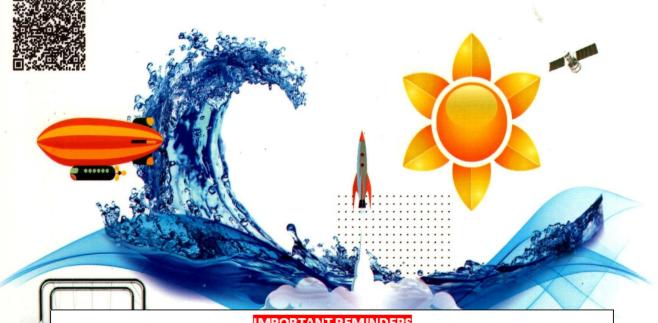




Exploring Life Through Science

SERIES SECOND EDITION



IMPORTANT REMINDERS

THESE MATERIALS WILL STRICTLY BE FOR REFERENCE/INSTRUCTION PURPOSES ONLY. THE CONTENTS OF THESE MATERIALS SHOULD NOT IN ANY MANNER BE SHARED OR DISTRIBUTED AS RIGHTS TO ITS ACCESS IS SOLELY GIVEN TO THE REQUESTING CLIENT. PLEASE USE PROPER CITATION/ATTRIBUTION WHEN USING THESE MATERIALS.

SENIOR HIGH SCHOOL GENERAL PHYSICS 1



















AUTHOR Angelina A. Silverio John Donnie A. Ramos COORDINATOR

Contents

First Condition of Equilibrium, 97

Preface, vii Acknowledgments, ix At a Glance, x

UNIT I Introduction to Physics

Chapter 1 Are You Sure?, 2

A Gloser Look

Physics and Technology: Working in Tandem, 3

- Lesson 1.1 Measurement in Physics, 5
- Lesson 1.2 Uncertainty and Error Analysis, 10

Chapter 2 Working with Directions, 28

A Gloser Look

Print to Manufacture, 29

- Lesson 2.1 Vectors and Vector Addition, 30
- Lesson 2.2 Vector Subtraction, 41
- Lesson 2.3 Vector Multiplication, 42
- Lesson 2.4 Vectors in Space, 46

Chapter 3 Wherever You Are, Wherever You Go, 56

A Closen Look

Drivers No More!, 57

- Lesson 3.1 Kinematic Equations of Motion, 58
- Lesson 3.2 Motion in More Than One Dimension, 69
- Lesson 3.3 Graphical Analysis of Motion, 75

IMPORTANT REMINDERS

THESE MATERIALS WILL STRICTLY BE FOR REFERENCE/INSTRUCTION PURPOSES ONLY. THE CONTENTS OF THESE MATERIALS SHOULD NOT IN ANY MANNER BE SHARED OR DISTRIBUTED AS RIGHTS TO ITS ACCESS IS SOLELY GIVEN TO THE REQUESTING CLIENT. PLEASE USE PROPER CITATION/ATTRIBUTION WHEN USING THESE MATERIALS.

Chapter 4 Let Newton Be!, 86

A Bloser Look Pain, Pain, Go Away, 87

- Lesson 4.1 Newton's Laws of Motion, 88
- Lesson 4.2 First Condition of Equilibrium, 97
- Lesson 4.3 Accelerating System of Masses, 99
- Lesson 4.4 The Impulse-Momentum Theorem, 101
- Lesson 4.5 Friction, 102

Chapter 5 Three in a Row, 116

A Bloser Look Microbes at Work, 117

- Lesson 5.1 Work, 118
- Lesson 5.2 Mechanical Energy, 124
- Lesson 5.3 Conservation of Energy, 130

UNIT II GETTING TO KNOW MORE ABOUT PHYSICS

Chapter 6 Acting on Impulse, 142

A Bloser Look Earth: Two Planets?, 143

- Lesson 6.1 Center of Mass, 144
- Lesson 6.2 Impulse and Momentum, 148
- Lesson 6.3 Collisions, 154

Chapter 7 Moving Around, 168

A Stoser Look Sky-No Longer the Limit!, 169

- Lesson 7.1 Rotation, 170
- Lesson 7.2 Equilibrium, 182
- Lesson 7.3 Motion of Heavenly Bodies, 187

Chapter 8 Living with Waves, 200

A Closer Look

Einstein Was Right!, 201

- Lesson 8.1 Periodic Motion, 203
- Lesson 8.2 Production and Properties of Waves, 214
- Lesson 8.3 Sound Basics, 227

Chapter 9 Go with the Flow, 240

A Closer Look

Thicker Than Water, 241

- Lesson 9.1 Density, 243
- Lesson 9.2 Pressure, 247
- Lesson 9.3 Archimedes' Principle and Bouyancy, 253
- Lesson 9.4 Hydrodynamics, 259

Chapter 10 Hot Issues, 270

A Closer Look

Food for Thought, 271

- Lesson 10.1 Heat and Temperature, 272
- Lesson 10.2 Thermal Expansion, 275
- Lesson 10.3 Calorimetry, 282
- Lesson 10.4 Methods of Heat Transfer, 290
- Lesson 10.5 The First Law of Thermodynamics, 297
- Lesson 10.6 The Second Law of Thermodynamics, 302

Glossary, 315

Credits, 319

Bibliography, 323

Index, 325

IMPORTANT REMINDERS

THESE MATERIALS WILL STRICTLY BE FOR REFERENCE/INSTRUCTION PURPOSES ONLY. THE CONTENTS OF THESE MATERIALS SHOULD NOT IN ANY MANNER BE SHARED OR DISTRIBUTED AS RIGHTS TO ITS ACCESS IS SOLELY GIVEN TO THE REQUESTING CLIENT. PLEASE USE PROPER CITATION/ATTRIBUTION WHEN USING THESE MATERIALS.