Millburn Elementary
Science Topics Overview
3rd-5th

Grade	Trimester 1	Trimester 2	Trimester 3
3rd Grade	**Invisible Forces** • Identify forces such as pushes and pulls. • Use their knowledge of forces to engineer a strong bridge. • Identify friction and investigate what materials slide. • Determine the properties of magnets. • Explore magnetic attraction and repulsion.	**Stormy Skies** • Discover what clouds are made of and how they form. • Predict the weather by observing clouds and their changes. • Explore the five major climates of the world. • Investigate the effects of natural hazards, (tornadoes, hurricanes, and dust storms.)	**Animals Through Time** • Identify that fossils reveal how habitats have changed over time. • Infer what the outside of an animal looked like, by using clues about their skeleton. • Observe the relationship between stride length and speed. • Recognize patterns and traits between parents and offspring. • Identify animal expressions and how they are useful when living in a pack. • Examine how physical traits can be influenced by the environment. **Power of Flowers** • Describe how flowers and plants are pollinated. • Explain why plants grow fruit. • Differentiate between a science fruit and science vegetable. • Identify how the food we eat is a result of selection. • Explore how human beings have modified plants.
4th Grade	**Birth of Rocks and Waves of Sound** • Explain how fossils can help determine the history of the land where they are found. • Explore patterns and history of volcanoes on the earth. • Compare types of lava to determine rock formation. • Explain effects of weather and erosion. • Design and engineer a plan to prevent and keep people safe from landslides. • Analyze maps and photos from different locations to determine where four types of rock are found. Support claims with evidence. • Formulate from observations and create questions about visible sound waves. • Explain the relationship of sound based on sound waves, vibrations, and pitches. • Design and build a device that uses the vibrations of sound to make visible patterns.	**Energizing Everything** • Explain how energy is transferred in a chain reaction. • Engineering design of roller coaster models to demonstrate where energy comes from and how energy is transferred. • Construct a chain reaction machine to explain transference of energy within the model. • Explore how electrical energy works using a model. • Explore heat energy. Build heat engines to demonstrate how heat energy can create movement. • Analyze the advantages and disadvantages of different energy sources. Create a plan to power a city. • Performance Task - Design a Rube Goldberg machine that utilizes energy transfers and conversions to turn on a flashlight.	**Human Machine** • Create an initial model to explain how the owl's body systems work together to catch prey. • Develop a robotic finger based on how their own fingers work. • Develop a model to simulate the functions of the eye. • Discover the role of the brain on processing information to enable movement in the body. • Create a system model to explain how an animal's body parts work together as a system to receive information, process it, and respond to its environment.
5th Grade	**Spaceship Earth** • Support the argument that star brightness relates to the distance from earth. • Identify daily changes in shadows, length of daylight, and seasonal appearance of stars. • Support the argument that gravity is a force directed to the center of the Earth. • Create a design that solves a particular problem and carry it out with constraints on materials, time, and cost.	**Web of Life** • Describe that the energy obtained in animals' food was once energy from the sun. • Explore the concept that plants get their materials for growth from mainly air and water. • Model the movement of matter among plants, animals, and decomposers in an environment. **Watery Planet** • Describe how the geosphere, hydrosphere, biosphere, and atmosphere interact. • Summarize the percentages of water and fresh water on earth and where it is distributed.	**Chemical Magic** • Develop a model to show that matter is made of particles too small to be observed. • Justify that matter is conserved within a chemical reaction or change. • Identify materials based on both their physical and chemical properties. • Investigate whether mixing two or more substances results in new substances. • Observe ways that individual communities use science to protect Earth's resources and environment.