354)

Speed is the rate of motion - how fast an object is moving. ✓

symbol: v unit: $\frac{\text{m}}{\text{s}}$, $\frac{\text{km}}{\text{h}}$

Instantaneous speed is the speed at which an object is travelling at a particular instant. ✓

Uniform Motion

An object has uniform motion when it is travelling in a straight line with constant speed.



Physics 122

Tuesday, April 5/16

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Explain That Stuff - April 8/16

1. **Assignment: U1-S3& 4 -> Tuesday, April 5/16**

2. **Test - Unit 1 -> Friday, April 8/16**

3. Experiment 10.2 - Torques (Page 67)

Experiment 9.1 - Conservation of Momentum (Page 55)

4. Unit 2 - Projectiles, Circular Motion, Law of Gravitation, SHM

Test Prob. \rightarrow Force
 \rightarrow push/pull ①
 \rightarrow ~~sign~~
 \rightarrow inclined plane ①

Torque

\rightarrow static equilibrium
 no angles / angles ①

6 problems

10 min / prob.

Relative Vel.

\rightarrow boat / plane ①

\rightarrow ~~intersection~~

Collisions / Expl ①

\rightarrow 1D (elastic / inelastic) ①
 \rightarrow 2D