**Student Personal Learning Goals – SCIENCE Edition**

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| **Charting My Progress Grade 8 page 1 of 3** | | | |
| **Emerging (1)** | **Developing (2)** | **Proficient (3)** | **Distinguished (4)** |
| I identify solids, liquids, and gases.  I recognize that elements on the Periodic Table of Elements have different properties from one another.  I recognize that an object is the sum of its parts.  I identify that there are different forms of energy.  I identify that a wave has different parts.  I understand that an object’s temperature can change.  I determine necessary components to complete an electric circuit.  I identify when objects are speeding up or slowing down.  I identify the effects of gravity on objects on Earth.  I recognize that there are different types of simple machines.  I recognize that magnets exert force on each other and on other objects.  I use the metric system in scientific investigations.  I recognize safety precautions used during scientific investigations;  I recognize that parts in a system are related to one another.  I use data to create a simple.  graph, chart, table, or diagram;  I recognize that scientific information can be organized into tables, charts, graphs, and diagrams.  I identify safety issues in a laboratory investigation.  . | I identify an atom and a molecule.  I identify particle arrangements for each phase of matter.  I explain what a physical property is.  I explain what a chemical property is.  I recognize that elements within the same group or family on the Periodic Table of Elements have similar properties.  I identify the Law of Conservation of Matter.  I identify the characteristics of different forms of energy (heat, light, electricity, mechanical motion, sound).  I explain that colors are seen as a reflection of light.  I identify the properties of sound.  I diagram the parts of a wave.  I identify the structural differences of series and parallel circuits.  I recognize that simple machines are part of complex machines.  I identify the three types of heat energy transfer (radiation, conduction, convection).  I identify the four types of wave behavior in relation to light (reflection, refraction, diffraction, absorption).  I describe velocity as consisting of speed and direction.  I describe the ways objects can accelerate.  I identify force as being balanced or unbalanced.  •  identify the six types of simple machines (lever, inclined plane, pulley, wedge, screw, wheel and axle).  I describe what an electric field is.  I convert metric measurements to other metric units.  I identify the appropriate tools for specific laboratory investigations.  I identify the scientific information presented by graphs and diagrams. | I distinguish between atoms and molecules.  I identify the characteristics of a pure substance and of a mixture.  I describe the movement of particles in solids, liquids, gases, and plasmas states.  I distinguish between physical and chemical properties of matter as physical (density, melting point, boiling point) or chemical (reactivity, combustibility).  I explain the relationship between heat energy and phase changes.  I distinguish between changes in matter as physical (shape, phase, texture, size) or chemical (development of a gas, formation of precipitate, change in color).  I use the Periodic Table of Elements to predict the properties of elements.  I demonstrate the Law of Conservation of Matter.  I identify the characteristics of electromagnetic and mechanical waves.  I identify the law of conservation of energy.  I identify energy transformations within a real-world setting.  I identify the characteristics of potential and kinetic energy.  I compare and contrast the different forms of energy (heat, light, electricity, mechanical motion, sound).  I explain that colors are distinguished by difference in wavelength/frequencies.  I explain why wavelengths outside the visible spectrum are not detected by the human eye.  I describe how the behavior of waves is affected by medium (gas, liquid, solid).  I relate the properties of sound to everyday experiences.  I explain how the parts of a wave are affected by changes in amplitude and pitch.  I demonstrate the advantages and disadvantages of series and parallel circuits.  I predict and interpret how energy will flow in series and parallel circuits.  I describe the three types of heat energy transfer (radiation, conduction, convection).  I explain the four types of wave behavior in relation to light (reflection, refraction, diffraction, absorption).  I recognize that every object exerts gravitational force on every other object.  I recognize that the forces exerted by objects depend on how much mass the objects have and how far apart they are.  I investigate and explain that electric currents and magnets can exert force on each other.  I determine the relationship between velocity and acceleration in that acceleration is a rate of change in velocity.  I demonstrate the effect of balanced and unbalanced forces on an object in terms of gravity, inertia, and friction.  I explain how simple machines make work easier.  I analyze scientific data using computational and estimation skills.  I determine the appropriate technology to be used in a scientific investigation.  I use models to represent scientific concepts.  I determine the appropriate materials and procedure in a scientific investigation.  I analyze the information used to evaluate a scientific claim. | I describe the difference between pure substances (elements, compounds) and mixtures.  I explain energy transformation in terms of the Law of Conservation of Energy.  I explain the relationship between potential and kinetic energy and categorize given examples of energy as potential or kinetic.  I correlate real-world applications of the three types of heat energy transfer.  I describe how the behavior of light waves is manipulated causing reflection, refraction, diffraction, and absorption.  I demonstrate the effect of simple machines (lever, inclined plane, pulley, wedge, screw, wheel and axle) on work and calculate mechanical advantage.  I use mathematical relationships to demonstrate scientific information.  I present scientific information in the form of graphs, diagrams, and concise text.  I evaluate claims based on scientific information.  I construct alternate explanations for scientific observations.  I construct an operational series and parallel circuit and explain the advantages or disadvantages of each.  I calculate metric conversion using dimensional analysis.  I demonstrate and explain lab safety procedures and protocol.  I design an authentic investigation/experiment using a scientific method. |