

## Curriculum Guide

Course: Science LLD 1 & 2

Course number: 16.02

Written: 10/08 (D. Wilson)

Prerequisites: none

Level/credits: LLD/5 credits

Grades offered to: 9<sup>th</sup>, 10<sup>th</sup>, and 11<sup>th</sup>

### Course Description

General Science has been designed for the second or third year requirement of the Language Learning Disabled class. It will follow or precede biology. This course is designed to enable every student to understand and appreciate the basic knowledge of the Earth, weather, rocks and minerals, matter, motion and energy, and chemical reactions.

High Point Regional High School's curriculum and instruction are aligned to the state's Core Curriculum Standards and address the elimination of discrimination by narrowing the achievement gap, by providing equity in the educational programs and be providing opportunities for students to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability, or socio-economical status.

### Course Goals and Objectives:

Goal: To develop an understanding of the forces inside Earth

#### Objectives:

- To describe the structure of the Earth
- To explain the theory of plate tectonics
- To relate volcanoes to plate tectonics
- To explain how mountains form
- To relate earthquakes to plate tectonics

Goal: To develop an understanding of minerals and rocks

#### Objectives:

- To explain what a mineral is
- To identify basic properties of all minerals
- To compare minerals by their properties
- To explain what a rock is
- To describe how igneous, sedimentary, and metamorphic rocks are formed
- To describe the rock cycle

Goal: To develop an understanding of the structure of matter

#### Objectives:

- To describe objects by listing their properties
- To explain what molecules, atoms, elements, and compounds are
- To explain how scientists use models

- To identify the parts of an atom
- To identify the symbols used to represent different elements

Goal: To develop an understanding of chemical reactions

Objectives:

- To describe compounds
- To explain what the information in a formula means
- To explain what a chemical reaction is
- To describe what occurs when something dissolves
- To state the law of conservation of matter
- To interpret and write balanced equations

Goal: To develop an understanding of energy and motion

Objectives:

- To explain what energy is
- To name six forms of energy
- To calculate speed of motion
- To explain what gravity is
- To explain the law of universal gravitation

Goal: To develop an understanding of work and machines

Objectives:

- To explain what work is and to calculate work
- To describe six types of simple machines
- To name and describe six types of simple machines
- To describe the classes of levers
- To calculate mechanical advantage

Goal: To develop an understanding of heat

Objectives:

- To define heat
- To explain how heat energy can do work
- To explain how heat is produced
- To describe some sources of heat

Goal: To develop an understanding of sound and light

Objectives:

- To explain how sounds are produced
- To explain how sound travels
- To describe the nature of light
- To describe the visible spectrum
- To explain reflection and refraction of light
- To explain how mirrors and lenses affect light rays

Goal: To develop an understanding of electricity and magnetism

Objectives:

To explain how electric current flows through a circuit  
To compare series and parallel circuits  
To describe various kinds of magnets  
To explain what a magnetic field is

CCCS Addressed:

- Standard 5.1 (Scientific Processes) All students will develop problem-solving, decision-making and inquiry skills, reflected by formulating usable questions and hypotheses, planning experiments, conducting systematic observations, interpreting and analyzing data, drawing conclusions, and communicating results.
- Standard 5.6 (Chemistry) All students will gain an understanding of the structure and behavior of matter.
- Standard 5.7 (Physics) All students will gain an understanding of natural laws as they apply to motion, forces, and energy transformations.
- Standard 5.8 (Earth Science) All students will gain an understanding of the structure, dynamics, and geophysical systems of the earth.

Units: Marking Period 1

#### Chapter 12 – Forces Inside Earth

Describe the structure of Earth  
Explain the theory of plate tectonics  
Relate volcanoes to plate tectonics  
Explain how mountains form  
Relate earthquakes to plate tectonics

#### Chapter 10 – Minerals and Rocks

Explain what a mineral is  
Identify basic properties of all minerals  
Compare minerals by their properties  
Explain what a rock is  
Describe how igneous, sedimentary, and metamorphic rocks are formed  
Describe the rock cycle

Chapter project: Power Point project on minerals and rocks

#### Chapter 2 – The Structure of Matter

Describe objects by listing their properties  
Explain what molecules, atoms, elements, and compounds are  
Explain how scientists use models  
Identify the parts of an atom  
Identify the symbols used to represent different elements

## Units: Marking Period 2

### Chapter 4 – Energy and Motion

- Explain what energy is
- Name six forms of energy
- Calculate speed of motion
- Explain what gravity is
- Explain the law of universal gravitation

### Chapter 5 – Work and machines

- Explain what work is and to calculate work
- Describe six types of simple machines
- Name and describe six types of simple machines
- Describe the classes of levers
- Calculate mechanical advantage

Chapter project: Poster on examples of simple machines and levers

### Chapter 6 – Heat

- Explain how heat energy can be produced
- Explain how heat changes matter
- Explain how temperature is measured
- Explain the difference between temperature and heat
- Explain how matter is heated by conduction, convection, and radiation

## **Midterm**

## Units: Marking Period 3

### Chapter 3 – Chemical Reactions

- Describe compounds
- Explain what the information in a formula means
- Explain what a chemical reaction is
- Describe what occurs when something dissolves
- State the law of conservation of matter
- Interpret and write balanced equations

### Chapter 7 – Sound and Light

- Explain how sounds are produced
- Explain how sound travels
- Describe the nature of light
- Describe the visible spectrum
- Explain reflection and refraction of light
- Explain how mirrors and lenses affect light rays

Chapter project: create musical instrument or periscope

### Chapter 8 – Electricity and Magnetism

Explain how electric current flows through a circuit  
Compare series and parallel circuits  
Describe various kinds of magnets  
Explain what a magnetic field is

Units: Marking Period 4

Chapter 9 – Earth Science

Describe Earth's shape and features  
Explain what causes day and night  
Explain what causes seasons  
Use latitude and longitude to locate points on Earth's surface

Chapter Project: Create a seasons poster and how it affects living things in our Area

Chapter 11 – Weather and Erosion

Define weathering  
Identify different kinds of weathering  
Describe how water, wind, ice, and gravity cause erosion  
Describe how deposition creates landform

Chapter Project: Movie *Planet Earth*

**Final Exam**

Evaluation:

Homework based on	10 points
Class work based on	10 points
Quizzes based on	50 points
Tests based on	100 points
Projects based on	100 points

Materials: General Science, American Guidance Service, 2001  
Smart board, internet, chapter reviews