North Providence High School Science Department
Standards – Based Instructional Curriculum Guide

Course: Physical Science **Grade Level:** 9 **Quarter:** 1 **Period(s):**

Topic: Properties of Matter

21st Century Graduation Expectation(s):

- 1.1 Acquiring and applying knowledge and skills within and across the curriculum
- 1.2 Analyzing and evaluating information
- 1.3 Applying technology as a learning tool across all disciplines
- 2.1 Working cooperatively and/ or independently
- 2.2 Applying problem solving strategies
- 2.3 Utilizing resources and time effectively
- 2.4 Accessing, compiling, and interpreting and presenting data and information
- 3.1 Making informed life and career decisions
- 3.2 Recognizing and respecting the diversity and individuality of others
- 3.3 Understanding and accepting the benefits and consequences of his/her behavior
- 4.1 Reading widely and critically
- 4.2 Writing clearly, concisely and persuasively
- 4.3 Speaking, listening and interpreting effectively

Next Generation Science Standards:

-

Common Core State Standards:

- RST.9-10.1
- RST.9-10.2
- RST.9-10.3
- RST.9-10.4
- RST.9-10.5
- RST.9-10.6
- RST.9-10.7
- RST.9-10.8
- RST.9-10.9
- RST.9-10.10
- WHST.9-10.1
- WHST.9-10.2
- WHST.9-10.4
- WHST.9-10.5
- WHST.9-10.6
- WHST.9-10.9
- WHST.9-10.10

Essential Question(s):

- What is the differences and similarities in the properties of elements, compounds, and mixtures?
- How are homogenous and heterogeneous mixtures recognized using solutions, suspensions, and colloids?
- What is the difference between physical properties and chemical properties?
- What is the difference between physical changes and chemical changes?

Content Topics:

- Composition of matter
- Physical and Chemical Properties
- Physical and Chemical Changes

Student Learning Tasks and Opportunities:

- The student will be able to distinguish an element from a compound based on its composition.
- The student will explain the states of a substance in terms of the particular nature of matter and the forces of interaction between particles.
- The student will identify solutions, suspensions, and colloids.
- Students will distinguish one substance from another and identify an unknown substance.

Instructional Resources and Equipment:

- Student text
- Complementary texts
- Charts and graphs
- Labs and demonstrations
- PowerPoint presentations
- Interactive white board
- Video clips
- Documentaries

Assessment Task(s):

- Entrance/exit slips, etc.
- Class discussion
- Homework
- Quizzes
- Lab activities/reports
- Teacher generated test
- Presentations/projects

North Providence High School Science Department
Standards – Based Instructional Curriculum Guide

Course: Physical Science **Grade Level:** 9 **Quarter:** 1 **Period(s):**

Topic: States of Matter

21st Century Graduation Expectation(s):

- 1.1 Acquiring and applying knowledge and skills within and across the curriculum
- 1.2 Analyzing and evaluating information
- 1.3 Applying technology as a learning tool across all disciplines
- 2.1 Working cooperatively and/ or independently
- 2.2 Applying problem solving strategies
- 2.3 Utilizing resources and time effectively
- 2.4 Accessing, compiling, and interpreting and presenting data and information
- 3.1 Making informed life and career decisions
- 3.2 Recognizing and respecting the diversity and individuality of others
- 3.3 Understanding and accepting the benefits and consequences of his/her behavior
- 4.1 Reading widely and critically
- 4.2 Writing clearly, concisely and persuasively
- 4.3 Speaking, listening and interpreting effectively

Next Generation Science Standards:

- PS3-1
- PS3-2

Common Core State Standards:

- RST.9-10.1
- RST.9-10.2
- RST.9-10.3
- RST.9-10.4
- RST.9-10.5
- RST.9-10.6
- RST.9-10.7
- RST.9-10.8
- RST.9-10.9
- RST.9-10.10
- WHST.9-10.1
- WHST.9-10.2
- WHST.9-10.4
- WHST.9-10.5
- WHST.9-10.6
- WHST.9-10.9
- WHST.9-10.10

Essential Question(s):

- How does the kinetic theory relate to the three phases of matter?
- How are the three phases of matter related in their size, shape, volume, and density?
- How is the gas measured in relation to its volume, pressure, and temperature?
- What are the energy changes involved in a change of state and how are they related to the 3 phases of matter?

