

## 3 GRADE

### Physical Science

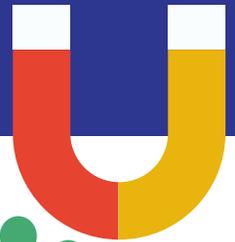
Students will apply their understanding of magnetic interactions by studying **systems** and subsystems. They will determine the effects of balanced and unbalanced forces on the motion of an object and on electric and magnetic interactions.

### Earth Science

Students will explore the concept of **patterns** by analyzing typical weather conditions expected during a particular season and how to reduce the impact of weather related hazards.

### Life Science

Students will explore the concept of **adaptation** by examining how life has evolved in response to the change in environments and its effect on organisms.



### Physical Science

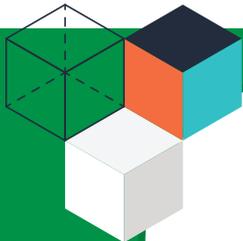
Students will analyze **relationships** in the transfer of energy between objects, between the speed of an object and the energy of that object, and in how patterns of waves (amplitude and wavelength) make things move.

### Earth Science

Students will identify and model **change** in the environment through understanding of the effects of weathering and erosion as natural Earth processes and their impact on humans.

### Life Science

Students will explore the concept of **systems** by proving plants and animals have systems of internal and external structures that function to support survival, growth, behavior, and reproduction.



## 4 GRADE

## 5 GRADE

### Physical Science

Students will prove and develop scientific claims related to the concept of **change** by looking at the conservation of mass after a change in state or a chemical reaction, observing substances too small to be seen by the unaided eye, and witnessing the results of mixing two different substances.

### Earth Science

Students will prove and develop scientific claims related to the concept of **interactions** by developing a model that describes the ways the geosphere, biosphere, hydrosphere, and/or atmosphere work together.

### Life Science

Students prove and develop scientific claims related to the concept of order in the movement of matter among plants, animals, decomposers, and the environment through the study of ecosystems.

### Astronomy

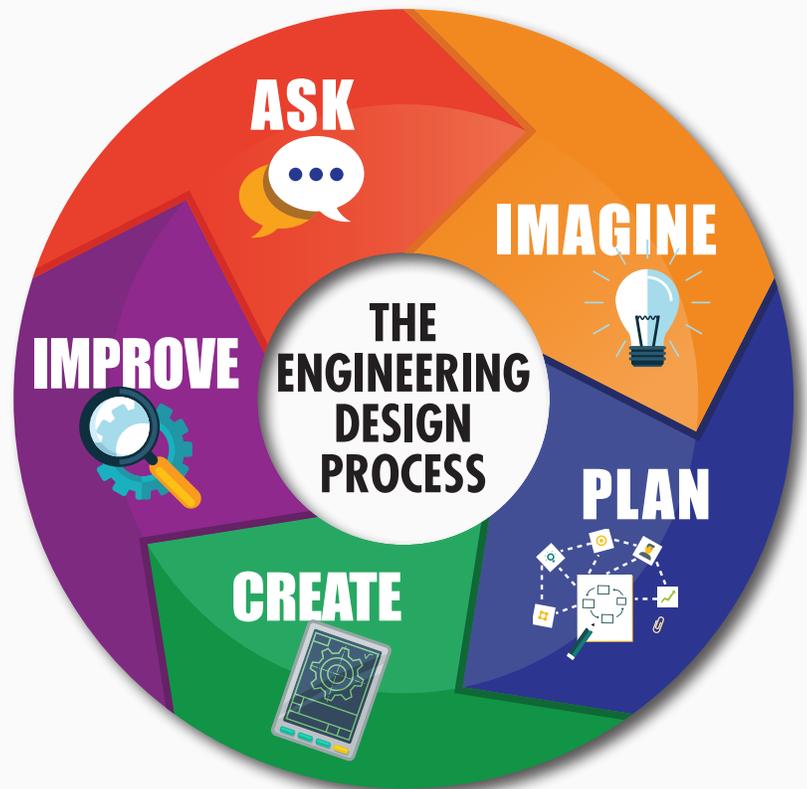
Students will prove scientific claims related to **patterns** by observing daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

Students will engage in solving real-world problems in each content-based unit using the **Engineering Design Process** in both the science lab and the classroom. Problems might be pre-determined, or discovered through inquiry. **Some examples of content related projects are:**

**Third Grade** (Physical Science): Student engineers design, test, and refine a factory subsystem using simple machines.

**Fourth Grade** (Earth Science): Student seismologists design, test, and refine a model of a building that will withstand the impact of an earthquake.

**Fifth Grade** (Life Science): Student environmental engineers create, design, test, and refine a detailed plan to contain and clean up an oil spill. Plans include cost, materials, and timeline.



## Engineering 3-5

Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

