Lehighton Area School District
Curriculum Framework

Course Title:	Physical Science
Content Area:	Science
Grade Level(s):	8th Grade
Course Overview:	Develop a basic knowledge of Physical science principles that affect how the real world operates. By the end of the course students will be skilled in observing, hypothesizing, problem-solving, making decisions and developing opinions about topics related to Physics, Energy, Electricity/Magnetism and Chemistry.
PA Core Standards:	PA STEELS Standards K-12
Key Course Text and Materials:	SAVVAS Physical Science, Teacher Created Materials, Labs and Supplies
Key Assessments/Projects:	Diagnostic: CDT, 8th Grade PSSA Formative: Labs and activities, simulations, bell ringers, Blookets, and class discussions Summative: Projects, Unit Test

Big Idea/Unit: Nature of Science-Laboratory Tools and Measurement

Pacing: 18 Days

Standards	Objective/Skill	Vocabulary	Additional Resources	Assessment/Project
3.2.8.B7 3.2.8.A6	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	SI Mass Volume Temperature Time Length Meter Liter Grams Balance Graduated cylinder	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos	Measurement Quiz Conversion Quiz Bell-Ringers/ Closure Slips Vocabulary sheets Practice sheets Measurement Lab Metric Golf Activity Metric Olympics Activity

Big Idea/Unit: Nature of Science-Scientific Inquiry

Pacing: 24 Days

Standards	Objective/Skill	Vocabulary	Additional Resources	Assessment/Project
3.2.8.B7 3.2.8.A6	Use critical thinking skills Interpret data to form conclusions Identify and explain the parts of an experiment Design an experiment	Science Description Explanation Critical thinking Hypothesis Independent variable Dependent variable Constant Control group Experimental group Observation Inference Quantitative data Qualitative data Variable	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos	NOS Test Bell-Ringers/ Closure Slips Vocabulary Sheets Practice Sheets Note sheets

Big Idea/Unit: Introduction to Matter

Pacing: 27 Days

Standards	Objective/Skill	Vocabulary	Additional Resources	Assessment/Project

3.2.6-8.A	Explain and describe what makes up matter. Describe the properties of matter Examples of chemical and physical properties of matter Classify different types of matter Classify homogenous and heterogenous mixtures	Matter Substance Physical property Chemical property Atom Element Molecule Compound Mixture Distill	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Interactivities Savaas student textbook	Bell Ringers/ Closure slips Vocabulary sheets Practice sheets Brain Pop video Lesson Check Lesson 1 Quiz
3.2.6-8.A	Identify and describe how matter can be measured. Identify and describe how mass compares to weight. Identify and calculate properties of matter that can be determined through measurement. Identify and calculate density as a function of mass and volume.	Mass Volume Weight Density Convert	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Interactivities Savvas student textbook	Bell Ringers/ Closure slips Vocabulary sheets Practice sheets Brain Pop video Lesson Check Lesson 2 Quiz
3.2.6-8.A	Determine how matter is conserved during a physical and a chemical change. Determine how thermal energy is transformed during a chemical change. Explain the difference between a physical and a chemical change. Explain how changes in matter are related to changes in energy.	Physical change Chemical change Conservation	BrainPop Outlines Practice handouts Kahoot/Blooket Demos Interactivities Savvas student textbook	Bell Ringers/ Closure slips Vocabulary sheets Practice sheets Brain Pop video Lesson Check Lesson 3 Quiz/Topic 1 Test

