

## 6-8 Science

### Acids and Bases

**Lesson Objective:** The student will describe the characteristics of acids, bases, and salts.

**Subobjective 1:** The student will identify the characteristics of acids and bases.

**Subobjective 2:** The student will explain the pH scale.

**Subobjective 3:** The student will identify how salts are created from acid-base reactions.

### Alternative Energy/Nuclear Reactor

**Lesson Objective:** The student will describe how a nuclear reactor works.

**Subobjective 1:** The student will identify the fundamental processes of fission.

**Subobjective 2:** The student will identify the results of criticality, subcriticality, and supercriticality.

**Subobjective 3:** The students will identify the basic elements of a nuclear power plant.

### Animal Kingdom Introduction

**Lesson Objective:** The student will identify characteristics and examples of organisms in the Animal Kingdom.

**Subobjective 1:** The student will describe common characteristics of animals.

**Subobjective 2:** The student will identify the types of phyla.

### Animalia Kingdom Characteristics

**Lesson Objective:** The student will describe various characteristics of living organisms found in the Animalia Kingdom.

**Subobjective 1:** The student will describe several defining characteristics of organisms found within this classification.

**Subobjective 2:** The student will identify and describe two different groups (vertebrates and invertebrates) within this classification.

**Subobjective 3:** The student will describe the different types of symmetry found within organisms of this classification.

## **Biotic and Abiotic Factors in an Ecosystem**

**Lesson Objective:** The student will summarize how organisms adapt to biotic and abiotic factors in an ecosystem.

**Subobjective 1:** The student will compare and contrast ecosystems and biomes.

**Subobjective 2:** The student will identify characteristics of various ecosystems.

**Subobjective 3:** The student will identify and compare and contrast abiotic and biotic features of an ecosystem.

**Subobjective 4:** The student will identify adaptations that allow organisms to survive.

## **Cell Theory and History**

**Lesson Objective:** The student will list the three main parts of the Cell Theory.

**Subobjective 1:** The student will contrast scientific hypotheses, theories, and laws.

**Subobjective 2:** The student will sequence the major points in the development of the Cell Theory.

**Subobjective 3:** The student will describe how each scientist contributed to the development of the Cell Theory.

## **Characteristics of Platyhelminthes**

**Lesson Objective:** The student will describe characteristics of the Platyhelminthes Phylum.

**Subobjective 1:** The student will identify the three types of flatworms.

**Subobjective 2:** The student will identify distinguishing differences between the types of flatworms.

## **Chemical Reactions**

**Lesson Objective:** The student will describe the characteristics of chemical reactions.

**Subobjective 1:** The student will identify evidence of chemical reactions.

**Subobjective 2:** The student will explain chemical formulas.

**Subobjective 3:** The student will describe chemical reactions using balanced chemical formulas.

## **Cnidarian Phylum**

**Lesson Objective:** The student will identify various distinguishing characteristics of animals within the Cnidarian Phylum.

**Subobjective 1:** The student will list different animals within this classification.

**Subobjective 2:** The student will describe both forms of body types.

**Subobjective 3:** The student will locate and define various body structures.

**Subobjective 4:** The student will explain the purpose of various body structures.

## Convection Currents

**Lesson Objective:** The student will identify the way uneven heating of the Earth creates convection currents.

**Subobjective 1:** The student will discover how the Earth's atmosphere exerts pressure that decreases with distance above the Earth's surface.

**Subobjective 2:** The student will observe how convection currents create global and local wind patterns.

## Distinguishing Characteristics of Annelida Phylum

**Lesson Objective:** The student will describe the various characteristics and systems of animals within the Annelida Phylum.

**Subobjective 1:** The student will identify where these animals are found and why they can be found there.

**Subobjective 2:** The student will list different animals within this classification.

**Subobjective 3:** The student will describe the body structures common among animals within this classification.

**Subobjective 4:** The student will describe body systems and processes.

## Earth, Sun, and Moon

**Lesson Objective:** The student will identify, discuss, and demonstrate the effects of the relative positions of the Earth, Sun and Moon.

**Subobjective 1:** The student will demonstrate that the Earth's rotation on its axis causes the Sun to appear to rise in the East and set in the West.

**Subobjective 2:** The student will determine why the Earth has different seasons.

**Subobjective 3:** The student will explain why the Moon appears to change shapes.

## Earth Science

**Lesson Objective:** The student will explain what Earth Science is and why it is important.

**Subobjective 1:** The student will list the main fields of Earth Science.

**Subobjective 2:** The student will explain how Earth Science is important to his/her life.

## Ecosystem Energy Cycle

**Lesson Objective:** The student will identify how energy moves throughout an ecosystem.

**Subobjective 1:** The student will explain the eating habits of different heterotrophs.

**Subobjective 2:** The student will identify the sections of a food chain.

**Subobjective 3:** The student will examine different food webs for unique ecosystems.

## Energy and Rate of Chemical Reactions

**Lesson Objective:** The student will describe the factors of the rate of chemical reactions.

**Subobjective 1:** The student will explain the activation energy of endothermic and exothermic reactions.

**Subobjective 2:** The student will describe how surface area, concentration, and temperature affect the rate of chemical reactions.

