

Sharyland ISD Study Guide

I.P.C. Semester A



Student Name: _____
Student ID: _____

IPC Credit by Exam Study Guide Semester I

The Science Department recommends that the student taking the credit by exam check out an I.P.C. book from the head counselor. Use the book as a resource to study for the exam. The exam will have 25 questions covering the following topics;

Semester 1: Physics is the study of the basic principles that govern the physical world around us.

Chapter 1 The Nature of Science:

- 1) What steps do scientists often use to solve problems?
- 2) What are the SI Units and symbols for length, volume, mass, density, time, and temperature?
- 3) What is the difference between a scientific law and a scientific theory?
- 4) What is a standard of measurement?

Chapter 2 Motion

- 1) How are distance and displacement different?
- 2) What are three ways an object can accelerate?
- 3) Difference between speed and velocity?
- 4) How can an object's momentum be calculated?
- 5) How can an object's acceleration be calculated?

Chapter 3 Forces and Newton's Laws

- 1) What is the difference between mass and weight?
- 2) How are force and motion related?
- 3) What is inertia and how is it related to Newton's first law of motion?
- 4) How is acceleration calculated using Newton's second law of motion?
- 5) According to Newton's third law of motion, how are the forces between interacting objects related?

Chapter 4 Work and Energy

- 1) What is work?
- 2) How can work be calculated when force and motion are parallel to each other?
- 3) How can you calculate kinetic energy?
- 4) How can you calculate gravitational potential energy?
- 5) What is the law of conservation of energy?

Chapter 5 Thermal Energy

- 1) What is temperature?
- 2) What are conduction, convection, and radiation?
- 3) What are the first and second laws of thermodynamics?

Chapter 6 Electricity

- 1) What is the difference between conductors and insulators?
- 2) What is the function of a circuit breaker?
- 3) How do series circuits differ from parallel circuits?
- 4) How does Ohm's law relate to current, voltage difference, and resistance?
- 5) What are the units for current, voltage, and resistance?