

## Physical Science GSE Learning Map

**Prioritized Standard: SPS1.a Obtain, evaluate, and communicate information from the Periodic Table to explain the relative properties of elements based on patterns of atomic structure. Develop and use models to compare and contrast the structure of atoms, ions and isotopes. (Clarification statement: Properties include atomic number, atomic mass and the location and charge of subatomic particles.) *Physical Science***

Proficiency Scale	
4.0	<p><b>In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. For example, the student will:</b></p> <p><b><u>Learning Target 1:</u></b> Analyze and evaluate both historical and current scientific models of the atom (Dalton, Thomas, Rutherford, Bohr, Schrodinger, and Chadwick) and how each new model used prior knowledge of the previous models. Note: focus on the explanatory power of models</p> <p><b><u>Learning Target 2:</u></b> Ask questions and investigate the sub-orbitals of atoms (such as spdf by adding POSITION of p+, n0, e-) (this would be a preview to the chemistry standard SC1a)</p>
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	<p><b>The student will</b></p> <p><b><u>Learning Target 1:</u></b> Develop and use models to compare and contrast the structure of atoms, ions, and isotopes. (Clarification statement: Properties include atomic number, atomic mass, and the location and charge of subatomic particles)</p> <p><b>The student exhibits no major errors or omissions.</b></p>
2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0
2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes.</b></p> <p><b>The student will recognize or recall specific vocabulary:</b></p> <p><b><u>Learning Target 1:</u></b> atomic mass, atomic number, subatomic particle, ion, isotope, valence shell, Bohr model</p> <p><b>The student will perform basic processes:</b></p> <p><b><u>Learning Target 2:</u></b> Describe the structure of an atom, ion, and isotope as it relates to the subatomic particles</p> <p><b><u>Learning Target 3:</u></b> Identify the charges and locations of subatomic particles</p> <p><b><u>Learning Target 4:</u></b> Use the Periodic Table as a model to predict properties, valence electrons, ion formation, location and properties of metals, metalloids, and non-metals</p> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>
1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
1.0	With help, partial success at score 2.0 and score 3.0
0.5	With help, partial success at score 2.0 content but not at score 3.0 content
0.0	Even with help, no success

## Physical Science GSE Learning Map

**Prioritized Standard: SPS2.a Obtain, evaluate, and communicate information to explain how atoms bond to form stable compounds. Analyze and interpret data to predict properties of ionic and covalent compounds. (Clarification statement: Properties are limited to types of bonds formed, elemental composition, melting point, boiling point, and conductivity.) *Physical Science***

Proficiency Scale	
4.0	<p><b>In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. For example, the student will:</b></p> <p><b><u>Learning Target 1:</u></b> Design and carry out an investigation to determine if bonds are ionic or covalent using the known physical and chemical properties of common household substances (Clarification statement: Include justification of claims based on investigational evidence)</p>
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	<p><b>The student will</b></p> <p><b><u>Learning Target 1:</u></b> Analyze and interpret data to predict properties of ionic and covalent compounds. (Clarification statement: Properties are limited to types of bonds formed, elemental composition, melting point, boiling point, and conductivity)</p> <p><b>The student exhibits no major errors or omissions.</b></p>
2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0
2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes.</b></p> <p><b>The student will recognize or recall specific vocabulary:</b></p> <p><b><u>Learning Target 1:</u></b> ionic bond, covalent bond, compound, ion, octet rule, valence electrons</p> <p><b>The student will perform basic processes:</b></p> <p><b><u>Learning Target 2:</u></b> Determine the oxidation number of an element based on its location on the Periodic Table (for representative elements only)</p> <p><b><u>Learning Target 3:</u></b> Compare and contrast ionic and covalent bonding based on electron movement</p> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>
1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
1.0	With help, partial success at score 2.0 and score 3.0
0.5	With help, partial success at score 2.0 content but not at score 3.0 content
0.0	Even with help, no success

## Physical Science GSE Learning Map

**Prioritized Standard: SPS3.a Obtain, evaluate, and communicate information to support the Law of Conservation of Matter. Plan and carry out investigations to generate evidence supporting the claim that mass is conserved during a chemical reaction. (Clarification statement: Limited to synthesis, decomposition, simple replacement, and double replacement reactions.) *Physical Science***