**Subobjective 3:** The student will explain the effect of catalysts and inhibitors on the rates of chemical reactions.

## Evidence for Evolution

**Lesson Objective:** The student will summarize how organisms change over time.

**Subobjective 1:** The student will investigate the relationships of mutation, adaptation, natural selection, and extinction.

**Subobjective 2:** The student will investigate evidence of evolution of different species in the fossil record, vestigial structures, homologous structures, DNA similarities, and embryological similarities.

**Subobjective 3:** The student will investigate how environmental influences, as well as genetic variation, can lead to diversity of organisms.

## Formation of the Rocky Mountains

**Lesson Objective:** The student will summarize how the Rocky Mountains formed.

**Subobjective 1:** The student will evaluate how paleontology aids in the understanding of geological history, especially as it relates to the Rocky Mountains.

**Subobjective 2:** The student will describe orogenesis and its role in the formation of the Rocky Mountains.

**Subobjective 3:** The student will summarize the various geological processes over time that are responsible for the creation of the Rocky Mountains.

## Land Biomes

**Lesson Objective:** The student will identify each type of land biome and describe their characteristics.

**Subobjective 1:** The student will compare and contrast biomes and ecosystems.

**Subobjective 2:** The student will describe the average temperatures, precipitation, and plant and animal populations of each of the seven land biomes.

## Nematoda Phylum

**Lesson Objective:** The student will describe distinguishing characteristics of the Nematoda Phylum.

**Subobjective 1:** The student will name characteristics of all nematodes.

**Subobjective 2:** The student will identify types of nematodes.

**Subobjective 3:** The student will describe the life cycle of each type of nematode.

## Nuclear Reactions

**Lesson Objective:** The student will describe how nuclear reactions occur and the energy they produce.

**Subobjective 1:** The student will describe the role of the atom in a nuclear reaction.

**Subobjective 2:** The student will explain nuclear energy.

**Subobjective 3:** The student will compare and contrast fission and fusion.

## Organisms in Ecosystems

**Lesson Objective:** The student will summarize how organisms within an ecosystem are dependent upon one another and on non-living components of the environment.

## Porifera Phylum

**Lesson Objective:** The student will identify the characteristics of the Porifera Phylum.

**Subobjective 1:** The student will describe how a sponge feeds.

**Subobjective 2:** The student will describe how a sponge reproduces.

**Subobjective 3:** The student will label the anatomy of a sponge.

## Plant Organs

**Lesson Objective:** The student will compare and contrast the plant and animal organ systems.

**Subobjective 1:** The student will explain the functions of the four organs in a plant.

**Subobjective 2:** The student will compare different organisms' system functions for maintaining homeostasis.

## Properties of Water

**Lesson Objective:** The student will describe the unique properties of water and give examples.

**Subobjective 1:** The student will explain how the polarity of water directly affects water's surface tension and capillary action.

**Subobjective 2:** The student will compare and contrast the three main states of water.

**Subobjective 3:** The student will describe the use of water's high surface tension and specific heat.

## **Taste and Smell**

**Lesson Objective:** The student will summarize the function of the nose and tongue in smelling and tasting and how they work within the human body.

**Subobjective 1:** The student will identify the main parts of the nose and tongue.

**Subobjective 2:** The student will describe the functions of the main parts of the nose and tongue.

## **The History of Science**

**Lesson Objective:** The student will identify and discuss the history of science.

**Subobjective 1:** The student will identify and discuss important scientific discoveries.

**Subobjective 2:** The student will identify and discuss important people in science throughout history.

## **The Senses**

**Lesson Objective:** The student will identify the five senses.

**Subobjective 1:** The student will analyze how the eyes and ears work.

**Subobjective 2:** The student will discover how smell and taste work together.

**Subobjective 3:** The student will discover how different kinds of touch receptors help the sense of touch.

## **Types of Energy**

**Lesson Objective:** The student will identify the different forms of energy.

**Subobjective 1:** The student will explain how energy changes from one form to another.

**Subobjective 2:** The student will show energy transformation using a demonstration.

## **Vocabulary for Understanding Animal Behaviors**

**Lesson Objective:** The student will define key vocabulary needed to understand various animal behaviors.

## **Water Biomes**

**Lesson Objective:** The student will describe each of the water biomes.

**Subobjective 1:** The student will identify each water biome.