Eighth Grade Science

Unit:	**Nature of Science**
Big Ideas:	Measurement, Scientific Inquiry, Experimental Design
Unit Essential Questions:	What is scientific inquiry and how is it used to solve problems?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Laboratory Tools and Measurement(10 days)	3.2.8.B7 3.2.8.A6	SI Mass Volume Temperature Time Length Meter Liter Grams Balance Graduated cylinder	● What are the functions of lab tools? ● How can I make accurate measurements? ● What SI units are used for measuring various quantities? ● How can I convert one SI unit to another?	● Identify and explain uses of lab tools ● Read and interpret measurement tools ● Identify SI units and determine which SI units to use in different situations ● Convert SI units from one to another	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● Bell-Ringers/ Closure Slips ● Vocabulary sheets ● Practice sheets ● Powerpoint presentations ● Measurement Lab ● Metric Golf Activity ● Metric Olympics Activity	Measurement Quiz Conversion Quiz NOS Test
Scientific Inquiry (5 days)	3.2.8.B7 3.2.8.A6	Science Description Explanation Critical thinking Theory Law Hypothesis Independent variable Dependent variable Constant Control group Experimental group Observation Inference Quantitative data Qualitative data Variable Technology	● What are the 3 main branches of science? ● What are the steps of scientific inquiry? ● How can I describe the results of scientific inquiry? ● How can I use critical thinking skills in the real world in terms of skepticism? ● What are the parts of an experiment? ● What is a valid experimental design?	● Identify and explain the 3 branches of science ● Identify the steps of scientific inquiry and explain what happens at each step ● Use critical thinking skills ● Interpret data to form conclusions ● Identify and explain the parts of an experiment ● Design an experiment	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● Bell-Ringers/ Closure Slips ● Vocabulary Sheets ● Practice Sheets ● Note sheets ● Powerpoint presentations	NOS Test

Eighth Grade Science

Unit:	Atoms and Elements						
Big Ideas:	Atomic structure, History of the atomic model, History of the periodic table, Organization of the periodic table						
Unit Essential Questions:	What are atoms and what are they made of? How is the periodic table used to classify and provide information about all known elements?						
Concept & Pacing	**PA Core Standard**	**Key Vocabulary**	**Essential Questions**	**Competencies (skills, knowledge, abilities)**	**Mini-Lessons/Activities**	**Instructional Materials**	**Assessments**
History of the Atomic Model (3 days)	3.2.7.A2 3.2.7.A6 3.2.8.A6 **Steel** 3.2.6-8.A	Atom Electron Proton Neutron Nucleus Electron cloud	• What were early ideas about the atom? • How has the atomic model changed over time? • What scientists contributed to the changes to the atomic model?	• Identify and explain early ideas about the atom • Compare contrast past atomic models to today's • Identify and explain scientists that contributed to the atomic model theory	• BrainPop • Outlines • Practice handouts • Lab Activity • Kahoot/Blooket • Demos	• Bell Ringers/ Closure slips • Vocabulary sheets • Ipads for research • Textbook • Practice sheets • Note sheets • Powerpoint presentations • Atomic Model flip book • Brain Pop video • Mystery Mixture Lab	Chapter 9 Test History of the Atomic Model Informative essay Atomic Model flip book I-Checks 1&2,
How Atoms Differ (4 days)	3.2.7.A2 3.2.8.A2 **Steel** 3.2.6-8.A	Atomic number Isotope Mass number Average atomic mass Ion Radioactivity	• How can I describe the number of protons, neutrons and electrons in a given atom? • What is the difference between atomic number and mass number? • How are isotopes different from one another? • How do ions form? • How can I use a Bohr model to describe atomic structure?	• Describe/explain how to find the number of protons, neutrons, and electrons of a given atom. • Explain the difference between the atomic number and mass number. • Explain/Identify how isotopes are different from one another. • Identify how ions forms. • Explain how a Bohr model can be used to describe the atomic structure.	• BrainPop • Outlines • Practice handouts • Lab Activity • Kahoot/Blooket • Demos	• Bell Ringers/ Closure slips • Vocabulary sheets • Textbook • Practice sheets • Note sheets • Powerpoint presentations • Brain Pop video	Chapter 9 Test