Proficiency Scale	
4.0	<p><b>In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. For example, the student will:</b></p> <p><b><u>Learning Target 1:</u></b> Construct an explanation about the Law of Conservation using popular media that could be used to help the general public understand real-world examples of the Law. Include information about what a scientific law is and how it is different from a theory</p>
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	<p><b>The student will</b></p> <p><b><u>Learning Target 1:</u></b> Plan and carry out investigations to generate evidence supporting the claim that mass is conserved during a chemical reaction</p> <p><b>The student exhibits no major errors or omissions.</b></p>
2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0
2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes.</b></p> <p><b>The student will recognize or recall specific vocabulary:</b></p> <p><b><u>Learning Target 1:</u></b> chemical equation, synthesis, decomposition, single replacement, double replacement, subscripts, chemical formula, coefficient, Law of Conservation of Matter</p> <p><b>The student will perform basic processes:</b></p> <p><b><u>Learning Target 2:</u></b> Use a model of a chemical equation to determine if the number of atoms in the reactants is equal to the number of atoms in the product</p> <p><b><u>Learning Target 3:</u></b> Differentiate between chemical reactions: synthesis, decomposition, single replacement, and double replacement</p> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>
1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
1.0	With help, partial success at score 2.0 and score 3.0
0.5	With help, partial success at score 2.0 content but not at score 3.0 content
0.0	Even with help, no success

## Physical Science GSE Learning Map

**Prioritized Standard: SPS4.b Obtain, evaluate, and communicate information to explain the changes in nuclear structure as a result of fission, fusion and radioactive decay. Use mathematics and computational thinking to explain the process of half-life as it relates to radioactive decay. (Clarification statement: Limited to calculations that include whole half-lives.) *Physical Science***

Proficiency Scale	
4.0	<p><b>In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. For example, the student will:</b></p> <p><b><u>Learning Target 1:</u></b> Create an explanation of nuclear decay using biological and geological discoveries of the 21st century to enhance their understanding archeological contributions.</p> <p><b><u>Learning Target 2:</u></b> Construct an argument based on evidence to support a position on whether or not Georgia Power should expand one of Georgia's two nuclear plants</p>
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	<p><b>The student will</b></p> <p><b><u>Learning Target 1:</u></b> Use mathematics and computational thinking to explain the process of half-life as it relates to radioactive decay (Clarification statement: Limited to calculations that include whole half-lives)</p> <p><b>The student exhibits no major errors or omissions.</b></p>
2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0
2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes.</b></p> <p><b>The student will recognize or recall specific vocabulary:</b></p> <p><b><u>Learning Target 1:</u></b> radioactivity, half-life, daughter isotope, parent isotope, radioactive dating, alpha and beta decay, gamma radiation</p> <p><b>The student will perform basic processes:</b></p> <p><b><u>Learning Target 2:</u></b> Differentiate between alpha and beta particles and gamma radiation</p> <p><b><u>Learning Target 3:</u></b> Explain the difference between nuclear fission and nuclear fusion</p> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>
1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
1.0	With help, partial success at score 2.0 and score 3.0
0.5	With help, partial success at score 2.0 content but not at score 3.0 content
0.0	Even with help, no success

## Physical Science GSE Learning Map

**Prioritized Standard: SPS5.a Obtain, evaluate, and communicate information to compare and contrast the phases of matter as they relate to atomic and molecular motion. Ask questions to compare and contrast models depicting the particle arrangement and motion in solids, liquids, gases, and plasmas. *Physical Science***

Proficiency Scale	
4.0	<p><b>In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. For example, the student will:</b></p> <p><b><u>Learning Target 1:</u></b> Ask questions to investigate the ideal gas law in real-world situations. Include calculations using the ideal gas law formula <math>PV = nRT</math></p>
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	<p><b>The student will</b></p> <p><b><u>Learning Target 1:</u></b> Ask questions to compare and contrast models depicting the particle arrangement and motion in solids, liquids, gases, and plasmas</p> <p><b>The student exhibits no major errors or omissions.</b></p>
2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0
2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes.</b></p> <p><b>The student will recognize or recall specific vocabulary:</b></p> <p><b><u>Learning Target 1:</u></b> plasma, freezing, melting, boiling, evaporation, condensation, sublimation, deposition</p> <p><b>The student will perform basic processes:</b></p> <p><b><u>Learning Target 2:</u></b> Compare and contrast the molecular motion of solids, liquids, gases, and plasmas</p> <p><b><u>Learning Target 3:</u></b> The student will recognize energy changes through the use of a phase change diagram</p> <p><b><u>Learning Target 4:</u></b> Describe the relationship of temperature, pressure and volume, and density to the behavior of gases. (SPS5.b)</p> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>
1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
1.0	With help, partial success at score 2.0 and score 3.0
0.5	With help, partial success at score 2.0 content but not at score 3.0 content
0.0	Even with help, no success