Content Topics:

- Solids, liquids, and gases
- The Gas Laws
- Phase Changes

Student Learning Tasks and Opportunities:

- Students will demonstrate how the kinetic theory and the forces of attraction are used to explain the behavior of solids, liquids, and gases.
- Students will contrast the arrangement of atoms in solids, liquids, and gases.
- Students will understand how temperature, pressure, and volume relate to gases.
- Students will explain the Law of Conservation of Energy as it relates to the efficiency of a system.
- Students will diagram the changes in energy that occur in different systems.

Instructional Resources and Equipment:

- Student text
- Complementary texts
- Charts and graphs
- Labs and demonstrations
- PowerPoint presentations
- Interactive white board
- Video clips
- Documentaries

Assessment Task(s):

- Entrance/exit slips, etc.
- Class discussion
- Homework
- Quizzes
- Lab activities/reports
- Teacher generated test
- Presentations/projects

North Providence High School Science Department
Standards – Based Instructional Curriculum Guide

Course: Physical Science **Grade Level:** 9 **Quarter:** 1 **Period(s):**

Topic: Atomic Structure and the Periodic Table

21st Century Graduation Expectation(s):

- 1.1 Acquiring and applying knowledge and skills within and across the curriculum
- 1.2 Analyzing and evaluating information
- 1.3 Applying technology as a learning tool across all disciplines
- 2.1 Working cooperatively and/ or independently
- 2.2 Applying problem solving strategies
- 2.3 Utilizing resources and time effectively
- 2.4 Accessing, compiling, and interpreting and presenting data and information
- 3.1 Making informed life and career decisions
- 3.2 Recognizing and respecting the diversity and individuality of others
- 3.3 Understanding and accepting the benefits and consequences of his/her behavior
- 4.1 Reading widely and critically
- 4.2 Writing clearly, concisely and persuasively
- 4.3 Speaking, listening and interpreting effectively

Next Generation Science Standards:

- PS1-1
- PS1-2

Common Core State Standards:

- RST.9-10.1
- RST.9-10.2
- RST.9-10.3
- RST.9-10.4
- RST.9-10.5
- RST.9-10.6
- RST.9-10.7
- RST.9-10.8
- RST.9-10.9
- RST.9-10.10
- WHST.9-10.1
- WHST.9-10.2
- WHST.9-10.4
- WHST.9-10.5
- WHST.9-10.6
- WHST.9-10.9
- WHST.9-10.10

Essential Question(s):

- What properties can be used to compare protons, neutrons, and electrons?
- How do the atoms of an element differ from one another?
- How is the modern periodic table organized?
- How do properties vary across a period in the periodic table?
- Why do elements of a group have similar properties?

Content Topics:

- The structure of an atom.
- The periodic table.
- Arrangement of elements and groups on the periodic table.

Student Learning Tasks and Opportunities:

- Students should be able to identify different elements based on their subatomic particles.
- Students should be able to compare and contrast the differences of elements based on their subatomic particles.
- Students will identify and explain the basis for the arrangement of the elements within the periodic table.
- Students will compare the three subatomic particles of atoms, their location within an atom, their relative mass, and their charge.

Instructional Resources and Equipment:

- Student text
- Complementary texts
- Charts and graphs
- Labs and demonstrations
- PowerPoint presentations
- Interactive white board
- Video clips
- Documentaries

Assessment Task(s):

- Entrance/exit slips, etc.
- Class discussion
- Homework
- Quizzes
- Lab activities/reports
- Teacher generated test
- Presentations/projects

North Providence High School Science Department
Standards – Based Instructional Curriculum Guide

Course: Physical Science **Grade Level:** 9 **Quarter:** 2 **Period(s):**

Topic: Nuclear Chemistry

21st Century Graduation Expectation(s):

