

# MOVE TO LEARN GLOBAL SCHOOL

## GRADE 6 CURRICULUM - SCIENCE

### Unit 1 – Organisms and Ecosystems

#### **Inherited Traits: Concepts**

- All living things inherit traits from their parents through the process of heredity
- The smallest unit of heredity is the gene
- Asexual reproduction is a process that involves one parent, while sexual reproduction requires two
- Traits can be inherited or learned
- Most physical traits are inherited

#### **Chromosomes and DNA: Concepts**

- Genes are found in DNA
- A strand of DNA forms a chromosome
- Genes can be dominant and recessive

#### **Genetic Variation: Concepts**

- Scientists group organisms together based on their shared traits
- Genetic variation is caused by genes mutating or getting shuffled, or new genes being introduced into a population
- Genetic diversity is important in the survival of a species

#### **Artificial Selection: Concepts**

- A population's traits can be shaped by both natural and artificial means
- Selective breeding is when humans mate organisms for desirable traits
- Humans can manipulate genes through genetic modification

### Unit 2 – Climate and Weather

#### **What Causes Weather?: Concepts**

- Weather is controlled by the sun
- Wind is created when Earth absorbs solar energy.
- Convection currents are what we feel as wind
- The sun powers the water cycle

#### **Regional Climates: The Poles: Concepts**

- Earth's climate varies greatly between seasons and regions
- The sun shines at different angles because of the curvature of Earth
- Landscape and weather impact regional climates

## **Hurricanes: Concepts**

- A hurricane is a severe tropical storm that forms over warm waters
- Latitude, wind, ocean surface temperatures, and moisture are factors that determine where and when a hurricane forms
- Earth's rotation produces the Coriolis force, which creates the spin of a hurricane

## **Global Climate Change: Concepts**

- Climate change results in changes to Earth that could make it uninhabitable
- Earth goes through periods of ice ages and global warming
- Humans are causing the climate to change
- Too many greenhouse gases trap too much heat in our atmosphere, which can have dire consequences for the climate and habitat

## **Unit 3 – Plate Tectonics**

### **Our Changing Planet: Concepts**

- There are geological similarities among the continents
- Scientists developed the continental drift and seafloor spreading theories that helped explain how and why the continents move
- The theory of plate tectonics states that Earth's surface is divided into plates that are in constant motion

### **Our Planet's Interior: Concepts**

- Rocks from deep within Earth give scientists evidence of the composition of the planet's interior
- By measuring seismic waves, geologists were able to learn more about the structure of Earth's interior
- Earth is made up of layers of different types of rock
- Convection currents drive movement in the mantle and the outer core

### **Plate Tectonics: Concept**

- Crust is created, destroyed, or reformed along the boundaries of the tectonic plates
- When tectonic plates converge, the denser plate sinks below the less dense one in a process called subduction
- When two continental plates collide, neither plate can be subducted because they are equally buoyant
- When continents collide, they form mountain ranges that extend the length of the border between the continents

### **Future Earth: Concept**

- Earth's surface has changed a great deal over billions of years and will continue to change far into the future

- The boundaries between some tectonic plates are not always clear
- The African and Eurasian Plates are colliding, creating mountain systems in the Mediterranean region
- Scientists can predict how Earth might look in 50 million years, but can only guess about how it might look in 250 million years

## Unit 4 – Energy

### Potential & Kinetic Energy: Concepts

- Energy is the ability to do work
- There are many types of energy
- Kinetic energy is the energy of motion
- Kinetic energy can be passed from one object to another
- Potential energy is stored energy
- Energy can be changed from one form to another

### Thermal Energy: Concepts

- Thermal energy is energy produced by the movement and attractions of molecules within a substance
- Temperature is the measure of a substance's average thermal energy
- Heat and thermal energy are not the same thing
- Heat is the transfer of thermal energy from a warmer object to a cooler one
- Conduction transfers heat through physical contact, convection through the movement of a liquid or gas, and radiation through waves that move through matter or empty space

### Electrical Energy: Concepts

- Electrical energy is the energy produced by the movement of electrons between atoms
- Electricity exists as electric current or static electricity
- Electrical energy flows easily through conductors
- Electric current flows on a closed path called a circuit
- Electrical energy can be converted into other forms of energy

### Chemical Energy: Concepts

- Chemical energy is energy stored in the chemical bonds of molecules
- Chemical energy is a type of potential energy
- Chemical energy is released and converted into other forms of energy during a chemical reaction
- An exothermic reaction is a chemical reaction in which heat is generated