## Physical Science GSE Learning Map

**Prioritized Standard: SPS6.b Obtain, evaluate, and communicate information to explain the properties of solutions. Plan and carry out investigations to determine how temperature, surface area, and agitation affect the rate a solute dissolves in a specific solvent. *Physical Science***

Proficiency Scale	
4.0	<p><b>In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. For example, the student will:</b></p> <p><b><u>Learning Target 1:</u></b> Utilize the properties and characteristics of solutes and solvents to analyze the need for, and/or justify the use of, an application that solves a specific problem or accomplishes a certain task (Clarification statement: Justification should be based on empirical evidence)</p>
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	<p><b>The student will</b></p> <p><b><u>Learning Target 1:</u></b> Plan and carry out investigations to determine how temperature, surface area, and agitation affect the rate a solute dissolves in a specific solvent</p> <p><b>The student exhibits no major errors or omissions.</b></p>
2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0
2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes.</b></p> <p><b>The student will recognize or recall specific vocabulary:</b></p> <p><b><u>Learning Target 1:</u></b> solution, solvent, solute, concentration, solubility, saturated, unsaturated, super-saturated</p> <p><b>The student will perform basic processes:</b></p> <p><b><u>Learning Target 2:</u></b> Explain the effects of temperature, surface area, and agitation on the rate of dissolving a solid in a liquid solvent</p> <p><b><u>Learning Target 3:</u></b> Explain the properties (solute/solvent, conductivity, and concentration) of solutions (SPS6.a)</p> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>
1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
1.0	With help, partial success at score 2.0 and score 3.0
0.5	With help, partial success at score 2.0 content but not at score 3.0 content
0.0	Even with help, no success

## Physical Science GSE Learning Map

**Prioritized Standard: SPS7.a Obtain, evaluate, and communicate information to explain transformations and flow of energy within a system. Construct explanations for energy transformations within a system. (Clarification statement: Types of energy to be addressed include chemical, mechanical, electromagnetic, light, sound, thermal, electrical, and nuclear.) *Physical Science***

	Proficiency Scale
4.0	<p><b>In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. For example, the student will:</b></p> <p><b><u>Learning Target 1:</u></b> Explain the inverse relationship of potential and kinetic energy  <b><u>Learning Target 2:</u></b> Design a model that explains the energy transformations within a system of their choice  <b><u>Learning Target 3:</u></b> Perform calculations using <math>KE = MV^2</math> (Mass and Velocity) and <math>PE = MGH</math> (Mass, Gravity, and Height)</p>
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	<p><b>The student will</b></p> <p><b><u>Learning Target 1:</u></b> Construct an explanation for energy transformations within a system. (Clarification statement: Types of energy to be addressed include chemical, mechanical, electromagnetic, light, sound, thermal, electrical, and nuclear)</p> <p><b>The student exhibits no major errors or omissions.</b></p>
2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0
2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes.</b></p> <p><b>The student will recognize or recall specific vocabulary:</b></p> <p><b><u>Learning Target 1:</u></b> mechanical energy, kinetic energy, potential energy, elastic potential energy, gravitational potential energy, chemical energy, nuclear energy, thermal energy, electromagnetic energy, electrical energy, sound energy, Law of Conservation of Energy</p> <p><b>The student will perform basic processes:</b></p> <p><b><u>Learning Target 2:</u></b> The student will identify energy transformations in nature  <b><u>Learning Target 3:</u></b> The student will recognize and explain how energy is conserved</p> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>
1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
1.0	With help, partial success at score 2.0 and score 3.0
0.5	With help, partial success at score 2.0 content but not at score 3.0 content
0.0	Even with help, no success

## Physical Science GSE Learning Map

**Prioritized Standard: SPS8.a Obtain, evaluate, and communicate information to explain the relationships among force, mass, and motion. Plan and carry out an investigation and analyze the motion of an object using mathematical and graphical models. (Clarification statement: Mathematical and graphical models could include distance, displacement, speed, velocity, time, and acceleration.) *Physical Science***