- 1.1 Acquiring and applying knowledge and skills within and across the curriculum
- 1.2 Analyzing and evaluating information
- 1.3 Applying technology as a learning tool across all disciplines
- 2.1 Working cooperatively and/ or independently
- 2.2 Applying problem solving strategies
- 2.3 Utilizing resources and time effectively
- 2.4 Accessing, compiling, and interpreting and presenting data and information
- 3.1 Making informed life and career decisions
- 3.2 Recognizing and respecting the diversity and individuality of others
- 3.3 Understanding and accepting the benefits and consequences of his/her behavior
- 4.1 Reading widely and critically
- 4.2 Writing clearly, concisely and persuasively
- 4.3 Speaking, listening and interpreting effectively

Next Generation Science Standards:

- PS1-8

Common Core State Standards:

- RST.9-10.1
- RST.9-10.2
- RST.9-10.3
- RST.9-10.4
- RST.9-10.5
- RST.9-10.6
- RST.9-10.7
- RST.9-10.8
- RST.9-10.9
- RST.9-10.10
- WHST.9-10.1
- WHST.9-10.2
- WHST.9-10.4
- WHST.9-10.5
- WHST.9-10.6
- WHST.9-10.9
- WHST.9-10.10

Essential Question(s):

- What happens during nuclear decay?
- What are the three types of nuclear radiation?
- How do nuclear decay rates differ from chemical reaction rates (half-life)?
- What is the difference between fission and fusion?

Content Topics:

- Radioactivity
- Rates of Nuclear Decay
- Fission and Fusion

Student Learning Tasks and Opportunities:

- Students will research how scientist determine the age of matter via radioactive dating.
- Students will explain the concept of half-life and use the half-life principle to predict the approximate age of a material.
- Students will differentiate between fission and fusion in nuclear reactions.

Instructional Resources and Equipment:

- Student text
- Complementary texts
- Charts and graphs
- Labs and demonstrations
- PowerPoint presentations
- Interactive white board
- Video clips
- Documentaries

Assessment Task(s):

- Entrance/exit slips, etc.
- Class discussion
- Homework
- Quizzes
- Lab activities/reports
- Teacher generated test
- Presentations/projects

North Providence High School Science Department
Standards – Based Instructional Curriculum Guide

Course: Physical Science **Grade Level:** 9 **Quarter:** 2 **Period(s):**

Topic: Forces and Motion

21st Century Graduation Expectation(s):

- 1.1 Acquiring and applying knowledge and skills within and across the curriculum
- 1.2 Analyzing and evaluating information
- 1.3 Applying technology as a learning tool across all disciplines
- 2.1 Working cooperatively and/ or independently
- 2.2 Applying problem solving strategies
- 2.3 Utilizing resources and time effectively
- 2.4 Accessing, compiling, and interpreting and presenting data and information
- 3.1 Making informed life and career decisions
- 3.2 Recognizing and respecting the diversity and individuality of others
- 3.3 Understanding and accepting the benefits and consequences of his/her behavior
- 4.1 Reading widely and critically
- 4.2 Writing clearly, concisely and persuasively
- 4.3 Speaking, listening and interpreting effectively

Next Generation Science Standards:

- PS2-1
- PS2-2
- PS2-4

Common Core State Standards:

- RST.9-10.1
- RST.9-10.2
- RST.9-10.3
- RST.9-10.4
- RST.9-10.5
- RST.9-10.6
- RST.9-10.7
- RST.9-10.8
- RST.9-10.9
- RST.9-10.10
- WHST.9-10.1
- WHST.9-10.2
- WHST.9-10.4
- WHST.9-10.5
- WHST.9-10.6
- WHST.9-10.9
- WHST.9-10.10

Essential Question(s):

- What is the relationship between force, mass, velocity, momentum, and acceleration?
- How does the understanding of the relationship between force and motion allow us to predict the movement of all objects?
- What are Newton's Laws of Motion?

