Pearson

Science 5

Semester A Summary:

This course is designed to give the student a strong basis for understanding the world. The course consists of a varied curriculum that provides the student the opportunity to explore, compare, research, reflect, and make real-world connections. The curriculum engages students in problem-solving and scientific investigation and provides opportunities for both hands-on exploration and virtual simulation.

During this course, the student will learn about the solar system; the Earth, Sun, and stars; gravity; the properties of matter; and more.

Semester A Outline

1. **Course Overview**
    1. Science 5 A Course Overview
2. **The Solar System**
    1. The Solar System Introduction
    2. Objects in the Solar System
        - In this section, you will identify the objects in the solar system.
    3. Properties of Objects in Solar System
        - In this section, you will compare the properties of the objects in the solar system.
    4. Motion of Objects in Solar System
        - In this section, you will analyze the properties and motion of objects in the solar system.
        - In this section, you will make a model to demonstrate distances in space
    5. Size of Objects in Solar System
        - In this section, you will compare the sizes of the objects in the solar system.
    6. The Solar System Apply
        - In this section, you will develop a model of the objects in the solar system, their characteristics, and their relative sizes.
    7. The Solar System Review
    8. The Solar System Unit Test
3. **Earth, Sun, and Stars**
    1. Earth, Sun, and Stars Introduction
    2. The Sun and Other Stars
        - In this section, you will describe the sun and other stars as natural bodies that give off their own light.
    3. Brightness of Stars
        - In this section, you will relate the brightness of the sun and stars to their distance from Earth.

4. Brightness and Distance
    - In this section, you will relate the brightness of the sun and stars to their distance from Earth.
5. Patterns of Change Portfolio: Shadows
    - In this section, you will graph the daily changes of shadows that are caused by Earth's rotation and orbit around the sun.
6. Patterns of Change Portfolio: Analyze
    - In this section, you will analyze how shadows change throughout a day as Earth rotates on its axis.
7. Patterns of Change Portfolio: Daylight
    - In this section, you will analyze how shadows change throughout a day as Earth rotates on its axis.
8. Patterns of Change Portfolio: Patterns
    - In this section, you will analyze graphs that show how the length of daylight changes throughout the year.
9. Visibility of Stars
    - In this section, you will describe how some stars and groups of stars differ as to the time of year they appear in the sky.
10. Earth, Sun, and Stars Apply
11. Earth Sun and Stars Review
12. Earth, Sun, and Stars Unit Test

4. Earth's Systems and Water Resources

1. Systems and Water Resources Introduction
    - In this section, you will further examine the four systems of the earth. You will also have the opportunity to model interactions between Earth's systems. You will also learn about the distribution of water on the earth, and you will have the opportunity to graph and interpret graphs describing the amount of water in different reservoirs on Earth.
2. Earth's Major Systems
    - In this section, you will define and identify the parts of Earth's major systems: the geosphere, the hydrosphere, the atmosphere, and the biosphere.
3. Interaction of Earth's Systems
    - In this section, you will use a model to identify and describe how the parts of two Earth systems interact.
4. Saltwater and Freshwater
    - In this section, you will graph data about the amounts of freshwater and saltwater found on Earth.
5. Water on Earth
    - In this section, you will use graphs to describe where saltwater and freshwater are found on Earth.
6. Systems and Water Resources Apply
7. System and Water Resources Review
8. System and Water Resources Unit Test

5. Gravity

1. Gravity Introduction
    - In this section, you will examine how the force of gravity acts on objects at Earth's surface, and how Earth's size and shape affect gravity. You will also use data to analyze how mass and distance affect the force of gravity.
2. Gravitational Force
    - In this section, you will recognize that Earth's gravity is directed down toward

the center of Earth.

