Campbell County Schools
Eighth Grade - Science
4th Nine Weeks-at-a-Glance

The following skills should be the focus for this Nine Weeks:

Ongoing	
Embedded Inquiry	**GLE 0807.Inq.1** Design and conduct open-ended scientific investigations. • **SPI 0807.Inq.1** Design a simple experimental procedure with an identified control and appropriate variables. **GLE 0807.Inq.2** Use appropriate tools and techniques to gather, organize, analyze, and interpret data. • **SPI 0807.Inq.2** Select tools and procedures needed to conduct a moderately complex experiment. **GLE 0807.Inq.3** Synthesize information to determine cause and effect relationships between evidence and explanations. • **SPI 0807.Inq.3** Interpret and translate data into a table, graph, or diagram. **GLE 0807.Inq.4** Recognize possible sources of bias and error, alternative explanations, and questions for further exploration. • **SPI 0807.Inq.4** Draw a conclusion that establishes a cause and effect relationship supported by evidence. **GLE 0807.Inq.5** Communicate scientific understanding using descriptions, explanations, and models. • **SPI 0807.Inq.5** Identify a faulty interpretation of data that is due to bias or experimental error.
Embedded Technology and Engineering	**GLE 0807.T/E.1** Explore how technology responds to social, political, and economic needs. • **SPI 0807.T/E.1** Identify the tools and procedures needed to test the design features of a prototype. **GLE 0807.T/E.2** Know that the engineering design process involves an ongoing series of events that incorporate design constraints, model building, testing, evaluating, modifying, and retesting. • **SPI 0807.T/E.2** Evaluate a protocol to determine if the engineering design process was successfully applied. **GLE 0807.T/E.3** Compare the intended benefits with the unintended consequences of a new technology. • **SPI 0807.T/E.3** Distinguish between the intended benefits and the unintended consequences of a new technology. **GLE 0807.T/E.4** Describe and explain adaptive and assistive bioengineered products. • **SPI 0807.T/E.4** Differentiate between adaptive and assistive engineered products (e.g., food, biofuels, medicines, integrated pest management).

Standard 12: Forces In Nature	
Magnetism	**GLE 0807.12.1** Investigate the relationship between magnetism and electricity. • **SPI 0807.12.1** Recognize that electricity can be produced using a magnet and wire coil. **GLE 0807.12.2** Design an investigation to change the strength of an electromagnet. • **SPI 0807.12.2** Describe the basic principles of an electromagnet. **GLE 0807.12.3** Compare and contrast the Earth's magnetic field to that of a magnet and an electromagnet. • **SPI 0807.12.3** Distinguish among the Earth's magnetic field, a magnet, and the fields that surround a magnet and an electromagnet.
Gravity	**GLE 0807.12.4** Identify factors that influence the amount of gravitational force between objects. • **SPI 0807.12.4** Distinguish between mass and weight using appropriate measuring instruments and units. • **SPI 0807.12.5** Determine the relationship among the mass of objects, the distance between these objects, and the amount of gravitational attraction. **GLE 0807.12.5** Recognize that gravity is the force that controls the motion of objects in the solar system. • **SPI 0807.12.6** Illustrate how gravity controls the motion of objects in the solar system.

Embedded Inquiry Checks for Understanding

- ✓ **0807.Inq.1** Design and conduct an open-ended scientific investigation to answer a question that includes a control and appropriate variables.
- ✓ **0807.Inq.2** Identify tools and techniques needed to gather, organize, analyze, and interpret data collected from a moderately complex scientific investigation.
- ✓ **0807.Inq.3** Use evidence from a dataset to determine cause and effect relationships that explain a phenomenon.
- ✓ **0807.Inq.4** Review an experimental design to determine possible sources of bias or error, state alternative explanations, and identify questions for further investigation.
- ✓ 9**0807.Inq.5** Design a method to explain the results of an investigation using descriptions, explanations, or models.

Embedded Technology & Engineering Checks for Understanding

- ✓ **0807.T/E.1** Use appropriate tools to test for strength, hardness, and flexibility of materials.
- ✓ **0807.T/E.2** Apply the engineering design process to construct a prototype that meets certain specifications.
- ✓ **0807.T/E.3** Explore how the unintended consequences of new technologies can impact society.
- ✓ **0807.T/E.4** Research bioengineering technologies that advance health and contribute to improvements in our daily lives.
- ✓ **0807.T/E.5** Develop an adaptive design and test its effectiveness.

Standard 5 – Biodiversity and Change Checks for Understanding

- ✓ **0807.5.1** Select characteristics of plants and animals that serve as the basis for developing
- ✓ **0807.5.2** Create and apply a simple classification key to identify an organism.
- ✓ **0807.5.3** Compare and contrast the ability of an organism to survive under different environmental conditions.
- ✓ **0807.5.4** Collect and analyze data relating to variation within a population of organisms.
- ✓ **0807.5.5** Prepare a poster that illustrates the major factors responsible for reducing the amount of global biodiversity.
- ✓ **0807.5.6** Prepare graphs that demonstrate how the amount of biodiversity has changed in a particular continent or biome.
- ✓ **0807.5.7** Create a timeline that illustrates the relative ages of fossils in sedimentary rock layers.

Standard 9 – Matter Checks for Understanding

- ✓ **0807.9.1** Identify atoms as the fundamental particles that make up matter.
- ✓ **0807.9.2** Illustrate the particle arrangement and type of motion associated with different states of matter.
- ✓ **0807.9.3** Measure or calculate the mass, volume, and temperature of a given substance.
- ✓ **0807.9.4** Calculate the density of various objects.
- ✓ **0807.9.5** Distinguish between elements and compounds by their symbols and formulas.
- ✓ **0807.9.6** Differentiate between physical and chemical changes.
- ✓ **0807.9.7** Describe how the characteristics of a compound are different than the characteristics of their component parts.
- ✓ **0807.9.8** Determine the types of interactions between substances that result in a chemical change.
- ✓ **0807.9.9** Explain how the chemical makeup of the atmosphere illustrates a mixture of gases.
- ✓ **0807.9.10** Identify the atomic number, atomic mass, number of protons, neutrons, and electrons in an atom of an element using the periodic table.
- ✓ **0807.9.11** Use investigations of chemical and physical changes to describe the Law of Conservation of Mass.
- ✓ **0807.9.12** Differentiate between the reactants and products of a chemical equation.
- ✓ **0807.9.13** Determine whether a substance is an acid or a base by its reaction to an indicator.

Standard 12 – Forces in Nature Checks for Understanding

- ✓ **0807.12.1** Create a diagram to explain the relationship between electricity and magnetism**.**
- ✓ **0807.12.2** Produce an electromagnet using a bar magnet and a wire coil.
- ✓ **0807.12.3** Experiment with an electromagnet to determine how to vary its strength.
- ✓ **0807.12.4** Create a chart to distinguish among the earth's magnetic field, and fields that surround a magnet and an electromagnet.
- ✓ **0807.12.5** Explain the difference between mass and weight.
- ✓ **0807.12.6** Identify factors that influence the amount of gravitational force between objects.
- ✓ **0807.12.7** Explain how the motion of objects in the solar system is affected by gravity.