

## Physical Science SCI-3202 Course Level Expectations

You will use this document when writing your unit reflection.

### Inquiry

- CLE 3202.Inq.1 Recognize that science is a progressive endeavor that reevaluates and extends what is already accepted.
- CLE 3202.Inq.2 Design and conduct scientific investigations to explore new phenomena verify previous results, test how well a theory predicts, and compare opposing theories.
- CLE 3202.Inq.3 Use appropriate tools and technology to collect precise and accurate data.
- CLE 3202.Inq.4 Apply qualitative and quantitative measures to analyze data and draw conclusions that are free of bias.
- CLE 3202.Inq.5 Compare experimental evidence and conclusions with those drawn by others about the same testable question.
- CLE 3202.Inq.6 Communicate and defend scientific findings.

### Technology and Engineering

- CLE 3202.T/E.1 Explore the impact of technology on social, political, and economic systems.
- CLE 3202.T/E.2 Differentiate among elements of the **engineering design** cycle: design constraints, model building, testing, evaluating, modifying, and retesting.
- CLE 3202.T/E.3 Explain the relationship between the properties of a material and the use of the material in the application of a technology.
- CLE 3202.T/E.4 Describe the dynamic interplay among science, technology, and engineering within living, earth-space, and physical systems.

### Math

- CLE 3202.Math.1 Understand the **mathematical principles** behind the science of physics.
- CLE 3202.Math.2 Utilize appropriate mathematical **equations and processes** to solve basic physics problems.

### Matter

- CLE 3202.1.1 Explore matter in terms of its **physical and chemical properties**.
- CLE 3202.1.2 Describe the structure and arrangement of **atomic particles**.
- CLE 3202.1.3 Characterize and **classify elements** based on their atomic structure.
- CLE 3202.1.4 Investigate **chemical and physical changes**.
- CLE 3202.1.5 Evaluate pure **substances and mixtures**.
- CLE 3202.1.6 Distinguish between common **ionic and covalent** compounds.
- CLE 3202.1.7 Construct **chemical formulas** for common compounds.
- CLE 3202.1.8 Investigate relationships among the **pressure, temperature, and volume of gases and liquids**.
- CLE 3202.1.9 Apply the Laws of **Conservation of Mass/Energy** to balance chemical equations.
- CLE 3202.1.10 Distinguish among **acids, bases, and neutral** substances.

### Energy

- CLE 3202.2.1 Investigate the properties and behaviors of **mechanical and electromagnetic waves**.
- CLE 3202.2.2 Explore and explain the nature of **sound and light energy**.
- CLE 3202.2.3 Examine the applications and effects of **heat energy**.
- CLE 3202.2.4 Probe the fundamental principles and applications of **electricity**.
- CLE 3202.2.5 Distinguish between **nuclear fission and nuclear fusion**.
- CLE 3202.2.6 Investigate the Law of **Conservation of Energy**.

### Motion

- CLE 3202.3.1 Investigate the relationships among **speed, position, time, velocity, and acceleration**.
- CLE 3202.3.2 Investigate and apply Newton's **three laws of motion**.
- CLE 3202.3.3 Examine the Law of **Conservation of Momentum** in real world situations.

### Forces of Nature

- CLE 3202.4.1 Explore the difference between **mass and weight**.
- CLE 3202.4.2 Relate **gravitational force** to mass.
- CLE 3202.4.3 Demonstrate the relationships among **work, power, and machines**.