PS Physics Semester Test Review

Review Schedule:

- Monday, December 16: Assign Review Packet, Hand In Text Books, Clean out Binders
- Tuesday, December 17: Review Packet, Hand In Text Books, Optional T/F Practice Test
- Wednesday, December 18: Correct Review Packet, Review Game, Create Legal Cheat Sheet
- Thursday, December 19 or Friday, December 20: PS Physics Semester Test

The Test:

- The test is worth 14% of your semester grade.
- Test will be taken through BlackBoard Learn.
- 85 multiple choice questions. *15 calculation required
- A basic calculator is recommended.
- I will provide a list of formulas for your reference during the test.
- Your book must be returned to me prior to taking the test.
- Water bottle is optional.
- Bring a book to read or something to keep yourself occupied (just in case you complete the test early).
- You will not be allowed to leave the classroom during the testing period.

General Overview:

In order for the review to be most helpful, it is necessary for you to work through the review questions and come to class prepared to ask questions for clarification and review. In addition, you should look over chapter reviews and notes to help study! You can also make arrangements to look over your old tests.

The Review:

The review is divided by chapters (or units). Below you will find a general list of terms/concepts from each unit followed by review questions. Also notice the number in the box…that is the number of test questions from the section.

Optional: Although the test is multiple choice, the true/false practice questions provide excellent practice.

Chapter 1-The Nature of Science

6

- hypothesis
- constant
- control
- variables
- standards of measurement
- SI units
- metric conversion
- scientific method

1. What tools *and* units are used in science for measuring length, mass, volume, and density?
2. A bag of apples weighs 3249 grams. What is this weight in kilograms?
3. List the steps of the scientific method.

4. Krissy thinks that Skin-So-Soft by Avon will repel mosquitoes. She takes 100 mosquitoes and puts them in a container, half the container contains a cloth soaked in skin-so-soft. After one hour she made observations, she found that 90 mosquitoes were on the half of the container without the rag and 10 were found near the rag. Krissy also put 100 mosquitoes into another container, half of this container contained a rag soaked in water. She observed this container an hour later and found the mosquitoes were evenly distributed across the container.

a. Write a hypothesis for Krissy.

b. What was the control group?

a. What was the independent variable?

b. What was the dependent variable?

e. What should Krissy conclude?

5. Which axes are the independent and dependent variables found?

Chapter 2-Motion

12
*3

- Displacement
- Speed*
- Velocity*
- Acceleration

1. What is the difference between speed and velocity?

2. What units measure speed?

3. What units measure acceleration?

4. What is the difference between instantaneous speed, constant speed and average speed?

5. How is it possible for an object to be moving at a constant speed and still be accelerating?

Chapter 3 & Chapter 2: Section 3-Forces

16
*3

- Force, balanced vs. unbalanced
- Inertia
- Newton's Laws of Motion*
- Friction
- Gravity*
- Weight*
- Momentum*

1. Explain the difference between balanced and unbalanced forces and how each affects the motion of an object.

2. Explain the difference between mass and weight.

3. What is the net force when you combine a force of 10 N north with a force of 2 N south?

4. Does a change in direction affect acceleration? Explain your answer.

5. How does air resistance affect the acceleration of falling objects?

6. How does Newton's second law explain why it is easier to push a bicycle than to push a car with the same acceleration?
7. Which has more momentum, a mouse running at 1 m/s north or an elephant walking at 3 m/s east? Explain your answer.
8. What units measure force?

9. What units measure weight?

Chapter 4 - Energy

10
*2

- Potential Energy (Gravitational*, Chemical, Elastic)
- Kinetic Energy*
- Mechanical Energy

1. Describe the kinetic-potential energy conversions that occur when you bounce a basketball.

2. What units measure energy?

3. Describe an object that would have a large amount of potential energy?

4. Describe an object that would have a large amount of kinetic energy?

5. What is the Law of Conservation of energy? Provide an example.

Chapter 5- Work & Machines

12
*3

- Work*
- Power*
- Simple Machines
- Types of Levers
- Efficiency*
- Mechanical Advantage*

1. Explain the difference between work and power.

2. You lift a chair that weighs 50 N to a height of 0.5 m and carry it 10 m across the room. How much work do you do on the chair?
3. List the types of simple machines and give an example of each.

4. What units measure work?

5. What units measure power?

6. What units measure mechanical advantage?

Chapter 6- Thermal Energy

9
*1

- Specific Heat*
- Conduction, Convection, Radiation
- Conductors vs. Insulator

1. Discuss the difference between a conductor and an insulator. Give an example of each.

2. What units measure thermal energy?

3. What units measure specific heat?

4. What is the relationship between specific heat an object's ability to gain and retain heat energy?

Chapter 7-Electricity

11
*2

- Static Electricity
- Conductors vs. Insulators
- Electroscope
- Ohm's Law*
- Electric Power*
- Electric Energy*
- Series Circuits vs. Parallel Circuits

1. Name and describe the three essential parts of a circuit.

2. Use Ohm's law to find the voltage needed to produce a current of 3 A in a device with a resistance of 9.

3. What is the difference between series and parallel circuits?

4. Discuss the difference between a conductor and an insulator. Give an example of each.

5. What is the resistance of an object if a voltage of 40 V produces a current of 5 A?

6. What units measure resistance?

7. What units measure current?

8. What units measure voltage?

Chapter 10- Waves

9
*1

- Types of Waves
- Wave Properties
- Parts of Wave
- Wavelength, Frequency, Velocity*
- Behavior of Wave

1. What is the difference between reflection and refraction?
2. What happens when waves overlap?
3. What is the relationship between amplitude, crest and trough?
4. What units measure wave speed?
5. What units measure wavelength?