Eighth Grade Science

Using the Periodic Table (6 days)	3.2.7.A1 3.2.8.A2 **Steel** 3.2.6-8.A	Periodic table Group Period	• How was the periodic table developed and why is it important? • How do I use the periodic table to compare and contrast elements? • What are the characteristics of metals, nonmetals and metalloids? • How can I research information about groups of elements on the periodic table?	• Explain how the periodic table was developed and what we use it for • Explain how to use the periodic table to compare and contrast elements • Identify and explain the characteristics of metals, nonmetals, and metalloids • Research elements using the periodic table	• BrainPop • Outlines • Practice handouts • Culminating project • Kahoot/Blooket • Demos	• iPad • Bell Ringers/ Closure slips • Vocabulary sheets • Textbook • Practice sheets • Note sheets • Powerpoint presentations • Brain Pop video	Group Project and Gallery Walk Chapter 10 Quiz Element Superhero Project Adopt An Element Project

Unit:	**Energy**
Big Ideas:	Energy; Energy Transformations: Energy Resources
Unit Essential Questions:	What is energy? What are energy resources?

Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Forms of Energy (5 days)	3.2.6.B2 3.2.7.B2 3.2.8.B2 3.2.7.B5 3.2.7.B6 **Steel** 3.2.6-8L 3.2.6-8O 3.26-8N	Energy Kinetic energy Potential energy Work Mechanical energy Sound energy Thermal energy Electric energy Radiant energy Nuclear energy	• What is energy? • What are potential and kinetic energy? • How is energy related to work? • What are different forms of energy?	• Define/explain energy. • Explain how KE and PE are different and provide examples of each. • Identify/explain the relationship between work and energy. • Identify/explain/provide examples of the different forms of energy.	• BrainPop • Outlines • Practice handouts • Launch Lab • Lab Activity • Kahoot/Blooket • Demos	• Bell Ringers/ Closure slips • Vocabulary sheets • Textbook • Lab Investigation Sheets • Practice sheets • Note sheets • Powerpoint presentations • Brain Pop video	Chapter 5 Test Forms of Energy Flipbook/ Practice sheet

Eighth Grade Science

Energy Transformations (4 days)	3.2.8.B2 3.2.8.A3 **Steel** 3.2.6-8O	Law of Conservation of Energy Friction	● What is the law of conservation of energy? ● How does friction affect energy transformations? ● How are different types of energy used?	● Explain/apply the law of conservation of energy to examples/real life situations. ● Explain the effect of friction on energy transformations ● Identify and describe how different forms of energy are used.	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● Bell Ringers/ Closure slips ● Vocabulary sheets ● Textbook ● Lab Investigation Sheets ● Practice sheets ● Note sheets ● Powerpoint presentations	Chapter 5 Test Chapter 5 Quiz Energy Transformation Lab
Energy Resources (4 days)	3.2.7.B2 3.2.8.B2 3.2.7.B6 3.3.8.A2 **Steel** 3.2.6-8.C	Nonrenewable Energy Resource Renewable Energy Resource Inexhaustible Energy Resource Fossil Fuels	● What are nonrenewable energy resources? ● What are renewable energy resources? ● Why is it important to conserve energy?	● Identify nonrenewable energy resources ● Identify renewable energy resources ● Compare and contrast nonrenewable vs. renewable resources ● Explain why it is important to conserve energy ● Research renewable energy resources to design an energy efficient home	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● iPad ● Energy Resource Investigation Handout ● Bell Ringers/ Closure slips ● Vocabulary sheets ● Textbook ● Powerpoint presentations	Chapter 5 Test Energy Resource Investigation Handout

Unit:	**Thermal Energy**
Big Ideas:	Understanding Thermal Energy and How it Can be Used
Unit Essential Questions:	How can we use thermal energy?