Content Topics:

- Early pioneers of physics: Aristotle, Galileo, Newton
- Newton's Laws of Motion
- Force and the relationship between gravity, friction, air resistance, and falling objects
- Relationship between weight and mass
- Conservation of momentum

Student Learning Tasks and Opportunities:

- Students will use Newton's Laws of Motion and the Law of Conservation of Momentum to predict the effect on the motion of objects.
- Students will use mathematical representations to explain Newton's Laws of Motion.
- Students will explain how gravity and air resistance affect a falling object.
- Students will graph and explain how distance and velocity change over time for a free falling object.

Instructional Resources and Equipment:

- Student text
- Complementary texts
- Charts and graphs
- Labs and demonstrations
- PowerPoint presentations
- Interactive white board
- Video clips
- Documentaries

Assessment Task(s):

- Entrance/exit slips, etc.
- Class discussion
- Homework
- Quizzes
- Lab activities/reports
- Teacher generated test
- Presentations/projects

North Providence High School Science Department
Standards – Based Instructional Curriculum Guide

Course: Physical Science **Grade Level:** 9 **Quarter:** 2 **Period(s):**

Topic: Electromagnetic Spectrum and Light

21st Century Graduation Expectation(s):

- 1.1 Acquiring and applying knowledge and skills within and across the curriculum
- 1.2 Analyzing and evaluating information
- 1.3 Applying technology as a learning tool across all disciplines
- 2.1 Working cooperatively and/ or independently
- 2.2 Applying problem solving strategies
- 2.3 Utilizing resources and time effectively
- 2.4 Accessing, compiling, and interpreting and presenting data and information
- 3.1 Making informed life and career decisions
- 3.2 Recognizing and respecting the diversity and individuality of others
- 3.3 Understanding and accepting the benefits and consequences of his/her behavior
- 4.1 Reading widely and critically
- 4.2 Writing clearly, concisely and persuasively
- 4.3 Speaking, listening and interpreting effectively

Next Generation Science Standards:

- PS4-1
- PS4-3
- PS4-4

Common Core State Standards:

- RST.9-10.1
- RST.9-10.2
- RST.9-10.3
- RST.9-10.4
- RST.9-10.5
- RST.9-10.6
- RST.9-10.7
- RST.9-10.8
- RST.9-10.9
- RST.9-10.10
- WHST.9-10.1
- WHST.9-10.2
- WHST.9-10.4
- WHST.9-10.5
- WHST.9-10.6
- WHST.9-10.9
- WHST.9-10.10

Essential Question(s):

- What is the electromagnetic spectrum?
- What waves are included in the electromagnetic spectrum?
- How do electromagnetic waves differ from one another?
- What is wave energy and wave amplitude?
- What is refraction and reflection in waves?
- How does light behave when it enters a new medium?

Content Topics:

- Electromagnetic Spectrum
- Wave characteristics
- Wave energy and amplitude
- Reflection, Refraction, and interference
- Waves in different mediums

Student Learning Tasks and Opportunities:

- Students will describe the differences between various kinds of waves.
- Students will calculate the relationships among the frequency, wavelength, and speed of waves.
- Students will calculate wave speed and amplitude.
- Students will demonstrate the dynamics of wave reflection and refraction.

Instructional Resources and Equipment:

- Student text
- Complementary texts
- Charts and graphs
- Labs and demonstrations
- PowerPoint presentations
- Interactive white board
- Video clips
- Documentaries

Assessment Task(s):

- Entrance/exit slips, etc.
- Class discussion
- Homework
- Quizzes
- Lab activities/reports
- Teacher generated test
- Presentations/projects

North Providence High School Science Department
Standards – Based Instructional Curriculum Guide

Course: Physical Science **Grade Level:** 9 **Quarter:** 3 **Period(s):**

Topic: Earths Materials, Systems, and Plate Tectonics

21st Century Graduation Expectation(s):

- 1.1 Acquiring and applying knowledge and skills within and across the curriculum
- 1.2 Analyzing and evaluating information
- 1.3 Applying technology as a learning tool across all disciplines
- 2.1 Working cooperatively and/ or independently
- 2.2 Applying problem solving strategies
- 2.3 Utilizing resources and time effectively
- 2.4 Accessing, compiling, and interpreting and presenting data and information
- 3.1 Making informed life and career decisions
- 3.2 Recognizing and respecting the diversity and individuality of others
- 3.3 Understanding and accepting the benefits and consequences of his/her behavior
- 4.1 Reading widely and critically
- 4.2 Writing clearly, concisely and persuasively
- 4.3 Speaking, listening and interpreting effectively