3. Evidence of Gravitational Force
    - In this section, you will identify evidence that shows that Earth's gravitational force is directed downward toward the center of Earth.
4. Falling Objects
    - In this section, you will identify evidence to support the claim that falling objects appear to fall straight down.
5. Moving Objects
    - In this section, you will explain that a falling object moves downward because a force is pulling it down toward Earth's center.
6. Mass and Distance
    - In this section, you will explain how the relationship between mass and distance affects gravity.
7. Collisions and Friction
    - In this section, you will review what you have learned about what will happen when an object collides with another object.
    - In this section, you will explain how friction can affect the motion of objects.
8. Gravity Apply
9. Gravity Review
10. Gravity Unit Test

6. Properties of Matter

1. Properties of Matter Introduction
    - In this unit, you will study physical properties of not only rocks but also liquids such as water and gases such as air. You will learn how to tell them apart. You will use Mohs' scale of hardness, named after the scientist who created it. It can be used to rate the hardness of a substance. You will see that diamond is the hardest substance on Earth!
2. Solids, Liquids, and Gases
    - In this section, you will explain how matter is organized into solids, liquids, and gases.
3. Matter Composition
    - In this section, you will model how tiny particles make up matter.
4. Modeling Matter
    - In this section, you will identify the parts of matter that cause the characteristics of matter.
5. Color, Hardness, and Reflectivity
    - In this section, you will describe properties of matter and identify materials based on these properties.
6. Thermal and Electrical Conductivity
    - In this section, you will explain thermal and electrical conductivity.
    - In this section, you will differentiate between a good conductor or good insulator for materials
7. Static Electricity
    - In this section, you will identify examples of static electricity in daily life.
    - In this section, you will relate static electricity and lightning.
    - In this section, you will describe the effects of static electricity.
8. Freezing and Boiling
    - In this section, you will compare the properties of freezing point and boiling point.
    - In this section, you will describe the properties of freezing point and boiling

point.
9. Solubility
    - In this section, you will identify the solute and solvent in a solution.
10. Matter Portfolio: Plan
    - In this section, you will identify materials based on their properties.
11. Matter Portfolio: Investigate
    - In this section, you will identify materials based on their properties.
12. Matter Portfolio: Conclude
    - In this section, you will analyze data from an investigation about the properties of certain materials.
13. Properties of Matter Review
14. Properties of Matter Unit Test

Semester B Summary:

This course is designed to give the student a strong basis for understanding the world. The course consists of a varied curriculum that provides the student the opportunity to explore, compare, research, reflect, and make real-world connections. The curriculum, which meets Next Generation Science Standards (NGSS), engages students in problem-solving and scientific investigation and provides opportunities for both hands-on exploration and virtual simulation.

During this course, the student will learn about physical and chemical changes in matter, the ecosystem, plant growth and photosynthesis, food webs, conservation, among other things.

Semester B Outline

1. **Course Overview**
    1. Science 5 B Course Overview
2. **Changes in Matter**
    1. Changes in Matter Introduction
    2. Physical and Chemical Change
        - In this section, you will compare physical change and chemical change.
    3. Conserving Mass
        - In this section, you will confirm that the total weight of substances undergoing a physical or chemical change remains the same.
    4. Heating, Cooling, and Mixing
        - In this section, you will explain why the mass of a substance does not change after heating, cooling, or mixing with other substances.
        - In this section, you will explain why the weight of a substance does not change after heating, cooling, or mixing with other substances.
    5. Graphing Measurements
        - In this section, you will graph changes in the total mass of starting and ending substances due to heating, cooling, or mixing.
        - In this section, you will create a graph that supports the Law of Conservation of Mass.
    6. Mixing Substances Portfolio: Plan
        - In this section, you will determine whether the mixing of substances results in new substances being formed.
    7. Mixing Substances Portfolio: Investigate
        - In this section, you will determine whether the mixing of substances results in

new substances being formed.