Concept & Pacing	PA Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Thermal Energy Temperature Heat (3-4 days)	3.2.8.A3 3.2.6.B3 3.2.8.B3 3.2.6.B6 **Steel** 3.2.6-8.B 3.2.6-8.N	Thermal Energy Temperature Heat Kinetic Energy Potential Energy Solids Liquids Gasses Fluid	● How are temperature and kinetic energy related? ● How do heat and thermal energy differ?	● Identify and explain the relationship between temperature and kinetic energy. ● Identify how heat and thermal energy are different.	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● PowerPoint presentations ● Vocabulary Sheets ● Mini Lab ● Practice Sheets ● Bell Ringers and Closure Sheets	Chapter 6 Quiz Chapter 6 Test Lab Activities

Eighth Grade Science

Thermal Energy Transfer (4 days)	3.2.7.A3 3.2.8.A3 3.2.6.B3 3.2.7.B3 3.2.8.B6 **Steel** 3.2.6-8.B 3.2.6-8M 3.2 6-8R	Radiation Conduction Convection Convection Current Thermal Conductor Thermal Insulator Thermal Contraction Thermal Expansion Specific Heat	• In what ways can thermal energy be transferred? • What happens to a material when it is heated? • What is the effect of having a small or large specific heat?	• Identify the ways in which thermal energy can be transferred • Explain what happens to a material when it is heated • Compare and contrast the specific heat of insulators and conductors	• BrainPop • Outlines • Practice handouts • Lab Activity • Kahoot/Blooket • Demos	• PowerPoint presentations • Vocabulary Sheets • Heat Transfer Demonstrations • Practice Sheets • Bell Ringers and Closure Sheets • Bill Nye Thermal Energy	Chapter 6 Test Lab Activities

Unit:	**Foundations of Chemistry**
Big Ideas:	How does matter interact and change?
Unit Essential Questions:	What is matter and how does it change?

Concept & Pacing	PA Core Standards	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Classifying Matter (4 days)	3.2.7.A1 3.2.6.A2 **Steel** 3.2.6-8A 3.2.6-8B 3.2.6-8D 3.2.6-8E 3.2.6-8F	Matter Atom Substance Element Compound Mixture Heterogeneous Mixture Homogeneous Mixture Dissolve	• What is a substance? • How do atoms of different elements differ? • How do mixtures differ from substances? • How can you classify matter as an element, compound or mixture?	• Identify what constitutes a substance. • Explain how atoms and elements are different from one another. • Explain the difference between mixtures and substances. • Identify how we classify matter.	• BrainPop • Outlines • Practice handouts • Launch Lab • Lab Activity • Kahoot/Blooket • Demos	• PowerPoint presentations • Vocabulary Sheets • Practice Sheets • Bell Ringers and Closure Sheets • Lab Activities	Quiz
Physical Properties of Matter (4 days)	3.2.8.A1 3.2.6.A5 **Steel** 3.2.6-8A 3.2.6-8B 3.2.6-8D 3.2.6-8E 3.2.6-8F	Physical Property Solubility Mass Density Volume	• What are some physical properties of matter? • How are physical properties used to separate mixtures?	• Identify and explain the physical properties of matter • Explain how physical properties are used to separate mixtures	• BrainPop • Outlines • Practice handouts • Lab Activity • Kahoot/Blooket • Demos	• PowerPoint presentations • Vocabulary Sheets • Practice Sheets • Bell Ringers and Closure Sheets • Lab Activities	Quiz

Eighth Grade Science

Physical Changes (6 days)	3.2.6.A1 3.2.7.A3 3.2.6.A4 **Steel** 3.2.6-8A 3.2.6-8B 3.2.6-8D 3.2.6-8E 3.2.6-8F	Physical Change Solid Liquid Gas Melting Freezing Boiling/Evaporation/Vaporization Condensation Sublimation Deposition	● What is a physical change? ● How can a change in energy affect the state of matter? ● What happens when something dissolves? ● How do particles move in a solid, liquid, gas? ● How does the Law of Conservation of Mass apply to Physical Change	● Explain what a physical change is ● Explain the relationship between a change in energy and state of matter ● Explain what happens when something dissolves ● Explain and illustrate particle movement in solids, liquids, and gasses ● Identify the Law of Conservation of Mass and how it applies to physical change	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● PowerPoint presentations ● Vocabulary Sheets ● Practice Sheets ● Bell Ringers and Closure Sheets ● Lab Activities	Quiz Comic Strip Ice Cream Lab
Chemical Properties/Changes (5 days)	3.2.6.A3 3.2.7.A3 3.2.6.A4 3.2.7.A4 **Steel** 3.2.6-8A 3.2.6-8B 3.2.6-8D 3.2.6-8E 3.2.6-8F	Chemical Property Chemical Changes Concentration Law of Conservation of Mass Chemical Reaction Chemical Formula Reactants Products	● What is a chemical property? ● What are some signs of chemical change? ● Why are chemical equations useful? ● What are some factors that affect the rate of chemical reactions? ● What are the reactants and products of a chemical reaction?	● Define/explain a chemical property. ● Identify the four signs of a chemical change. ● Demonstrate/explain how chemical equations are useful. ● Identify/explain the factors that affect the rate of a reaction. ● Identify/explain the reactants and products of a chemical reaction.	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● PowerPoint presentations ● Vocabulary Sheets ● Practice Sheets ● Bell Ringers and Closure Sheets ● Lab Activities	Test Labs

