

# Enduring Understandings

## Energy, Machines, and Motion

- Energy is the ability to cause change.
- Energy appears in different forms. It can be transferred or transformed.
- Energy cannot be created or destroyed, only changed.
- Energy is not matter, but is related to matter.
- Force is a push or pull between two objects.
- Motion is a change in position over time.
- Changes in motion are dependent on unbalanced forces.
- Machines make work easier.

## Catastrophic Events

- Convection currents constantly move Earth's matter and connects the Earth's systems.
- This creates the water cycle, weather, ocean currents, and plate tectonics.
- Changes caused by catastrophic events can have positive and negative impacts for humans.
- Earth scientists rely on scale models to understand how materials and systems interact.
- Earth is an interacting set of systems composed of 4 spheres: Geosphere, biosphere, atmosphere, and hydrosphere.
- Sources of energy are radiant energy from the sun and the Earth's radioactive core.
- Heat transfer by convection is all about density changes in Earth materials. This is called "convection current".