Grade level: 6 **Course Title: Science** **Topic/Concept: Introduction to Matter/Solids, Liquids, Gases**

Time Allotment: 6 weeks **Unit Sequence: 1**

Major Concepts to be learned:

1. Matter
2. Measuring Matter
3. Changes in Matter
4. Solids, Liquids, and Gases

Expected Skills to be demonstrated:

1. Differentiate between Physical and Chemical Properties
2. Explain Atoms, Elements, Molecules, and Compounds
3. Describe Mass, Weight, Volume, and Density
4. Identify and Describe Changes in Matter
5. Differentiate Between and describe Solids, Liquids, and Gases
6. Explore Changes in State of Matter

PA Steel Standards:

3.2.6-8.B
3.2.5.B
3.2.5.C

Eligible Content:

Instructional Strategies:

- Investigation of phenomenon
- Interactive investigations
- Experiments/Projects
- Group/Class discussion
- Modeling
- Note taking

Assessments:

- Labs
- Projects
- Interactive Investigations
- Quizzes/Tests
- Worksheets

Grade level: 6 **Course Title: Science** **Topic/Concept: Atoms and the Periodic Table**

Time Allotment: 6 weeks **Unit Sequence: 2**

Major Concepts to be learned:

1. Atomic Theory
2. The Periodic Table
3. Bonding and the Periodic Table
4. Types of Bonds

Expected Skills to be demonstrated:

1. Make a Model of an Atom
2. Explore the Organization of Elements
3. Explain and Use the Periodic Table
4. Analyze Bonding/Periodic Properties
5. Make and Discuss Electron Dot Diagrams
6. Identify and Explain Ionic Bonding
7. Identify and Explain Covalent Bonding

PA Steel Standards:

3.2.5.A
3.2.6-8.A
3.2.6-8.B

Eligible Content:

Instructional Strategies:

- Investigation of Phenomenon
- Interactive Investigations
- Experiments/Projects
- Group/Class Discussion
- Modeling
- Note taking

Assessments:

- Bohr Model Project
- Marshmallow Compounds Lab
- Projects/Lab
- Interactive Investigations
- Quizzes/Tests
- Worksheet/Bonding Sheets

Grade level: 6 **Course Title: Science** **Topic/Concept: Acids/Bases, Chemical Reactions**

Time Allotment: 4 weeks **Unit Sequence: 3**

Major Concepts to be learned:

1. Acids/Bases
2. Chemical Reactions
3. Chemical Change
4. Modeling Chemical Reactions

Expected Skills to be demonstrated:

1. Identify and Compare Properties of Acids and Bases
2. Differentiate Between Mixtures and Solutions
3. Explain Changes in Matter
4. Model Evidence of Chemical Reactions
5. Describe Changes in Energy
6. Apply the Law of Conservation of Mass to Chemical Equations
7. Apply Chemical Equations to the Law of Conservation of Mass

PA Steel Standards:

3.2.6-8.C
3.2.6-8.D
3.2.6-8.E
3.2.6-8.F

Eligible Content:

Instructional Strategies:

- Investigation of Phenomenon
- Interactive Investigations
- Experiments/Projects
- Group/Class Discussion
- Modeling
- Note taking

Assessments:

- Labs
- Projects
- Interactive Investigations
- Quizzes/Tests
- Worksheets

Grade level: 6 **Course Title: Science** **Topic/Concept: Energy/Thermal Energy**

Time Allotment: 5 weeks **Unit Sequence: 4**

Major Concepts to be learned:

1. Energy, Motion, Force, Work
2. Kinetic/Potential Energy
3. Forms of Energy
4. Energy Change and Conservation
5. Temperature, Thermal Energy, Heat
6. Heat Transfer

Expected Skills to be demonstrated:

1. Explain the relationship between Motion, Force, Work, and Power in Energy
2. Differentiate between Potential and Kinetic Energy
3. Identify and Explain different Forms of Energy
4. Describe how Energy changes Form
5. Explain Energy Change & the Law of Conservatio
6. Analyze Thermal Energy and Heat
7. Explain how Types of Heat Transfer

PA Steel Standards:

3.2.6-8.L
3.2.6-8.M
3.2.6-8.N
3.2.6-8.O
3.2.6-8.P

Eligible Content:

Instructional Strategies:

- Investigation of Phenomenon
- Interactive Investigations
- Experiments/Projects
- Group/Class Discussions
- Modeling
- Note taking

Assessments:

- Labs
- Projects
- Interactive Investigations
- Quizzes/Tests
- Worksheets

Grade level: 6 **Course Title: Science** **Topic/Concept: Forces and Motion**

Time Allotment:5 weeks **Unit Sequence: 5**

Major Concepts to be learned:

1. Describing Motion and Force
2. Speed, Velocity, and Acceleration
3. Newton's Laws of Motion
4. Friction and Gravitational Interations

Expected Skills to be demonstrated:

1. Analyze an Object in Motion
2. Explain How Forces Affect Motion
3. Calculate Speed, Velocity, and Acceleration
4. Explain Newton's 1st, 2nd, and 3rd Law of Motion
5. Identify Factors that Affect Friction
6. Analyze Factors that Affect Gravity
7. Explain the relationship between Energy, Forces, and Motion

PA Steel Standards:

3.2.6-8.I
3.2.6-8.J
3.2.6-8.K
3.2.6-8.G
3.2.6-8.H

Eligible Content:

Instructional Strategies:

- Investigation of Phenomenon
- Interactive Investigations
- Experiments/Projects
- Groups/Class Discussion
- Modeling
- Note taking

Assessments:

- Labs
- Projects
- Interactive Investigations
- Quizzes/Tests
- Worksheets

Grade level: 6 **Course Title: Science** **Topic/Concept: Waves and Electromagnetic Radiation, Electricity & Magnetism**

Time Allotment: 6 weeks **Unit Sequence: 6**

Major Concepts to be learned:

1. Wave properties
2. Wave Interactions
3. Sound Waves
4. Electromagnetic Waves
5. Light
6. Electric Force
7. Magnetic Force
8. Electromagnetic Force
9. Electric and Magnetic
10. Interactions

Expected Skills to be demonstrated:

1. Identify Types and Properties of Waves
2. Explain Reflection, Refraction, and Absorption
3. Analyze Wave Interference
4. Describe the Behaviors of Sound
5. Model Electromagnetic Waves
6. Compare Wavelength and Frequenct on the Spectrum
7. Explain how Light, Color, Objects, Reflecting Light, and Lenses Interact
8. Investigate Electrict Force, Current, and Circuits
9. Describe Magnetic Force and Fields
10. Apply Electromagnetic Principles to Real-World Examples

PA Steel Standards:

3.2.6-8.I 3.2.6-8.S
3.2.6-8.Q
3.2.6-8.R

Eligible Content:

Instructional Strategies:

- Investigation of Phenomenon
- Interactive Investigations
- Experiments/Projects
- Groups/Class Discussion
- Videos
- Modeling
- Note taking

Assessments:

- Labs
- Projects
- Interactive Investigations
- Quizzes/Tests
- Worksheets