Big Idea/Unit: Solids, Liquids, and Gases

Pacing: 21 Days

Standards	Objective/Skill	Vocabulary	Additional Resources	Assessment/Project

3.2.6-8L 3.2.6-8O 3.26-8N	Write informative texts explain similarities and differences in solids, liquids, and gases. Explain similarities and differences between high-viscosity liquids and low-viscosity liquids. Explain the relationship between particle motion and the state of matter. Develop and use models to demonstrate how arrangement and movement of particles compare in solids, liquids, and gases.	Solid Liquid Surface Tension Viscosity Gas	BrainPop Outlines Practice handouts Launch Lab Lab Activity Kahoot/Blooket Demos Interactivities Savaas student textbook	Bell Ringers/ Closure slips Vocabulary sheets Practice sheets Brain Pop video Lesson Check Lesson 2-1 Quiz
3.2.6-8O	Describe the role thermal energy plays in particle motion. Describe the role thermal energy plays in changes of state. Explain how pressure affects a change of state from a liquid to a gas. Describe what happens to particles of matter during changes of state between solids, liquids, and gases.	Thermal energy Temperature Melting point Freezing point Vaporization Boiling point Evaporation Condensation Sublimation	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Interactivities Savvas student textbook	Bell Ringers/ Closure slips Vocabulary sheets Practice sheets Brain Pop video Lesson Check Lesson 2-2 Quiz
3.2.6-8.C	Summarize how Charles's Law relates temperature and volume of gases. Summarize how Boyle's Law relates pressure and volume in gases. Illustrate the directly proportional relationship between volume and temperature. Illustrate the inversely proportional relationship between volume and pressure.	Pressure Charles's Law Boyle's Law	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Interactivities Savvas student textbook	Bell Ringers/ Closure slips Vocabulary sheets Practice sheets Brain Pop video Lesson Check Lesson 2-3 Quiz/ Topic 2 Test

Big Idea/Unit: Energy
Pacing: 25 days

Standards	Objective/Skill	Vocabulary	Additional Resources	Assessment/Project
3.2.6-8.B 3.2.6-8.N	Use evidence to define energy, motion, force, and work. Use evidence to relate energy to motion and force. Use evidence to determine the relationships among energy, motion, force, and work. Apply reasoning to calculate the amount of work done. Apply reasoning to calculate the amount of power used.	Energy Motion Force Work Power	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Interactivities Savvas student textbook	Bell Ringers/ Closure slips Vocabulary sheets Practice sheets Brain Pop video Lesson Check Lesson 3-1 Quiz

3.2.6-8.B 3.2.6-8M 3.2 6-8R	Identify factors related to kinetic energy. Identify factors that affect potential energy. Explain the relationship between potential and kinetic energy. Identify the linear relationships of gravitational potential energy. Identify the nonlinear relationship with kinetic energy.	Kinetic Energy Potential Energy Gravitational Potential E Elastic Potential Energy	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Interactivities Savvas student textbook	Bell Ringers/ Closure slips Vocabulary sheets Practice sheets Brain Pop video Lesson Check Lesson 3-2 Quiz
3.2.6-8.B 3.2.6-8.N	Use scientific reasoning to classify, quantify, and measure different forms of energy. Use models to represent relationships among different forms of energy.	Mechanical Energy Nuclear Energy Thermal Energy Chemical Energy Electrical Energy Electromagnetic Radiati	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Interactivities Savvas student textbook	Bell Ringers/ Closure slips Vocabulary sheets Practice sheets Brain Pop video Lesson 3-3 Quiz
3.2.6-8.B 3.2.6-8.N	Cite textual evidence to explain how energy changes from one form to another. Use models to demonstrate how energy transfers between objects. Use proportional relationships to explain how energy is conserved in a system.	Law of Conservation of I	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Interactivities Savvas student textbook	Lesson Quiz Bell Ringers Vocabulary sheets Practice sheets Brain Pop video Lesson Check Lesson 3-4 Quiz/Topic 3 Test/Rube Goldberg Project

Big Idea/Unit: Thermal Energy

Pacing: 14 Days

Standards	Objective/Skill	Vocabulary	Additional Resources	Assessment/Project
3.2.6-8 3.2.6-8M 3.2.6-8N 3.2.6-8O 3.2.6-8P	Use text evidence to describe and explain: How the total thermal energy of a system depends on the types, states, and amounts of matter present. The relationship among thermal energy, temperature, and heat. How adding and removing heat energy affects the kinetic and thermal energy of matter. Construct graphs to identify: the proportional relationship between Celsius and Fahrenheit scales.	Thermal Energy Heat Temperature	BrainPop Outlines Practice handouts Launch Lab Lab Activity Kahoot/Blooket Demos Savvas student textbook	Bell Ringers/ Closure slips Vocabulary sheets Practice sheets Brain Pop video Lesson Check Lesson 4-1 Quiz