Next Generation Science Standards:

- ESS2-1
- ESS2-2
- ESS2-3
- ESS2-4

Common Core State Standards:

- RST.9-10.1
- RST.9-10.2
- RST.9-10.3
- RST.9-10.4
- RST.9-10.5
- RST.9-10.6
- RST.9-10.7
- RST.9-10.8
- RST.9-10.9
- RST.9-10.10
- WHST.9-10.1
- WHST.9-10.2
- WHST.9-10.4
- WHST.9-10.5
- WHST.9-10.6
- WHST.9-10.9
- WHST.9-10.10

Essential Question(s):

- What are the characters of Earth's principle layers?
- What is plate tectonics?
- Who developed the theory of continental drift and how does it explain plate tectonics?
- What is sea floor spreading and what evidence is there that shows it occurred?
- What causes stress in the earth's crust?
- What are seismic waves?
- How do earthquakes occur?
- What are the different types of volcanoes and how are they formed?

Content Topics:

- Earth's core, crust, and mantle
- The theory of plate tectonics
- Continental drift
- Constructive and destructive forces
- Sea floor spreading
- Plate boundaries
- Seismic waves
- Earthquakes
- Volcanic activity

Student Learning Tasks and Opportunities:

- Students will identify the changes in Earth's lithosphere.
- Students will understand the theory of plate tectonics.
- Students will explain the theory of continental drift and how evidence supports this theory.
- Students will explain the causes of stress in the Earth's crust.
- Students will understand what a seismic wave is and the types of seismic waves that exist.
- Students will identify the causes of earthquakes.
- Students will understand the different types of volcanoes and how they formed.

Instructional Resources and Equipment:

- Student text
- Complementary texts
- Charts and graphs
- Labs and demonstrations
- PowerPoint presentations
- Interactive white board
- Video clips
- Documentaries

Assessment Task(s):

- Entrance/exit slips, etc.
- Class discussion
- Homework
- Quizzes
- Lab activities/reports
- Teacher generated test
- Presentations/projects

North Providence High School Science Department
Standards – Based Instructional Curriculum Guide

Course: Physical Science **Grade Level:** 9 **Quarter:** 3 **Period(s):**

Topic: Hydrologic Cycle, System Interactions, and Climate Change

21st Century Graduation Expectation(s):

- 1.1 Acquiring and applying knowledge and skills within and across the curriculum
- 1.2 Analyzing and evaluating information
- 1.3 Applying technology as a learning tool across all disciplines
- 2.1 Working cooperatively and/ or independently
- 2.2 Applying problem solving strategies
- 2.3 Utilizing resources and time effectively
- 2.4 Accessing, compiling, and interpreting and presenting data and information
- 3.1 Making informed life and career decisions
- 3.2 Recognizing and respecting the diversity and individuality of others
- 3.3 Understanding and accepting the benefits and consequences of his/her behavior
- 4.1 Reading widely and critically
- 4.2 Writing clearly, concisely and persuasively
- 4.3 Speaking, listening and interpreting effectively

Next Generation Science Standards:

- ESS2-5
- ESS2-6
- ESS2-7
- ESS3-1

Common Core State Standards:

- RST.9-10.1
- RST.9-10.2
- RST.9-10.3
- RST.9-10.4
- RST.9-10.5
- RST.9-10.6
- RST.9-10.7
- RST.9-10.8
- RST.9-10.9
- RST.9-10.10
- WHST.9-10.1
- WHST.9-10.2
- WHST.9-10.4
- WHST.9-10.5
- WHST.9-10.6
- WHST.9-10.9
- WHST.9-10.10

Essential Question(s):

- How does the properties of water effect Earth's materials and surface processes?
- How does the carbon cycle effect the Earth?
- How do changes in climate and the availability of natural resources influence human activity?

