Curriculum at a Glance
Science
8th Grade

Elementary and middle school science curricula are based upon an inquiry model. Throughout each unit of study, students will continuously build on the following skills:

- Identify testable questions, those that can be answered through scientific investigation.
- Design and conduct appropriate types of scientific investigations to answer different questions.
- Use appropriate tools and techniques to make observations and gather data.
- Use mathematical operations to analyze and interpret data.
- Identify and present relationships between variables in appropriate graphs.
- Draw conclusions and identify sources of error.
- Provide explanations to investigated problems or questions.
- Read, interpret and examine the credibility of scientific claims in different sources of information.
- Communicate about science in different formats, using relevant science vocabulary, supporting evidence and clear logic.

Unit Name/Description	Content and/or Skills
Astronomy	● Effect of gravity on the orbital movements of satellites in the solar system - gravity and inertia create predictable elliptical pathway ● Motion and relative position of sun, Earth, and moon affect seasons, phases of the moon, tides, and eclipses ● Earth solar system: sun, planets, minor planets, asteroids, and comets ● Investigate a meteor impact ● Astronomers and the evolving understanding of the universe
Force & Motion	● Motion of an object - balanced/unbalanced forces, net force, and friction ● Calculate the average speed of a moving object and acceleration ● Illustrate the motion of objects in graphs (speed & acceleration graphs) ● Newton's Three Laws of Motion - relationships among force, mass, and changes in motion

	● Investigate how gravity and friction affect a falling object ● Forces acting on an object moving in a circular path ● Investigate how factors(gravity, friction, inertia, momentum, etc.) affect the movement of an object
Energy Transfer and Transformations	● Relationship among force, distance and work, and use the relationship (W=FxD) to calculate work done in moving objects ● Simple machines - 6 types, everyday objects as simple machines, ways to modified simple machines to create mechanical advantage ● Compound machine ● Use a model of a moving object to describe the conversion of potential energy into kinetic energy and vice versa ● Different forms of energy and how they can be converted from one form to another
Bridges	● Forces and reaction forces acting on truss, beam, arch, cable stayed, and suspension bridges ● Advantages and disadvantages of different bridge design ● Simulate how engineers plan, test, and revise designs of bridges given parameters including cost, time, safety, and aesthetics
Electricity & Magnetism	● Relationship among voltage, current, and resistance in a simple series circuit ● How electricity is used in and outlawed in household appliances ● Relationship between current and magnetism ● How electricity is generated ● Availability, current uses, and environmental issues related to the use of various energy sources