Investigations in Earth Space Systems (IESS)

In this course students will demonstrate the ability to use scientific skills and processes to explain the physical behavior of the environment, Earth, and the universe. This curriculum is a unique problem/project based curriculum. The learning is student-centered with the teacher acting as a facilitator. Instruction is woven around one main problem within each unit of study. Minds-on inquiry and hands on explorations, productive discourse, purposeful reading and meaningful writing will guide the students through this exciting Science course! There are 5 units in the course, Solar Energy and Fluid Circulation, Astronomy, Restless Earth, Earth Materials and Processes, and Earth History-Global Change.

Solar Energy and Fluid Circulation

Students investigate how energy and matter transfer affect Earth systems. They will also investigate how global conditions are affected when natural and human-induced changes alter the transfer of energy and matter. They will be given a location on Earth on which to build a home – they will need to factor in features addressing wind patterns, precipitation, local geographic conditions, temperature, sunlight and severe weather threats.

Astronomy

Students investigate the role of forces in the formation and operation of the universe and the role and interaction of revolution, rotation, and gravity on the Sun-Earth-Moon system. The NASA Kepler Mission will present students with an RFP to choose the best planet for life among some fictional Solar Systems.

Restless Earth

Students will explain changes in Earth’s surface using plate tectonics. They will accomplish this through investigations in Continental drift and seafloor spreading. The plates move slowly and because the plates are so large, the average person does not have the opportunity to observe and experience the dynamic geologic conditions at each type of boundary. Students will create an interactive brochure highlighting locations of interesting tectonic environments.

Earth Materials and Processes

The students will compare the origin and structure of igneous, metamorphic and sedimentary rocks. They will explain how the transfer of energy drives the rock cycle.

Earth History-Global Change

Students will investigate methods that geologists use to determine the history of Earth. They will apply geologic principles used to date Earth’s geologic and biologic events. The students will compare events in Earth’s history that have been grouped according to similarities. They will design sample front pages of newspapers that describe what various aspects of life on Earth will be like between 2035 and 2060.