Content Topics:

- Hydrologic cycle and carbon cycle
- Physical and chemical properties of water
- Erosion and deposition
- Chemical Weathering
- Gradual atmospheric changes due to human activity

Student Learning Tasks and Opportunities:

- Students will understand how the properties of water effect surface processes.
- Students will identify how changes in climate influence in human activity.

Instructional Resources and Equipment:

- Student text
- Complementary texts
- Charts and graphs
- Labs and demonstrations
- PowerPoint presentations
- Interactive white board
- Video clips
- Documentaries

Assessment Task(s):

- Entrance/exit slips, etc.
- Class discussion
- Homework
- Quizzes
- Lab activities/reports
- Teacher generated test
- Presentations/projects

North Providence High School Science Department
Standards – Based Instructional Curriculum Guide

Course: Physical Science **Grade Level:** 9 **Quarter:** 4 **Period(s):**

Topic: The Universe and Its Stars

21st Century Graduation Expectation(s):

- 1.1 Acquiring and applying knowledge and skills within and across the curriculum
- 1.2 Analyzing and evaluating information
- 1.3 Applying technology as a learning tool across all disciplines
- 2.1 Working cooperatively and/or independently
- 2.2 Applying problem solving strategies
- 2.3 Utilizing resources and time effectively
- 2.4 Accessing, compiling, interpreting and presenting data and information
- 3.1 Making informed life and career decisions
- 3.2 Recognizing and respecting the diversity and individuality of others
- 3.3 Understanding and accepting the benefits and consequences of his/her behavior
- 4.1 Reading widely and critically
- 4.2 Writing clearly, concisely and persuasively
- 4.3 Speaking, listening and interpreting effectively

Next Generation Science Standards:

- HS-ESS1-1
- HS-ESS1-2
- HS-ESS1-3

Common Core State Standards:

- RST.9-10.1
- RST.9-10.2
- RST.9-10.3
- RST.9-10.4
- RST.9-10.5
- RST.9-10.6
- RST.9-10.7
- RST.9-10.8
- RST.9-10.9
- RST.9-10.10
- WHST.9-10.1
- WHST.9-10.2
- WHST.9-10.3
- WHST.9-10.4
- WHST.9-10.5
- WHST.9-10.6
- WHST.9-10.9
- WHST.9-10.10

Essential Question(s):

- What is the role of the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches the Earth in the form of radiation?
- What is the Big Bang theory in relation to astronomical evidence of light spectra, motion of distant galaxies and composition of matter in the universe?
- How do stars, over their life cycle, produce elements?

Content Topic(s):

- Life cycle of the sun/stars
- Light spectra/brightness/composition of stars
- Big Bang theory
- Red shift/blue shift

Student Learning Tasks and Opportunities:

- The student will develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation.
- The student will construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies and composition of matter in the universe
- The student will communicate scientific ideas about the way stars, over their life cycle, produce elements.

Instructional Resources and Equipment:

- Student text
- Complementary texts
- Charts and graphs
- Labs and demonstrations
- Simulated demonstrations
- PowerPoint presentations
- Interactive white board
- Video clips
- Documentaries

Assessment Task(s):

- Entrance/exit slips, etc.
- Class discussions
- Homework
- Quizzes
- Lab activities/reports
- Teacher generated tests
- Presentations/projects

North Providence High School Science Department
Standards – Based Instructional Curriculum Guide

Course: Physical Science **Grade Level:** 9 **Quarter:** 4 **Period(s):**

Topic: Earth and the Solar System

21st Century Graduation Expectation(s):

- 1.1 Acquiring and applying knowledge and skills within and across the curriculum
- 1.2 Analyzing and evaluating information
- 1.3 Applying technology as a learning tool across all disciplines
- 2.1 Working cooperatively and/or independently
- 2.2 Applying problem solving strategies
- 2.3 Utilizing resources and time effectively
- 2.4 Accessing, compiling, interpreting and presenting data and information
- 3.1 Making informed life and career decisions
- 3.2 Recognizing and respecting the diversity and individuality of others
- 3.3 Understanding and accepting the benefits and consequences of his/her behavior
- 4.1 Reading widely and critically
- 4.2 Writing clearly, concisely and persuasively
- 4.3 Speaking, listening and interpreting effectively