Unit:	**Describing Motion**
Big Ideas:	Measurement of speed, velocity, and acceleration.
Unit Essential Questions:	What are some ways to describe motion?

Eighth Grade Science

Concept & Pacing	PA Core Standards	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Position and Motion (2 days)	3.2.6.B1 3.2.8.B6	Reference Point Position Motion Displacement	● How does the description of an objects position depend on a reference point? ● What is the difference between distance and displacement.	● Explain how an objects description depends on the reference point. ● Explain how distance and displacement are different/apply this to examples practiced in class.	● BrainPop ● Outlines ● Practice handouts ● Launch Lab ● Lab Activity ● Kahoot/Blooket ● Demos	● PowerPoint presentations ● Vocabulary Sheets ● Practice Sheets ● Bell Ringers and Closure Sheets ● Launch Lab Activities	Quiz
Speed and Velocity (5 days)	3.2.7.B1 3.2.8.B6 **Steel** 3.2.6-8L	Speed Constant Speed Instantaneous Speed Average Speed Velocity	● What is speed? ● How can you use a distance- time graph to find average speed? ● What are ways velocity can change?	● Define speed. ● Explain/interpret how you can use distance/time graphs to find an objects average speed. ● Explain in what ways an objects velocity can change.	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● PowerPoint presentations ● Vocabulary Sheets ● Practice Sheets ● Bell Ringers and Closure Sheets ● Lab Activities	Quiz Lab
Acceleration (3)	3.2.8.B6 **Steel** 3.2.6-8L	Acceleration Average Acceleration	● What are 3 ways an object can accelerate? ● What does a speed-time graph indicate about an object's motion?	● Name and explain the 3 ways in which an object can accelerate ● Read and interpret speed-time graphs	● BrainPop ● Outlines ● Practice handouts ● Launch Lab ● Lab Activity ● Kahoot/Blooket ● Demos	● PowerPoint presentations ● Vocabulary Sheets ● Practice Sheets ● Bell Ringers and Closure Sheets ● Brain-Pop Video	Test

Unit:	**Laws of Motion**
Big Ideas:	The effects of forces and the Laws of Motion.
Unit Essential Questions:	How do forces change the motion of objects?

Concept & Pacing	PA Core Standards	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments

Gravity and Friction (8 days)	3.2.6.B1 3.2.8.B6 3.3.7.B1 **Steel** 3.2.6-8H 3.2.6-8J	Gravity Friction Weight Mass Contact Force Noncontact Force Force Static Friction Sliding Friction Fluid Friction Air Resistance Fluid	• What are some contact and noncontact forces? • What is the Universal Law of Gravitation? • What is the difference between mass and weight? • How does friction affect the motion of objects?	• Explain/identify contact/noncontact forces. • Define/apply the Universal Law of Gravitation. • Explain the difference between mass and weight. • Explain the effect of friction on an object's motion.	• BrainPop • Outlines • Practice handouts • Launch Lab • Lab Activity • Kahoot/Blooket • Demos	• PowerPoint presentations • Vocabulary Sheets • Practice Sheets • Bell Ringers and Closure Sheets • Launch Lab • Bill Nye Video • Brain Pop-Gravity • Lab Activity • Parachute Project	Quiz Labs Project
Newton's Laws of Motion (10 days)	3.2.8.B1 3.2.8.B6 **Steel** 3.2.6-8G 3.2.6-8H	Net Force Balanced Forces Unbalanced Forces Inertia Newton's 1st Law Newton's 2nd Law Circular Motion Centripetal Force Newton's 3rd Law Force Pair Momentum Law of Conservation of Momentum	• What are Newton's Laws of Motion? • How is motion affected by balanced and unbalanced forces? • What effect does inertia have on the motion of an object? • How does centripetal force affect motion? • Why don't the forces in a force pair cancel each other? • What is the Law of Conservation of Momentum?	• Identify and explain Newton's Laws of Motion • Explain how motion is affected by balanced and unbalanced forces • Explain inertia and what effect it has on an object's motion • Explain centripetal force and what effect it has on an object's motion • Explain why the forces in a force pair don't cancel each other out • Describe the Law of Conservation of Momentum	• BrainPop • Outlines • Practice handouts • Launch Lab • Lab Activity • Kahoot/Blooket • Demos	• PowerPoint presentations • Vocabulary Sheets • Practice Sheets • Bell Ringers and Closure Sheets • Launch Lab • Bill Nye Video • Lab Activities • Roller Coaster Project	Quiz Labs Tests Roller Coaster Project
Unit:	**Work and Machines**						
Big Ideas:	Work, Power, Mechanical Advantage, and Types of Simple Machines						
Unit Essential Questions:	How do machines make doing work easier?						
Concept & Pacing	**Pa Core Standard**	**Key Vocabulary**	**Essential Questions**	**Competencies (skills, knowledge, abilities)**	**Mini-Lessons/Activities**	**Instructional Materials**	**Assessments**