Proficiency Scale	
4.0	<p><b>In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. For example, the student will:</b></p> <p><b><u>Learning Target 1:</u></b> Design and construct a vehicle (mouse trap car) or other device and develop an argument based on evidence to justify how forces affect its motion for one or more of the following scenarios: an incline plane, a horizontal surface, hanging from a rope or spring, or in free fall.</p>
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	<p><b>The student will</b></p> <p><b><u>Learning Target 1:</u></b> Plan and carry out an investigation and analyze the motion of an object using mathematical and graphical models (Clarification statement: Mathematical and graphical models could include distance, displacement, speed, velocity, time, and acceleration)</p> <p><b>The student exhibits no major errors or omissions.</b></p>
2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0
2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes.</b></p> <p><b>The student will recognize or recall specific vocabulary:</b></p> <p><b><u>Learning Target 1:</u></b> velocity, acceleration, gravity, constant speed, instantaneous speed</p> <p><b>The student will perform basic processes:</b></p> <p><b><u>Learning Target 2:</u></b> Recognize the differences between distance/time graphs and velocity-time graph  <b><u>Learning Target 3:</u></b> Recognize that weight is mass of an object times gravity  <b><u>Learning Target 4:</u></b> The student will explain the difference between velocity and speed  <b><u>Learning Target 5:</u></b> Analyze and interpret data to identify the relationship between mass and gravitational force for falling objects (SPS8c)</p> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>
1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
1.0	With help, partial success at score 2.0 and score 3.0
0.5	With help, partial success at score 2.0 content but not at score 3.0 content
0.0	Even with help, no success



## Physical Science GSE Learning Map

**Prioritized Standard: SPS8.b Obtain, evaluate, and communicate information to explain the relationships among force, mass, and motion. Construct an explanation based on experimental evidence to support the claims presented in Newton's three laws of motion. (Clarification statement: Evidence could demonstrate relationships among force, mass, velocity, and acceleration.) *Physical Science***

Proficiency Scale	
4.0	<p><b>In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. For example, the student will:</b></p> <p><b><u>Learning Target 1:</u></b> Analyze empirical data from real-world applications of Newton's three laws of motion and use the evidence to justify the claims of each law</p>
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	<p><b>The student will</b></p> <p><b><u>Learning Target 1:</u></b> Construct an explanation based on experimental evidence to support the claims presented in Newton's three laws of motion (Clarification statement: Evidence could demonstrate relationships among force, mass, velocity, and acceleration)</p> <p><b>The student exhibits no major errors or omissions.</b></p>
2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0
2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes.</b></p> <p><b>The student will recognize or recall specific vocabulary:</b></p> <p><b><u>Learning Target 1:</u></b> force, mass, acceleration, inertia, momentum, balanced force, unbalanced force</p> <p><b>The student will perform basic processes:</b></p> <p><b><u>Learning Target 2:</u></b> Demonstrate that acceleration is directly related to the force applied to an object and the mass of that object by using the formula <math>F = MA</math></p> <p><b><u>Learning Target 3:</u></b> Compare and contrast mass and weight (specifically including how gravity affects weight)</p> <p><b><u>Learning Target 4:</u></b> Describe action/reaction force as it relates to Newton's 3rd law</p> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>
1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
1.0	With help, partial success at score 2.0 and score 3.0
0.5	With help, partial success at score 2.0 content but not at score 3.0 content
0.0	Even with help, no success

## Physical Science GSE Learning Map

**Prioritized Standard: SPS9.a Obtain, evaluate, and communicate information to explain the properties of waves. Analyze and interpret data to identify the relationships among wavelength, frequency, and energy in electromagnetic waves and amplitude and energy in mechanical waves. *Physical Science***

Proficiency Scale	
4.0	<p><b>In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. For example, the student will:</b></p> <p><b><u>Learning Target 1:</u></b> Communicate the relationship between wavelength, frequency, and energy using their knowledge of electromagnetic and mechanical waves in a multimedia format</p>
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	<p><b>The student will</b></p> <p><b><u>Learning Target 1:</u></b> Analyze and interpret data to identify relationships among wavelength, frequency, and energy in electromagnetic waves and amplitude and energy in mechanical waves</p> <p><b>The student exhibits no major errors or omissions.</b></p>
2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0
2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes.</b></p> <p><b>The student will recognize or recall specific vocabulary:</b></p> <p><b><u>Learning Target 1:</u></b> electromagnetic wave, mechanical wave, amplitude, period</p> <p><b>The student will perform basic processes:</b></p> <p><b><u>Learning Target 2:</u></b> Compare and demonstrate the difference between a electromagnetic and mechanical wave  <b><u>Learning Target 3:</u></b> Identify the relationship between the energy and amplitude of a wave  <b><u>Learning Target 4:</u></b> Identify the relationship between the energy and frequency of a wave</p> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>
1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
1.0	With help, partial success at score 2.0 and score 3.0
0.5	With help, partial success at score 2.0 content but not at score 3.0 content
0.0	Even with help, no success

## Physical Science GSE Learning Map

**Prioritized Standard: SPS9.c Obtain, evaluate, and communicate information to explain the properties of waves. Develop models based on experimental evidence that illustrate the phenomena of reflection, refraction, interference, and diffraction. *Physical Science***