Next Generation Science Standards:

- HS-ESS1-4

Common Core State Standards:

- RST.9-10.1
- RST.9-10.2
- RST.9-10.3
- RST.9-10.4
- RST.9-10.5
- RST.9-10.6
- RST.9-10.7
- RST.9-10.8
- RST.9-10.9
- RST.9-10.10
- WHST.9-10.1
- WHST.9-10.2
- WHST.9-10.3
- WHST.9-10.4
- WHST.9-10.5
- WHST.9-10.6
- WHST.9-10.9
- WHST.9-10.10

Essential Question(s):

- How are mathematical/computational representations used to predict the motion of orbiting objects in the solar system?

Content Topic(s):

- Kepler's Law
- Gravitational effects/collisions in the solar system
- Elliptical orbits of planets
- Planets

Student Learning Tasks and Opportunities:

- The student will use mathematical/computational representations to predict the motion of orbiting objects in the solar system.

Instructional Resources and Equipment:

- Student text
- Complementary texts
- Charts and graphs
- Labs and demonstrations
- Simulated demonstrations
- PowerPoint presentations
- Interactive white board
- Video clips
- Documentaries

Assessment Task(s):

- Entrance/exit slips, etc.
- Class discussions
- Homework
- Quizzes
- Lab activities/reports
- Teacher generated tests
- Presentations/projects

North Providence High School Science Department
Standards – Based Instructional Curriculum Guide

Course: Physical Science **Grade Level:** 9 **Quarter:** 4 **Period(s):**

Topic: The History of the Planet Earth

21st Century Graduation Expectation(s):

- 1.1 Acquiring and applying knowledge and skills within and across the curriculum
- 1.2 Analyzing and evaluating information
- 1.3 Applying technology as a learning tool across all disciplines
- 2.1 Working cooperatively and/or independently
- 2.2 Applying problem solving strategies
- 2.3 Utilizing resources and time effectively
- 2.4 Accessing, compiling, interpreting and presenting data and information
- 3.1 Making informed life and career decisions
- 3.2 Recognizing and respecting the diversity and individuality of others
- 3.3 Understanding and accepting the benefits and consequences of his/her behavior
- 4.1 Reading widely and critically
- 4.2 Writing clearly, concisely and persuasively
- 4.3 Speaking, listening and interpreting effectively

Next Generation Science Standards:

- HS-ESS1-5
- HS-ESS1-6

Common Core State Standards:

- RST.9-10.1
- RST.9-10.2
- RST.9-10.3
- RST.9-10.4
- RST.9-10.5
- RST.9-10.6
- RST.9-10.7
- RST.9-10.8
- RST.9-10.9
- RST.9-10.10
- WHST.9-10.1
- WHST.9-10.2
- WHST.9-10.3
- WHST.9-10.4
- WHST.9-10.5
- WHST.9-10.6
- WHST.9-10.9
- WHST.9-10.10

Essential Question(s):

- How does evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics used to explain the ages of crustal rocks?
- What scientific reasoning and evidence from ancient Earth materials, meteorites and other planetary surfaces aid in constructing an account of Earth's formation and early history?

Content Topic(s):

- Earth's rock record (age of continental rocks vs. oceanic rocks)
- Meteorites
- Asteroids
- Lunar rocks
- Cosmic debris

Student Learning Tasks and Opportunities:

- The student will evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.
- The student will apply scientific reasoning and evidence from ancient Earth materials, meteorites and other planetary surfaces to construct an account of Earth's formation and early history.

Instructional Resources and Equipment:

- Student text
- Complementary texts
- Charts and graphs
- Labs and demonstrations
- Simulated demonstrations
- PowerPoint presentations
- Interactive white board
- Video clips
- Documentaries

Assessment Task(s):

- Entrance/exit slips, etc.
- Class discussions
- Homework
- Quizzes
- Lab activities/reports
- Teacher generated tests
- Presentations/projects