Work and Power (3-4 days)	3.2.8.B6	Work Power	• What must happen for work to be done? • How does doing work on an object change its energy? • How are work and power related?	• Explain what must happen in order for work to be done to an object. • Explain how doing work on an object changes its energy. • Explain the relationship between work and power.	• BrainPop • Outlines • Practice handouts • Launch Lab • Lab Activity • Kahoot/Blooket • Demos	• PowerPoint presentations • Vocabulary Sheets • Practice Sheets • Bell Ringers and Closure Sheets • Lab Activities	Quiz
Using Machines/Simple Machines (8 days)	3.2.8.B6	Machine Mechanical Advantage Efficiency Simple Machine Lever Fulcrum Pulley Wheel and Axle Inclined Plane Wedge Screw	• How do machines make work easier? • What is mechanical advantage? • Why can't the work done by a machine be greater than the work done on the machine? • How do simple machines help do work? • What are examples of simple machines? • How do you get the best mechanical advantage from each simple machine?	• Explain/identify the ways machines make work easier. • Define/explain what mechanical advantage. • Explain why work output is not greater than work input. • Identify ways in which simple machines make work easier. • Explain/identify the types of simple machines. • Explain how you get the best MA from each simple machine.	• BrainPop • Outlines • Practice handouts • Lab Activity • Kahoot/Blooket • Demos	• PowerPoint presentations • Vocabulary Sheets • Practice Sheets • Bell Ringers and Closure Sheets • Lab Activity • Student Created PowerPoint Presentation	Student Created PowerPoint Quiz

Unit:	**Forces and Fluids**
Big Ideas:	Pressure, Buoyant Force, Archimedes' Principle
Unit Essential Questions:	In what ways do people use forces and fluids?

Concept & Pacing	Pa Core Standards	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments

Eighth Grade Science

Pressure and Density of Fluids (3days)	3.2.8.B6	Pressure Atmospheric Pressure Density Fluid	● How do force and area affect pressure? ● How does pressure change with elevation and depth under water? ● What factors affect the density of a fluid?	● Explain how force and area affect pressure ● Explain how pressure changes with elevation ● Identify the factors that affect the density of a fluid	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● PowerPoint presentations ● Vocabulary Sheets ● Practice Sheets ● Bell Ringers and Closure Sheets	Test
The Buoyant Force (5 days)	3.2.6.B8	Buoyant Force Archimedes' Principle	● How does Archimedes' Principle describe the buoyant force? ● What makes an object sink or float in a fluid?	● Relate Archimedes' Principle to buoyant force ● Describe what makes an object sink or float in a fluid	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● PowerPoint presentations ● Vocabulary Sheets ● Practice Sheets ● Bell Ringers and Closure Sheets ● Lab Activity	Lab Activity Test

