**Learner Outcomes**

**Motion & Forces**

**Sub-Unit One: Motion, Acceleration, and Forces**

*Students will be able to:*

* Distinguish between distance and displacement.
* Calculate average speed.
* Explain the difference between speed and velocity.
* Interpret motion graphs.
* Identify how acceleration, time, and velocity are related.
* Describe how to calculate the average acceleration of an object.
* Explain how positive and negative acceleration affect motion.
* Explain how forces and motion are related.
* Compare and contrast static friction and sliding friction.
* Describe the effects of air resistance on falling objects.

**Sub-Unit Two: The Laws of Motion**

*Students will be able to:*

* Define Newton’s first law of motion.
* Explain how inertia and mass are related.
* Define Newton’s second law of motion.
* Apply Newton’s second law of motion.
* Describe the gravitational force.
* Distinguish between mass and weight.
* Explain why objects that are thrown will follow a curved path.
* Compare circular motion with motion in a straight line.
* State Newton’s third law of motion.
* Identify action and reaction forces.
* Calculate momentum.
* Recognize when momentum is conserved.