8. Mixing Substances Portfolio: Conclude
    - In this section you will construct an explanation with evidence about whether mixing of two or more substances resulted in new substances.
9. Changes in Matter Apply
    - In this section, you will explain why a substance weighed less after being mixed with acid than it did before being mixed.
10. Changes in Matter Review
11. Changes in Matter Unit Test

3. Ecosystems

1. Ecosystems Introduction
2. Living and Nonliving Components
    - In this section, you will identify the living and nonliving parts of an ecosystem.
3. Terrestrial Ecosystems
    - In this section you will identify and describe the biotic and abiotic factors of different terrestrial ecosystems.
4. Aquatic Ecosystems
    - In this section, you will describe the living and nonliving parts of different aquatic ecosystems.
5. Comparing Factors in Ecosystems
    - In this section, you will compare the living and nonliving parts of several ecosystems.
6. Ecosystems Apply
    - In this section, you will design a terrarium for a pet frog using what you've learned about the biotic and abiotic components needed for life.
7. Ecosystems Review
8. Ecosystems Unit Test

4. Transfer of Energy

1. Transfer of Energy Introduction
2. Plant Growth
    - In this section, you will explain why plants do not get most of the materials they need to grow from the soil.
3. Photosynthesis
    - In this section, you will interpret models to explain that plants cannot grow without water or air.
4. Plant Matter
    - In this section, you will give evidence to show that plant matter comes mostly from air and water, not from soil.
5. Animals and Food
    - In this section, you will describe how food gives animals the energy they need for their life functions.
6. Food Chains
    - In this section, you will describe how the sun's energy moves from plants to animals when plants make food and then animals eat the plants.
7. Energy Flow
    - In this section, you will make a model to show how energy moves from the sun to plants and then to animals.
8. Sound and Light Energy
    - In this section, you will explain how sound energy works.
    - In this lesson, you will explore how electrical energy can be transformed into

radiant energy.
    - In this section, you will build a simple motor that solves a problem.
9. Transfer of Energy Apply
10. Transfer of Energy Review
11. Transfer of Energy Unit Test

5. Food Webs and Cycles

1. Food Webs and Cycles Intro
2. Producers
    - In this section, you will identify the role of producers in an ecosystem.
3. Consumers
    - In this section, you will classify consumers as carnivores, herbivores, or omnivores.
4. Decomposers
    - In this section, you will identify the role of decomposers in an ecosystem.
5. Organisms in Food Chains
    - In this section, you will describe how the organisms in a food chain help each other meet their needs.
6. Food Chains and Food Webs
    - In this section, you will describe how organisms in food chains and food webs are related.
7. New Species in an Ecosystem
    - In this section, you will model how newly introduced species can affect the balance within an ecosystem.
    - In this section, you will explain how newly introduced species can affect the balance within an ecosystem.
8. The Water Cycle
    - In this section, you will describe the parts of the water cycle.
    - In this section, you will describe a model of the water cycle.
9. The Carbon Cycle
    - In this section, you will describe the parts of the carbon cycle and identify the roles of plants, animals, and decomposers in the cycle.
    - In this section, you will describe the parts of the carbon cycle and the roles of plants and animals in the cycle.
10. The Nitrogen Cycle
    - In this section, you will describe the parts of the nitrogen cycle and identify the roles of plants, animals, and decomposers in the cycle.
    - In this section, you will describe the parts of the nitrogen cycle and the roles of plants and animals in the cycle.
11. Food Webs and Cycles Apply
    - In this section, you will predict how a food web would change if a nonnative species was added to an ecosystem.
12. Food Webs and Cycles Review
13. Food Webs and Cycles Unit Test

6. Conserving Earth's Resources

1. Conserving Earth's Resources Introduction
2. Renewable and Nonrenewable Resources
    - In this section, you will define natural resources and classify them as renewable or nonrenewable.
3. Earth's Resources Portfolio: Research
    - In this section, you will gather information to show how a human activity

affects Earth's environment.

4. Earth's Resources Portfolio: Combine
    - In this section, you will obtain and combine information to research different ways individual communities apply scientific ideas to design solutions that protect Earth's resources and environment.
5. Resources Portfolio: Communicate
    - In this section, you will be using research to explain a human activity and its effects on Earth's resources and environment, and ways to protect Earth's resources.
6. Conserving Earth's Resources Apply
7. Conserving Earth's Resources Review
8. Conserving Earth's Resources Unit Test