Unit:	**Electricity**						
Big Ideas:	Electric Charge, Electric Forces, Electric Current, Series and Parallel Circuits						
Unit Essential Questions:	How do electric circuits and devices transform energy?						
Concept & Pacing	**Pa Core Standards**	**Key Vocabulary**	**Essential Questions**	**Competencies (skills, knowledge, abilities)**	**Mini-Lessons/Activities**	**Instructional Materials**	**Assessments**
Electric Charge and Electric Forces (6 days)	3.2.8.B4 3.2.7.B4 **Steel** 3.2.6-8I 3.2.6-8K	Static charge Electric insulator Electric conductor Polarized Electric discharge Grounding	● How do electrically charged objects interact? ● How can objects become electrically charged? ● What is an electric discharge?	● Explain how electrically charged objects interact (attracting and repelling) ● Explain how objects become electrically charged ● Define electric discharge and give examples	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● PowerPoint presentations ● Vocabulary Sheets ● Practice Sheets ● Bell Ringers and Closure Sheets ● Lab Activity	Lab Activity Quiz

Eighth Grade Science

Electric Current and Simple Circuits (3 days)	3.2.6.B4 3.2.7.B4 **Steel** 3.2.6-8I 3.2.6-8K	Electric current Electric circuit Electric resistance Voltage Ohm's Law	● What is the relationship between electric charge and electric current? ● What are voltage, current, and resistance? How do they affect each other?	● Explain the relationship between electric charge and electric current. ● Define and explain the relationship between voltage, current, and resistance.	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● PowerPoint presentations ● Vocabulary Sheets ● Practice Sheets ● Bell Ringers and Closure Sheets ● Lab Activity	Lab Activity Quiz
Describing Circuits (6 days)	3.2.7.B4 **Steel** 3.2.6-8I 3.2.6-8K	Series circuit Parallel circuit	● What are the basic parts of an electric circuit? ● How do the two types of electric circuits differ?	● Identify the basic parts of an electric circuit. ● Identify/explain how the two types of circuits are different.	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● PowerPoint presentations ● Vocabulary Sheets ● Practice Sheets ● Bell Ringers and Closure Sheets ● Lab Activity	Lab Activity Quiz

Unit:	**Magnetism**
Big Ideas:	Magnets, Magnetic Fields, Making Magnets with Current, Making Current with Magnets
Unit Essential Questions:	How are electric charges and magnetic fields related?

Concept & Pacing	Pa Core Standards	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Magnets and Magnetic Fields (3 days)	3.2.6.B4 3.2.7.B4 **Steel** 3.2.6-8I 3.2.6-8K	Magnet Magnetic pole Magnetic force Magnetic material Ferromagnetic element Magnetic domain Temporary magnet Permanent magnet	● What types of forces do magnets apply to other magnets? ● Why are some materials magnetic? ● Why are some magnets temporary while others are permanent?	● Identify the forces magnets apply to other magnets ● Explain what makes some materials magnetic ● Compare and contrast temporary and permanent magnets	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket ● Demos	● PowerPoint presentations ● Vocabulary Sheets ● Practice Sheets ● Bell Ringers and Closure Sheets ● Lab Activity	Lab Activity Quiz
Making Magnets with an Electric	3.2.6.B4 3.2.7.B4	Electromagnet Electric motor	● Why does a magnet apply a force on an electric current?	● Explain how a magnet applies a force on an electric current.	● BrainPop ● Outlines ● Practice handouts ● Lab Activity ● Kahoot/Blooket	● PowerPoint presentations ● Vocabulary Sheets ● Practice Sheets	Lab Activity Quiz

Current (6 days)	**Steel** 3.2.6-8I 3.2.6-8K		• How do electromagnets and permanent magnets differ? • How do electric motors use magnets?	• Explain how electromagnets and permanent magnets differ. • Explain how electric motors use/rely on magnets. •	• Demos	• Bell Ringers and Closure Sheets • Lab Activity	
Making an Electric Current with Magnets (6 days)	3.2.6.B4 3.2.7.B4 **Steel** 3.2.6-8I 3.2.6-8K	Electric generator Direct current Alternating current Turbine Transformer	• How can a wire and a magnet produce an electric current? • How do electric generators create an electric current? • How are transformers used to bring an electric current into your home?	• Explain how to produce an electric current with a wire and a magnet • Explain how electric generators create an electric current • Explain how transformers bring electric current into homes	• BrainPop • Outlines • Practice handouts • Lab Activity • Kahoot/Blooket • Demos	• PowerPoint presentations • Vocabulary Sheets • Practice Sheets • Bell Ringers and Closure Sheets • Lab Activity	Lab Activity Quiz