3.2.6-8A 3.2.6-8B 3.2.6-8F 3.2.6-8.M	Investigate and Identify evidence to describe: How heat is transferred between substances. Identify evidence to explain: How heat flows from warmer to cooler objects. The law of Conservation of Energy	Conduction Convection Convection Current Radiation	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Savvas student textbook	Bell Ringers/ Closure slips Vocabulary sheets Practice sheets Brain Pop video Lesson Check Lesson 4-2 Quiz
3.2.6-8A 3.2.6-8B 3.2.6-8F 3.2.6-8.M 3.2.6-8.N	Explain how different materials respond to heat. Explain how changes in kinetic energy affect heat transfer. Use reasoning and evidence to evaluate differences in temperature and changes in temperature over time. Use reasoning and evidence to evaluate how energy is transferred between materials and surroundings.	Conductor Insulator Specific Heat Thermal Expansion	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Savvas student textbook	Bell Ringers/ Closure slips Vocabulary sheets Practice sheets Note sheets Powerpoint presentations Brain Pop video Lesson Check Topic 4 Review Lesson 4-3 Quiz/Topic 4 Test

Big Idea/Unit: Electricity and Magnetism

Pacing: 31 Days

Standards	Objective/Skill	Vocabulary	Additional Resources	Assessment/Project
3.2.6-8I 3.2.6-8K	Identify and describe two objects can exert electric forces on each other even though they are not in contact electric force acting at a distance can be explained by fields that extend through space. Use models to describe how potential energy is stored in a system. identify and describe how the potential energy of a system changes as the relative position of two objects changes. Identify cause and effect relationships to explain how static electricity is different from current.	Electron Electric force Electric field Electric Current Conductor Static electricity Charge Neutral	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Lab Activity Savaas student textbook	Vocabulary Sheets Practice Sheets Bell Ringers Lab Activity Lesson Check 6-1 Quiz

3.2.6-8I 3.2.6-8K	Model Changes the magnetic force between the objects. Changes the potential energy between objects. Evaluate an experimental design to Detect and describe a magnetic field.	Magnet Magnetism Magnetic force Magnetic pole Magnetic field Interaction	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Lab Actrivity	Vocabulary Sheets Practice Sheets Bell Ringers Lab Activity Lesson Check Lesson 6-2 quiz
3.2.6-8I 3.2.6-8K	Identify and explain how electricity relates to magnetism. Identify and explain the properties of solenoids and electromagnets. Describe the magnetic field produced by a current. Determine how an increase in the number of coils or current affects magnetic field strength.	Electromagnetism Solenoid Electromagnet Procedure	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Savvas student textbook	Vocabulary Sheets Practice Sheets Bell Ringers Lab Activity Lesson Check Lesson 6-3 Quiz/Topic 6 Test

Big Idea/Unit: Information Technologies

Pacing: 9 Days

Standards	Objective/Skill	Vocabulary	Additional Resources	Assessment/Project
3.2.6-8I 3.2.6-8K	Identify the components of a circuit. Describe and calculate how changes in resistance change current in a circuit. Describe and calculate how changes in voltage change current in a circuit. Compare and contrast series and parallel circuits.	Electrical circuit Voltage Resistance Ohm's law Series circuit Parallel circuit Diameter	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Savvas student textbook	Vocabulary Sheets Practice Sheets Bell Ringers Lab Activity Lesson Check/Lesson 7-1 Quiz

Big Idea/Unit: Atomic Theory

Pacing: 17 Days

Standards	Objective/Skill	Vocabulary	Additional Resources	Assessment/Project

3.2.6-8.A 3.2.6-8.C	Identify and describe the properties of electrons, protons, and neutrons. Describe the development of atomic theory including the historical atomic models of Dalton, Thomson, Rutherford, and Bohr, how data from experiments caused the theory to change and the basics of modern atomic theory. Cite evidence that supports the modern model of the atom including Rutherford's Gold-Foil experiment and Chadwick's discovery of the neutron.	Electron Nucleus Proton Neutron Atomic Number Isotope Mass Number	BrainPop Outlines Practice handouts Launch Lab Lab Activity Kahoot/Blooket Demos Savvas student textbook	Vocabulary Sheets Practice Sheets Bell Ringers Lab Activity Lesson Check Lesson 8-1 Quiz
3.2.6-8.A 3.2.6-8.C	Identify and describe the organization used to create the periodic table. Describe the development of the periodic table. Interpret and use the periodic table for locating important information pertaining to the elements. Describe the elements.	Atomic Mass Periodic Table Chemical Symbol Period Group	BrainPop Outlines Practice handouts Lab Activity Kahoot/Blooket Demos Savvas student textbook	Vocabulary Sheets Practice Sheets Bell Ringers Lab Activities Lesson Check Lesson 8-2 Quiz