System and System Models: Objects and organisms can be described in terms of their parts. Systems in the natural and designed world have parts that work together.

Matter and Its Interactions

Different kinds of **matter** exist and many of them can be either solid or liquid, depending on temperature.
Matter can be described and classified by its observable properties.

- Properties of matter (for example: color, texture, hardness, flexibility, state, etc) Ex: Texture of sand

Ecosystems: Interactions, Energy, and Dynamics

Habitats: The natural home or environment of an animal, plant, or other organism.
The characteristics of an environment (including physical characteristics, temperature, availability of resources, or the kinds and numbers of organisms present) influence the **diversity of organisms (Biodiversity)** that live there.
Organisms can survive only in environments where their basic needs are met. All organisms need **energy** to live and grow. This energy is obtained from food.

Biological Evolution: Unity and Diversity

Make observations to compare different types of living things in different **habitats**.

- Most organisms live in the shallow portion of the ocean because sunlight can penetrate the shallow parts of the ocean are drifters (jellyfish or seaweed), swimmers (fish), crawlers (crabs), and those anchored to the dock.
- Salt marshes include crabs, shrimp, birds (i.e. blue heron and egrets) etc.
- Maritime Forest: Have many trees (with needles or with leaves), shrubs, grasses, and a variety of animals.

Discuss and determine what plants need to grow. Plants have basic needs in order to be able to make food. Plants then use the food to produce the energy needed in order to grow and make new plants like itself.
Basic needs of a plant are:

- **Air**: to make their own food and grow.
- **Water**: to make their own food and grow.Too much water or too little water could cause the plant to die.
- **Sunlight:** to make their own food and grow.
- **Minerals**: help them grow and stay healthy; can be found in the soil or water; too many minerals or too few minerals could cause the plant to die.
- **Space**: The space above the ground allows the plant to get the light and air it needs.The space below the ground allows the plant to get the water and minerals it needs through its **roots**.
  If there are too many plants in a particular area, the plant may not get the materials it needs to grow

Plant parts introduced in 1st grade. Plants depend on animals for **pollination** or to move their seeds around. Pollen needs to be moved from one flower to another.

- **Animals help plants move pollen and seeds.** Many plants develop a fleshy **fruit** around their **seeds** to attract animals to eat them. The seeds are spit out nearby or can survive the animal's digestive tract.
- A few plants even get their seeds spread by making them stick to whomever walks by. They use hooks, barbs, spurs and burs. Ex: cockleburs, beggar's-ticks, or burdocks; many grasses, like foxtail barley and bur-grass, have hooked seeds.
- Wind and water also help plants move, **disperse** their seeds.

Earth's Place in the Universe

- some Earth events occur quickly (for example: the occurrence of flood, severe storm, erosion of soil..
- some events happen very slowly (for example: **erosion** of rocks, **weathering** of rocks, etc.)
- the relative amount of time it takes for the given Earth events to occur **(**for example: slowly, quickly, hours, days, years, etc.).

Earth's Systems

Wind and water cause many changes in the land, but there are things that can reduce the effects of these changes on the Earth.

Examples to discuss:

Different designs of dikes and windbreaks to hold back wind and water
Different designs for using shrubs, grass, and trees to hold back the land.

Using maps:

- Discuss shapes and kinds of land and bodies of water
- Patterns of water and land (for example: an area may have many small bodies of water; an area may have many types of land or different shapes, etc.)

Human Impacts on Earth Systems and Health

Encourage others to protect and improve the environment.
Discuss forms of litter and environmental impact.