Proficiency Scale	
4.0	<p><b>In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. For example, the student will:</b></p> <p><b><u>Learning Target 1:</u></b> Apply their knowledge of the properties and characteristics of electromagnetic and mechanical waves to identify and design a solution to a real-world industry problem, based on scientific knowledge, student-generated sources of evidence, and prioritized criteria</p>
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	<p><b>The student will</b></p> <p><b><u>Learning Target 1:</u></b> Develop models based on experimental evidence that illustrate the phenomena of reflection, refraction, interference, and diffraction</p> <p><b>The student exhibits no major errors or omissions.</b></p>
2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0
2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes.</b></p> <p><b>The student will recognize or recall specific vocabulary:</b></p> <p><b><u>Learning Target 1:</u></b> reflection, refraction, interference, diffraction, principle of superposition</p> <p><b>The student will perform basic processes:</b></p> <p><b><u>Learning Target 2:</u></b> Identify the effects of constructive interference and destructive interference</p> <p><b><u>Learning Target 3:</u></b> Compare diffraction, reflection, and refraction</p> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>
1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
1.0	With help, partial success at score 2.0 and score 3.0
0.5	With help, partial success at score 2.0 content but not at score 3.0 content
0.0	Even with help, no success

## Physical Science GSE Learning Map

**Prioritized Standard: SPS10.b Obtain, evaluate, and communicate information to explain the properties of and relationships between electricity and magnetism. Develop and use models to illustrate and explain the conventional flow (direct and alternating) of current and the flow of electrons in simple series and parallel circuits. (Clarification statement: Include advantages and disadvantages of series and parallel circuits.) *Physical Science***

Proficiency Scale	
4.0	<p><b>In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. For example, the student will:</b></p> <p><b><u>Learning Target 1:</u></b> Construct an explanation of electron flow vs. conventional current flow in circuits (Clarification statement: Include models of both a series and a parallel circuit to justify reasoning)</p>
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	<p><b>The student will</b></p> <p><b><u>Learning Target 1:</u></b> Develop and use models to illustrate and explain the conventional flow (direct and alternating) of current and the flow of electrons in simple series and parallel circuits (Clarification statement: Advantages and disadvantages of series and parallel circuits should be addressed)</p> <p><b>The student exhibits no major errors or omissions.</b></p>
2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0
2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes.</b></p> <p><b>The student will recognize or recall specific vocabulary:</b></p> <p><b><u>Learning Target 1:</u></b> series circuit, parallel circuit, alternating current, direct current, conductor, resistor, load, energy source</p> <p><b>The student will perform basic processes:</b></p> <p><b><u>Learning Target 2:</u></b> Determine the type of circuit (series or parallel) in a schematic model</p> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>
1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
1.0	With help, partial success at score 2.0 and score 3.0
0.5	With help, partial success at score 2.0 content but not at score 3.0 content
0.0	Even with help, no success

## Physical Science GSE Learning Map

**Prioritized Standard: SPS10.c Obtain, evaluate, and communicate information to explain the properties of and relationships between electricity and magnetism. Plan and carry out investigations to determine the relationship between magnetism and the movement of electrical charge. (Clarification statement: Investigations could include electromagnets, simple motors, and generators.) *Physical Science***

Proficiency Scale	
4.0	<p><b>In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. For example, the student will:</b></p> <p><b><u>Learning Target 1:</u></b> Create a presentation or report as examples of multiple real-world connections of how the concept of magnetism and the movement of electrical charge has benefited human lives; Explain or demonstrate the science and engineering in each example; and Build a visual example to demonstrate during the presentation</p>
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	<p><b>The student will</b></p> <p><b><u>Learning Target 1:</u></b> Plan and carry out investigations to determine the relationship between magnetism and the movement of electrical charge (Clarification statement: Investigations could include electromagnets, simple motors, and generators.)</p> <p><b>The student exhibits no major errors or omissions.</b></p>
2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0
2.0	<p><b>There are no major errors or omissions regarding the simpler details and processes.</b></p> <p><b>The student will recognize or recall specific vocabulary:</b></p> <p><b><u>Learning Target 1:</u></b> magnetism, electromagnets, induced charges, charging by friction, charging by conduction, simple motors, generators</p> <p><b>The student will perform basic processes:</b></p> <p><b><u>Learning Target 2:</u></b> The student will explain the movement of electrical charges  <b><u>Learning Target 3:</u></b> The student will investigate how magnets work</p> <p><b>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</b></p>
1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
1.0	With help, partial success at score 2.0 and score 3.0
0.5	With help, partial success at score 2.0 content but not at score 3.0 content
0.0	Even with help, no success